April 6, 2007

State of Colorado
Office of the State Engineer
1313 Sherman Street, Room 818
Denver, Colorado 80203

Subject: Well Construction and Test Reports
         Well Permit #46819-MH

Greetings:

The S.M. Stoller Corporation herewith submits the Well Construction and Test Report forms as required by Well Permit #46819-MH. Also attached are copies of Stoller's lithology logs and well completion diagrams for each of the seven installations.

If you have any questions or need additional information, please contact me at 303-546-4321.

Sincerely,

Ralph Rupp
Geologist
S.M. Stoller Corporation

cc Mr. Linn Havelick, CSM
Attachments: (1) Notice of Intent to Construct Monitoring Holes
             (7) Well Construction and Test Reports
             (7) Lithology Logs
             (7) Well Completion Diagrams
NOTICE OF INTENT TO CONSTRUCT MONITORING HOLE(S)

Please type or print legibly in black or blue ink

Colorado Division of Water Resources 1313 Sherman St-Room 821 Denver CO 80203
Phone 303-866-3581 Fax 303-866-3589

AUTHORIZED INDIVIDUAL OR DRILLER

Contact: Ralph Rupp - Geologist
Company: The S.M. Stoller Corporation
Address: 105 Technology Drive, Suite 190
City, State, Zip: Broomfield, CO 80021
Phone: 303-542-4300 Fax No: 303-443-1408
Driller Lic. No. (if applicable): 1350

Well Owner (Client) Information

Name: Colorado School of Mines
Address: Mr. Linn Havelick
        President & CEO, Water Resources
        1015 14th Street
        Golden, CO 80401
        303-273-3998

ACKNOWLEDGEMENT FROM STATE ENGINEER'S OFFICE

MH-146819
DIV: 1 WD: Y BAS: MD

CONDITIONS OF MONITORING HOLE ACKNOWLEDGEMENT

A COPY OF THE WRITTEN NOTICE OR ACKNOWLEDGEMENT SHALL BE AVAILABLE AT THE DRILLING SITE.

Notice was provided to the State Engineer at least 3 days prior to construction of monitoring & observation hole(s). Construction of the hole(s) must be completed within 90 days of the date notice was given to the State Engineer. Testing and/or pumping shall not exceed a total of 200 hours unless prior written approval is obtained from the State Engineer. Water diverted during testing shall not be used for beneficial purposes. The owner of the hole(s) is responsible for obtaining permit(s) and complying with all rules and regulations pertaining to the discharge of fluids produced during testing.

All work must comply with the Water Well Construction Rules, 2 CCR 402-2. Minimum construction standards must be met or a variance obtained. Standard permit application and work report forms are found on the DWR website at http://www.water.state.co.us.

Well Construction and Test Reports (GWS-31) must be completed for each hole drilled. The licensed contractor or authorized individual must submit the completed forms to this office within 60 days of drilling.

Unless a well permit is obtained, the hole(s) must be plugged and sealed within one (1) year after construction.

An Abandonment Report (form GWS-9) must be submitted for each hole plugged within 60 days of plugging & sealing. The monitoring hole acknowledgement number, owner's structure name, and hole owner's name and address must be provided on all well permit application(s), well construction and abandonment reports.

The owner of the hole(s) should maintain records of water quality testing and submit this data to the State Engineer upon request. A monitoring hole cannot be converted to a production water well, except for purposes of remediation (recovery) or as a permanent dewatering system. If constructed in accordance with the Water Well Construction Rules and policies of the State Engineer.

THIS ACKNOWLEDGEMENT OF NOTICE DOES NOT INDICATE THAT WELL PERMIT(S) CAN BE APPROVED.

IF HOLES WILL NOT BE CONSTRUCTED UNDER THIS NOTICE WITHIN 90 DAYS, PLEASE WRITE, "NO HOLES CONSTRUCTED" ON A COPY OF THE ACKNOWLEDGED NOTICE WITH THE FILE NUMBER AND FAX THE COPY TO THE DIVISION OF WATER RESOURCES.

Additional Conditions

Authorized Signature: Ralph Rupp

01/03/2007 14:22 FAX
001
100
JAN 03 2007
1. WELL PERMIT NUMBER: #46819-MH

2. WELL OWNER INFORMATION
   NAME OF WELL OWNER: Colorado School of Mines, Mr. Linn Havelick
   MAILING ADDRESS: 1015 14th Street
   CITY: Golden   STATE: CO   ZIP CODE: 80401
   TELEPHONE NUMBER: (303) 273-3998

3. WELL LOCATION AS DRILLED: NW1/4, NE1/4, Sec. 33, Twp. 3  N or S, Range 70  E or W
   DISTANCES FROM SEC. LINES: 558 ft. from N or S section line and 2,514 ft. from E or W section line.
   SUBDIVISION: ____ Lot ___, BLOCK ___, FILING (UNIT) ___.
   Optional GPS Location: GPS Unit must use the following settings: Format must be UTM, Units must be meters, Datum must be NAD83, Unit must be set to true N, Zone 12 or Zone 13
   Owner's Well Designation: CSMR11B
   Easting: 480320.1
   Northing: 4400354.1
   STREET ADDRESS AT WELL LOCATION: 500 ft NW of Birch and 12th St, Golden

4. GROUND SURFACE ELEVATION 5,709.02 feet
   DATE COMPLETED: 02/15/07
   TOTAL DEPTH 21.5 feet
   DRILLING METHOD: Resonant Sonic Casing Advance

5. GEOLOGIC LOG:
<table>
<thead>
<tr>
<th>Depth</th>
<th>Type</th>
<th>Grain Size</th>
<th>Color</th>
<th>Water Loc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0' - 1'</td>
<td>Silt, clayey</td>
<td>vg</td>
<td>yellow brn</td>
<td>moist</td>
</tr>
<tr>
<td>1' - 3'</td>
<td>Sand</td>
<td>fine</td>
<td>yellow brn</td>
<td>dry</td>
</tr>
<tr>
<td>3' - 7'</td>
<td>Sand, silty</td>
<td>fine</td>
<td>yellow brn</td>
<td>dry</td>
</tr>
<tr>
<td>7' - 8'</td>
<td>Sand, cobby</td>
<td>fine</td>
<td>yellow red</td>
<td>dry</td>
</tr>
<tr>
<td>8' - 13'</td>
<td>Sand, gravel</td>
<td>medium</td>
<td>light gray</td>
<td>dry</td>
</tr>
<tr>
<td>13' - 16.5'</td>
<td>Sand pebbly</td>
<td>med - cse</td>
<td>dk gray</td>
<td>moist</td>
</tr>
<tr>
<td>16.5-21.5</td>
<td>Pierre Shale</td>
<td>vg</td>
<td>black</td>
<td>dry</td>
</tr>
</tbody>
</table>

6. HOLE DIAM (in.)  | From (ft) | To (ft) |
   6-inch             | 0         | 21.5    |

7. PLAIN CASING:
   OD (in) | Kind | Wall Size (in) | From (ft) | To (ft) |
   2.375   | 40 PVC | 0.154 | +3.12 | 11.25 |

8. FILTER PACK:

9. PACKER PLACEMENT:
   Material | Type
   CSS      | Type
   Size     | 10/20
   Interval | 10 - 21.5

10. GROUTING RECORD:
   Material | Amount | Density | Interval | Placement |
   Bentonite 3.3 bag | 15 gal | 0' - 10' | positive |

11. DISINFECTION: Type N/A
   Amt. Used N/A

12. WELL TEST DATA: ☐ Check box if Test Data is submitted on Form Number GWS 39 Supplemental Well Test.
   TESTING METHOD: No testing performed
   Static Level ft. | Date/Time measured: | Production Rate gpm.
   Pumping Level ft. | Date/Time measured: | Test Length (hrs).

   Remarks:

13. I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402-2. [The filing of a document that contains false statements is a violation of section 37-91/108(1)(e), C.R.S., and is punishable by fines up to $5000 and/or revocation of the contracting license.]
   Company Name: S.M. Stoller Corporation
   Phone: (303)546-4300
   License Number: #1350 Prosonic Corp
   Mailing Address: 105 Technology Drive, Suite 190 Broomfield, Co 80021
   Signature: ____________________________
   Print Name and Title: Ralph Rupp - Geologist
   Date: 4/5/2007
# CSMRI-1B

<table>
<thead>
<tr>
<th>Completion</th>
<th>Depth (Ft.)</th>
<th>Lithology</th>
<th>USCS</th>
<th>Description</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>0' - 1'</td>
<td>ML</td>
<td>Silt, clayey, some pebbles, dark yellowish brown (10YR 4/4), moist</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1' - 3'</td>
<td>SP</td>
<td>Sand, fine grain, few pebbles, dark yellowish brown (10YR 4/4), dry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3' - 7'</td>
<td>SM</td>
<td>Sand, silty, light yellowish brown (10YR 6/4), dry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7' - 8'</td>
<td>SP</td>
<td>Sand, fine grain, some cobbles, yellowish red (5YR 4/6), dry</td>
<td></td>
<td>15,600</td>
<td></td>
</tr>
<tr>
<td>8' - 13'</td>
<td>SW</td>
<td>Sand, gravelly, alluvial material, light gray (5YR 7/1), loose, dry</td>
<td></td>
<td>16,800</td>
<td></td>
</tr>
<tr>
<td>13' - 16.5'</td>
<td>SW</td>
<td>Sand, medium to coarse grain, some pebbles and gravel, dark gray (5YR 4/1), loose, damp, becoming moist from 15 ft to 16.5 ft</td>
<td></td>
<td>17,500</td>
<td></td>
</tr>
<tr>
<td>16.5' - 21.5'</td>
<td>SH</td>
<td>Pierre Shale, black (2.5YR 2.5/0), dry</td>
<td></td>
<td>16,700</td>
<td></td>
</tr>
<tr>
<td>Total Depth of Borehole</td>
<td>21.5 feet bgs</td>
<td>No Water Encountered</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Depth of Well 21.5 feet bgs
- 2" Sch. 40 PVC Blank Casing +3.12' ags to 11.25' bgs
- 2" Sch. 40 PVC 0.020" Slot Screen 11.25' to 21.25' bgs
- 2" Sch. 40 PVC End Cap 21.25' to 21.5' bgs
- 10/20 Colorado Silica Sand 10' to 21.5' bgs
- Hydrated Bentonite Surface Seal 0' to 10' bgs
- 3'x3'x4' Concrete Surface Pad with 6" Steel Protective Casing and Locking Cover to +3.81' ags

S.M. STOLLER CORPORATION
Well Installation Diagram

Project: CSMRI #4060-720
Location: CSM, Golden, Colorado 80401
Contractor: S.M. Stoller Corporation
Driller: B. Owens, Prosonic Corp, Lic # 1350
Well Coordinates: N 4400.3541 m  E 480.2321 m
TOC Elevation: 1,741.08 m (5,712.14 ft)
Surface Elevation: 1,740.11 m (5,703.02 ft)

Well No: CSMRI-1B
Well Type: GW Monitoring Well
Date Constructed: 02/15/07
Observed By: N. Malczyn
Sheet 1 of 1

Protective Casing
Material: Steel
Diameter: 6-inch square - No Bollards

Surface Pad
Composition & Size: Concrete, 3' x 3' x 4"

Surface Seal
Composition & Thickness: Bentonite, 10 ft

Riser Pipe
Type: Schedule 40 PVC
Diameter: 2-inch ID

Grout
Composition: Bentonite

Filter Pack Seal
Type: Bentonite

Filter Pack
Type: Gravel Envelope
Source: Colorado Silica Sand
Grading: 10/20

Screen
Type: Schedule 40 PVC
Diameter: 2-inch ID
Slot Size: 0.020 inch

Sump
Type: None
Bottom Cap: Yes

Sand Pack

Dimensions:
Surface: 10 ft
11.25 ft

Well TD: 21.25 ft
21.5 ft

Bore TD: 21.5 ft

6-inch Dia
**WELL CONSTRUCTION AND TEST REPORT**

**STATE OF COLORADO, OFFICE OF THE STATE ENGINEER**
1313 Sherman St., Room 618, Denver, CO 80203
Phone - Info (303) 866-3587  Main (303) 866-3581
Fax (303) 866-3589  http://www.water.state.co.us

**1. WELL PERMIT NUMBER:** #46819-MH

**2. WELL OWNER INFORMATION**

**NAME OF WELL OWNER:** Colorado School of Mines, Mr. Linn Havelick

**MAILING ADDRESS:** 1015 14th Street

**CITY:** Golden  **STATE:** CO  **ZIP CODE:** 80401

**TELEPHONE NUMBER:** (303) 273-3998

**3. WELL LOCATION AS DRILLED:** NW1/4, NE1/4, Sec. 33, Twp. 3  **N or S**, Range 70  **E or W**

**DISTANCES FROM SEC. LINES:** 728 ft. from  **N or S** section line and 2,330 ft. from  **E or W** section line.

**SUBDIVISION:** __________  **LOT** ______  **BLOCK** ______  **FILING (UNIT)** ______

**Optional GPS Location:** GPS Unit must use the following settings: **Format must be UTM, Units must be meters, Datum must be NAD83, Unit must be set to true N**

**Owner's Well Designation:** CSMR16B

**Easting:** 480289.1

**STREET ADDRESS AT WELL LOCATION:** 500 ft NW of Birch and 12th St, Golden

**Northing:** 4400301.1

**4. GROUND SURFACE ELEVATION:** 5,722.24 feet

**DATE COMPLETED:** 02/16/07  **TOTAL DEPTH:** 40 feet  **DRILLING METHOD:** Resonant Sonic Casing Advance

**5. GEOLOGIC LOG:**

<table>
<thead>
<tr>
<th>Depth</th>
<th>Type</th>
<th>Grain Size</th>
<th>Color</th>
<th>Water Loc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0’ - 2’</td>
<td>Clay, silty</td>
<td>vfg</td>
<td>yellow brn</td>
<td>moist</td>
</tr>
<tr>
<td>2’ - 4’</td>
<td>Clay, silty</td>
<td>vfg</td>
<td>yellow brn</td>
<td>moist</td>
</tr>
<tr>
<td>8’ - 11’</td>
<td>Clay</td>
<td>vfg</td>
<td>yellow brn</td>
<td>saturated</td>
</tr>
<tr>
<td>11’ - 13’</td>
<td>Clay, silty</td>
<td>vfg</td>
<td>gray red</td>
<td>moist</td>
</tr>
<tr>
<td>13’ - 23’</td>
<td>Sand</td>
<td>fine</td>
<td>red brn</td>
<td>dry</td>
</tr>
<tr>
<td>23’ - 32’</td>
<td>Sand, cobbly</td>
<td>fine - med</td>
<td>pink gray</td>
<td>dry</td>
</tr>
<tr>
<td>32’ - 40’</td>
<td>Pierre Shale</td>
<td>vfg</td>
<td>black</td>
<td>dry</td>
</tr>
</tbody>
</table>

**Remarks:** Vadose water 8’ - 11’ bgs

**6. HOLE DIAM (in.)**

<table>
<thead>
<tr>
<th>From (ft)</th>
<th>To (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>40</td>
</tr>
</tbody>
</table>

**7. PLAIN CASING:**

<table>
<thead>
<tr>
<th>OD (in)</th>
<th>Kind</th>
<th>Wall Size (in)</th>
<th>From (ft)</th>
<th>To (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.375</td>
<td>40 PVC</td>
<td>0.154</td>
<td>+3.22</td>
<td>4.75</td>
</tr>
</tbody>
</table>

**PERFORATED CASING:** Screen Slot Size (in): 0.020

| 2.375    | 40 PVC | 0.154          | 4.75      | 35      |

**8. FILTER PACK:**

<table>
<thead>
<tr>
<th>Material</th>
<th>CSS</th>
<th>Type</th>
</tr>
</thead>
</table>

**9. PACKER PLACEMENT:**

<table>
<thead>
<tr>
<th>Size</th>
<th>Interval 4’ - 40’</th>
<th>Depth</th>
</tr>
</thead>
</table>

**10. GROUTING RECORD:**

<table>
<thead>
<tr>
<th>Material</th>
<th>Amount</th>
<th>Density</th>
<th>Interval</th>
<th>Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bentonite</td>
<td>1 bag</td>
<td>5 gal</td>
<td>0’ - 4’</td>
<td>positive</td>
</tr>
</tbody>
</table>

**11. DISINFECTION:** Type N/A  **Amt. Used N/A**

**12. WELL TEST DATA:** ☐ Check box if Test Data is submitted on Form Number GWS 39 Supplemental Well Test.

**TESTING METHOD:** No testing performed

<table>
<thead>
<tr>
<th>Static Level</th>
<th>Date/Time measured</th>
<th>Production Rate</th>
<th>Pumping Level</th>
<th>Date/Time measured</th>
<th>Test Length (hrs)</th>
</tr>
</thead>
</table>

**Remarks:**

I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402-2. [The filing of a document that contains false statements is a violation of section 37-91-108(1)(e), C.R.S., and is punishable by fines up to $5000 and/or revocation of the contracting license.]

**Company Name:** S.M. Stoller Corporation  **Phone:** (303) 546-4300  **License Number:** #1350 Prosonic Corp

**Mailing Address:** 105 Technology Drive, Suite 190  **Brookfield, Co 80021**

**Signature:**  **Print Name and Title:** Ralph Rupp - Geologist  **Date:** 4/5/2007
<table>
<thead>
<tr>
<th>Completion Depth (ft)</th>
<th>Lithology USCS</th>
<th>Description</th>
<th>Sample GAMMA (CPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0' - 2'</td>
<td>CL/ML</td>
<td>0' - 2' Clay, silty, dark yellowish brown (10YR 4/2), moist</td>
<td>13,200</td>
</tr>
<tr>
<td>2' - 8'</td>
<td>CL/ML</td>
<td>2' - 8' Clay, silty, some pebbles, dark yellowish brown (10YR 4/2), moist</td>
<td>13,300</td>
</tr>
<tr>
<td>8' - 11'</td>
<td>CL/ML</td>
<td>8' - 11' Clay, dark yellowish brown (10YR 4/2), hard, saturated</td>
<td>12,400</td>
</tr>
<tr>
<td>11' - 13'</td>
<td>CL/ML</td>
<td>11' - 13' Clay, silty, grayish red (10R 4/2), soft, moist</td>
<td>14,200</td>
</tr>
<tr>
<td>13' - 23'</td>
<td>SP</td>
<td>13' - 23' Sand, dark reddish brown (10R 3/4), fine grain, loose, dry</td>
<td>16,400</td>
</tr>
<tr>
<td>23' - 32'</td>
<td>SP</td>
<td>23' - 32' Sand, some cobbles, pinkish gray (5YR 8/1), fine grain, little medium grain</td>
<td>15,700</td>
</tr>
<tr>
<td>32' - 40'</td>
<td>SH</td>
<td>32' - 40' Pierre Shale, black (2.5YR 2.5/0), dry</td>
<td>13,700</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Depth of Borehole 40 feet bgs</td>
<td>13,600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vadose Water 8' - 11' bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Depth of Well 35 feet bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2&quot; Sch. 40 PVC Blank Casing +3.22' ags to 4.75' bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2&quot; Sch. 40 PVC 0.020&quot; Slot Screen 4.75' to 34.75' bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2&quot; Sch. 40 PVC End Cap 34.75' to 35' bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10/20 Colorado Silica Sand 4' to 40' bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hydrated Bentonite Surface Seal 0' to 4' bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3'x3'x4' Concrete Surface Pad with 6&quot; Steel Protective Casing and Locking Cover to +3.88' ags</td>
<td></td>
</tr>
</tbody>
</table>
1. WELL PERMIT NUMBER: #46819-MH

2. WELL OWNER INFORMATION
   NAME OF WELL OWNER: Colorado School of Mines, Mr. Linn Havelick
   MAILING ADDRESS: 1015 14th Street
   CITY: Golden   STATE: CO   ZIP CODE: 80401
   TELEPHONE NUMBER: (303) 273-3998

3. WELL LOCATION AS DRILLED: NW1/4, NE1/4, Sec. 33, Twp. 3
   DISTANCES FROM SEC. LINES: 413 ft. from N or S section line and 2,353 ft. from E or W section line.
   SUBDIVISION: ___________ LOT ___________ BLOCK ___________ FILING (UNIT) ___________
   Optional GPS Location: GPS Unit must use the following settings: Format must be UTM, Units must be meters, Datum must be NAD83, Unit must be set to true N, Zone 12 or Zone 13
   Owner's Well Designation: CSMR17B
   Easting: 480281.0
   Northing: 4400397.6
   STREET ADDRESS AT WELL LOCATION: 500 ft NW of Birch and 12th St, Golden

4. GROUND SURFACE ELEVATION 5,700.07 feet
   DATE COMPLETED 02/10/07
   TOTAL DEPTH 20 feet
   DRILLING METHOD Resonant Sonic Casing Advance
   DEPTH COMPLETED 14.25 feet

5. GEOLOGIC LOG:

<table>
<thead>
<tr>
<th>Depth</th>
<th>Type</th>
<th>Grain Size</th>
<th>Color</th>
<th>Water Loc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10.5</td>
<td>Sand, clayey</td>
<td>fn-v cse</td>
<td>mod brn</td>
<td>damp</td>
</tr>
<tr>
<td>10.5-12.3</td>
<td>Clay, sandy</td>
<td>fine</td>
<td>light gray</td>
<td>moist</td>
</tr>
<tr>
<td>12.3-14.3</td>
<td>Clay</td>
<td>vfg</td>
<td>light gray</td>
<td>dry</td>
</tr>
<tr>
<td>14-20</td>
<td>Pierre Shale</td>
<td>vfg</td>
<td>light gray</td>
<td>dry</td>
</tr>
</tbody>
</table>

6. HOLE DIAM (in.)
   From (ft) | To (ft)
   6-inch | 0 | 20

7. PLAIN CASING:
   OD (in) | Kind | Wall Size (in) | From (ft) | To (ft)
   2.375 | 40 PVC | 0.154 | +3.01 | 9.0
   2.375 | 40 PVC | 0.154 | 9.0 | 14.25

   PERFORATED CASING: Screen Slot Size (in): 0.020
   2.375 | 40 PVC | 0.154 | 9.0 | 14.25

8. FILTER PACK:
   Material | CSS | Type
   Size | 10/20
   Interval | 6'-20'
   Depth

9. PACKER PLACEMENT:
   Material | Amount | Density | Interval | Placememt
   Bentonit | 2 bag | 10 gal | 0'-6' | positive

10. GROUTING RECORD

11. DISINFECTION: Type N/A
   Amt. Used N/A

12. WELL TEST DATA: Check box if Test Data is submitted on Form Number GWS 39 Supplemental Well Test.

   TESTING METHOD
   No testing performed

   Static Level _______ ft.
   Date/Time measured:

   Pumping Level _______ ft.
   Date/Time measured:

   Remarks:

13. I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402-2. [The filing of a document that contains false statements is a violation of section 37-91-108(1)(e), C.R.S., and is punishable by fines up to $5000 and/or revocation of the contracting license.]

   Company Name: S.M. Stoller Corporation
   Phone: (303)546-4300
   License Number: #1350 Prosomic Corp

   Mailing Address: 105 Technology Drive, Suite 190 Broomfield, Co 80021
   Signature: Ralph Rupp - Geologist
   Date 4/5/2007
# CSMRI-7B

<table>
<thead>
<tr>
<th>Colorado School of Mines Research Institute Site</th>
<th>Golden, Colorado</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Number: 4060 - 720</td>
<td>Client: Colorado School of Mines</td>
</tr>
<tr>
<td>Geologist: R. Hill</td>
<td>Nortthing: 4,400,397.6 Easting: 480,281.0</td>
</tr>
<tr>
<td>Drilling Contractor: Prosonic Corporation, B. Owens</td>
<td>Total Depth of Borehole: 20 feet bgs</td>
</tr>
<tr>
<td>Dates Drilled: 02/10/07 - 02/10/07</td>
<td>Depth to Water: Dry</td>
</tr>
<tr>
<td>Borehole Type: 6-inch dia. Resonant Sonic Casing Advance</td>
<td>Well Type: 2-inch Sch 40 PVC GW Monitoring Well</td>
</tr>
<tr>
<td>Ground Elevation: 5,700.07 feet</td>
<td>Top of Casing Elevation: 5,703.08 feet</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Completion</th>
<th>Depth (Ft.)</th>
<th>Lithology</th>
<th>USCS</th>
<th>Description</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0'- 10.5' Sand, clayey, abundant gravel and cobbles, moderate brown (5YR 4/4), poor sorting, fine to very coarse grain, loose, damp</td>
<td>21,000 cpm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW/GW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CL</td>
<td></td>
<td>10.5'- 12.3' Clay, sandy, medium light gray (N6), soft, moist to wet</td>
<td>21,500 cpm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CL</td>
<td></td>
<td>12.3' - 14' Clay, trace silt, medium light gray (N6), mottled with rust colored streaks in fractures, stiff, dry, weathered shale</td>
<td>21,700 cpm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SH</td>
<td></td>
<td>14' - 20' Pierre Shale, clay, trace silt, medium light gray (N6), no mottling, stiff, dry</td>
<td>22,300 cpm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total Depth of Borehole 20 feet bgs</td>
<td>22,100 cpm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Vadose Water 10'- 11' bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total Depth of Well 14.24 feet bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2&quot; Sch. 40 PVC Casing +3.01' ags to 9' bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2&quot; Sch. 40 PVC 0.020&quot; Slot Screen 9' to 14' bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2&quot; Sch. 40 PVC End Cap 14' to 14.25' bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10/20 Colorado Silica Sand 6' to 20' bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hydrated Bentonite Surface Seal 0' to 6' bgs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3'x3'x4&quot; Concrete Surface Pad with 6' Steel Protective Casing and Locking Cover to +3.60' ags</td>
<td></td>
</tr>
</tbody>
</table>
Well Installation Diagram

**Project:** CSMRI #4060-720
**Location:** CSM, Golden, Colorado 80401
**Contractor:** S.M. Stoller Corporation
**Driller:** B. Owens, Prosomic Corp, Lic #1350

**Well Coordinates:** N 4.400,397.6 m  E 480,238.0 m
**TOC Elevation:** 1,738.30 m (5,703.08 ft)
**Surface Elevation:** 1,737.38 m (5,700.07 ft)

---

**Protective Casing**
- **Material:** Steel
- **Diameter:** 6-inch square, No Bollards

**Surface Pad**
- **Composition & Size:** Concrete, 3' x 3' x 4''

**Surface Seal**
- **Composition & Thickness:** Bentonite, 6 ft

---

**Riser Pipe**
- **Type:** Schedule 40 PVC
- **Diameter:** 2-inch ID

**Grout**
- **Composition:** Bentonite

**Filter Pack Seal**
- **Type:** Bentonite

**Filter Pack**
- **Type:** Gravel Envelope
- **Source:** Colorado Silica Sand
- **Gradation:** 10/20

**Screen**
- **Type:** Schedule 40 PVC
- **Diameter:** 2-inch ID
- **Slot Size:** 0.020 inch

**Sump**
- **Type:** None
- **Bottom Cap:** Yes

---

**Depth BGS**
- **Surface:** 6 ft
- **3 ft**

---

**Well TD**
- **14 ft**

---

**Bore TD**
- **20 ft**
WELL CONSTRUCTION AND TEST REPORT

STATE OF COLORADO, OFFICE OF THE STATE ENGINEER
1313 Sherman St, Room 818, Denver, CO 80203
Phone – Info (303) 866-3587  Main (303) 866-3581
Fax (303) 866-3589  http://www.water.state.co.us

1. WELL PERMIT NUMBER: #46819-MH

2. WELL OWNER INFORMATION
   NAME OF WELL OWNER: Colorado School of Mines, Mr. Linn Havelick
   MAILING ADDRESS: 1015 14th Street
   CITY: Golden  STATE: CO  ZIP CODE: 80401
   TELEPHONE NUMBER: (303) 273-3998

3. WELL LOCATION AS DRILLED: NW1/4, NE1/4, Sec. 33, Twp. 3, N or S, Range 70, E or W
   DISTANCES FROM SEC. LINES: 323 ft. from N or S section line and 2,339 ft. from E or W section line.
   SUBDIVISION: , LOT , BLOCK , FILING (UNIT) 
   Optional GPS Location: GPS Unit must use the following settings: Format must be UTM, Units must be meters, Datum must be NAD83, Unit must be set to true N, Zone 12 or Zone 13
   Owner's Well Designation: CSMRI-8
   Easting: 480285.1
   Northing: 4400424.7
   STREET ADDRESS AT WELL LOCATION: 500 ft NW of Birch and 12th St, Golden

4. GROUND SURFACE ELEVATION 5,680.51 feet
   DATE COMPLETED 02/11/07
   TOTAL DEPTH 15 feet
   DRILLING METHOD Resonant Sonic Casing Advance
   DEPTH COMPLETED 14.25 feet

5. GEOLOGIC LOG:
   Depth  Type  Grain Size  Color  Water Loc.
   0 - 7  Sand, silty  fn - v cse  dk brn  4.95' bgs
   7 - 15  Pierre Shale  vfg  dark gray  dry

6. HOLE DIAM (in.) From (ft) To (ft)
   6-inch  0  15

7. PLAIN CASING:
   OD (in)  Kind  Wall Size (in)  From (ft)  To (ft)
   2.375  40 PVC  0.154  +3.09  4

   PERFORATED CASING:  Screen Slot Size (in): 0.020
   2.375  40 PVC  0.154  4  14.25

8. FILTER PACK:
9. PACKER PLACEMENT:
   Material  CSS  Type
   Size  10/20
   Interval  3' - 15'

10. GROUTING RECORD
   Material  Amount  Density  Interval  Placement
   Bentonite  1 bag  5 gal  0' - 3'  positive

11. DISINFECTION: Type N/A

12. WELL TEST DATA: Check box if Test Data is submitted on Form Number GWS 39 Supplemental Well Test.
   TESTING METHOD  No testing performed
   Static Level  ft.  Date/Time measured:  Production Rate  gpm.
   Pumping Level  ft.  Date/Time measured:  Test Length (hrs): 
   Remarks: 

13. I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402-2. [The filing of a document that contains false statements is a violation of section 37-91-108(1)(e), C.R.S., and is punishable by fines up to $5000 and/or revocation of the contracting license.]

Company Name: S.M. Stoller Corporation
Phone: (303)546-4300
License Number: #1350 Prosonic Corp

Mailing Address: 105 Technology Drive, Suite 190  Broomfield, Co 80021
Signature: Ralph Rupp  Print Name and Title  Geologist
Date: 4/5/2007
# CSMRI-8

**Colorado School of Mines Research Institute Site**

<table>
<thead>
<tr>
<th>Completion</th>
<th>Depth (Ft.)</th>
<th>Lithology</th>
<th>USCS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0' - 7'</td>
<td>SW/GW</td>
<td></td>
<td></td>
<td>Post-Piney Creek Alluvium, Sand, silty, some gravel and cobbles, very dark brown (10YR 2/2), moist to 4 feet, saturated at 5 feet, 67% recovery</td>
</tr>
<tr>
<td>5</td>
<td>SW/GW</td>
<td></td>
<td></td>
<td>Static Water Level 4.95' bgs measured 03/08/07</td>
</tr>
<tr>
<td>10</td>
<td>SH</td>
<td></td>
<td></td>
<td>7' - 15' Pierre Shale, dark gray (2.5YR 4/0), damp grading to dry</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td>Total Depth of Borehole 15 feet bgs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Depth to Water 4.95 feet bgs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total Depth of Well 14.25 feet bgs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2&quot; Sch. 40 PVC Blank Casing +3.09' ags to 4' bgs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2&quot; Sch. 40 PVC 0.020&quot; Slot Screen 4' to 14' bgs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2&quot; Sch. 40 PVC End Cap 14' to 14.25' bgs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10/20 Colorado Silica Sand 3' to 15' bgs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hydrated Bentonite Surface Seal 0' to 3' bgs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3'x3'x4&quot; Concrete Surface Pad with 6&quot; Steel Protective Casing and Locking Cover to +3.64' ags</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample</th>
<th>GAMMA (CPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background</td>
<td>18,500 cpm</td>
</tr>
<tr>
<td></td>
<td>18,200</td>
</tr>
<tr>
<td></td>
<td>18,000</td>
</tr>
<tr>
<td></td>
<td>18,300</td>
</tr>
</tbody>
</table>

**Golden, Colorado**

- **Project Number:** 4060 - 720
- **Geologist:** N. Malczyk
- **Drilling Contractor:** Prosonic Corporation, B. Owens
- **Dates Drilled:** 02/11/07 - 02/11/07
- **Borehole Type:** 6-inch dia. Resonant Sonic Casing Advance
- **Total Depth of Borehole:** 15 feet bgs
- **Depth to Water:** 4.95 feet bgs
- **Ground Elevation:** 5,680.51 feet
- **Top of Casing Elevation:** 5,683.60 feet

**Client:** Colorado School of Mines

**Nothing:** 4,400424.7  **Easting:** 480,285.1

---

**S.M. STOLLER CORPORATION**
Well No: CSMRI-8
Well Type: GW Monitoring Well
Date Constructed: 02/11/07
Observed By: N. Malczuk
Sheet 1 of 1

Project: CSMRI #4060-720
Location: CSM Golden, Colorado 80401
Contractor: S.M. Stoller Corporation
Driller: B. Owens, Prosonic Corp. Lic #1350

Well Coordinates: N 4,400,424.7 m  E 480,285.1 m
TOC Elevation: 1,732.36 m (5,658.60 ft)
Surface Elevation: 1,731.42 m (5,658.51 ft)

Protective Casing
- Material: Steel
- Diameter: 6-inch square, No Ballards

Surface Pad
- Composition & Size: Concrete, 3' x 3' x 4'

Surface Seal
- Composition & Thickness: Bentonite, 3 ft

Concrete Pad

Grout

Riser Pipe
- Type: Schedule 40 PVC
- Diameter: 2-inch ID

Grout
- Composition: Bentonite

Filter Pack Seal
- Type: Bentonite

Filter Pack
- Type: Gravel Envelope
- Source: Colorado Silica Sand
- Gradation: 10/20

Screen
- Type: Schedule 40 PVC
- Diameter: 2-inch ID
- Slot Size: 0.020 inch

Sump
- Type: None
- Bottom Cap: Yes

Sand Pack

6-inch Dia
### WELL CONSTRUCTION AND TEST REPORT

**STATE OF COLORADO, OFFICE OF THE STATE ENGINEER**

1313 Sherman St, Room 818, Denver, CO 80203  
Phone – Info (303) 866-3587  Main (303) 866-3581  
Fax (303) 866-3589  http://www.water.state.co.us

---

#### 1. WELL PERMIT NUMBER: #46819-MH

#### 2. WELL OWNER INFORMATION

**NAME OF WELL OWNER:** Colorado School of Mines, Mr. Linn Havelick  
**MAILING ADDRESS:** 1015 14th Street  
**CITY:** Golden  
**STATE:** CO  
**ZIP CODE:** 80401  
**TELEPHONE NUMBER:** (303) 273-3998

---

#### 3. WELL LOCATION AS DRILLED: NW1/4, NE1/4, Sec. 33, Twp. 3  
**DISTANCES FROM SEC. LINES:** 375 ft. from E or W section line and 2,091 ft. from N or S section line.  
**SUBDIVISION:**  
**LOT:**  
**BLOCK:**  
**FILING UNIT:**  
**STREET ADDRESS AT WELL LOCATION:** 500 ft NW of Birch and 12th St, Golden  
**Northing:** 4400408.8  
**Owner's Well Designation:** CSMRI-9  
**Easting:** 480361.3

---

#### 4. GROUND SURFACE ELEVATION 5,704.56 feet  
**DATE COMPLETED:** 02/19/07  
**TOTAL DEPTH:** 30 feet  
**DRILLING METHOD:** Sonic Casing Advance  
**DEPTH COMPLETED:** 30 feet

---

#### 5. GEOLOGIC LOG:

<table>
<thead>
<tr>
<th>Depth</th>
<th>Type</th>
<th>Grain Size</th>
<th>Color</th>
<th>Water Loc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 2</td>
<td>Fill</td>
<td>fn - v cse</td>
<td>yellow brown</td>
<td>moist</td>
</tr>
<tr>
<td>2 - 4</td>
<td>Fill</td>
<td>fn - v cse</td>
<td>dk yel org</td>
<td>dry</td>
</tr>
<tr>
<td>4 - 10</td>
<td>Fill</td>
<td>fine - med</td>
<td>mod brown</td>
<td>dry</td>
</tr>
<tr>
<td>10 - 19</td>
<td>Sand, cobby</td>
<td>fn - v cse</td>
<td>green gray</td>
<td>dry</td>
</tr>
<tr>
<td>19 - 30</td>
<td>Sandstone</td>
<td>fine</td>
<td>dk yel org</td>
<td>22.99' bgs</td>
</tr>
</tbody>
</table>

**Remarks:** Depth to water 22.99' bgs

---

#### 6. HOLE DIAM (in.)  
**From (ft):** 6-inch  
**To (ft):** 0  
30

---

#### 7. PLAIN CASING:

<table>
<thead>
<tr>
<th>OD (in)</th>
<th>Kind</th>
<th>Wall Size (in)</th>
<th>From (ft)</th>
<th>To (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.375</td>
<td>40 PVC</td>
<td>0.154</td>
<td>+3.15</td>
<td>14.75</td>
</tr>
</tbody>
</table>

**PERFORATED CASING:** Screen Slot Size (in): 0.020  
2.375  
40 PVC  
0.154  
14.75  
30

---

#### 8. FILTER PACK:

**Material:** CSS  
**Size:** 10/20  
**Interval:** 12' - 30'  
**Depth:**

---

#### 9. PACKER PLACEMENT:

**Material:** Brenton  
**Amount:** 3 bag  
**Density:** 15 gal  
**Interval:** 0' - 12'  
**Placement:** positive

---

#### 10. GROUTING RECORD

**Material:**  
**Amount:**  
**Density:**  
**Interval:**  
**Placement:**

---

#### 11. DISINFECTION: Type N/A  
**Amt. Used N/A

---

#### 12. WELL TEST DATA: Check box if Test Data is submitted on Form Number GWS 39 Supplemental Well Test.

**TESTING METHOD** No testing performed  
**Static Level** ft.  
**Pumping Level** ft.  
**Date/Time measured:**  
**Production Rate** gpm.  
**Date/Time measured:**  
**Test Length (hrs):**

**Remarks:**

---

13. I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402-2. [The filing of a document that contains false statements is a violation of section 37-91-108(1)(e), C.R.S., and is punishable by fines up to $5000 and/or revocation of the contracting license.]

**Company Name:** S.M. Stoller Corporation  
**Phone:** (303) 546-4300  
**License Number:** #1350 Prosonic Corp

**Mailing Address:** 105 Technology Drive, Suite 190, Broomfield, Co 80021  
**Signature:** Ralph Rupp - Geologist  
**Print Name and Title:** Ralph Rupp - Geologist  
**Date:** 4/5/2007
CSMRI-9

Colorado School of Mines Research Institute Site
Golden, Colorado

Project Number: 4060 - 720
Client: Colorado School of Mines

Geologist: N. Maleczyk
Northing: 4,400408.8
Easting: 480,361.3

Drilling Contractor: Prosonic Corporation, B. Owens
Total Depth of Borehole: 30 feet bgs

Dates Drilled: 02/19/07 - 02/19/07
Depth to Water: 22.99 feet bgs

Borehole Type: 6-inch dia. Resonant Sonic Casing Advance
Well Type: 2-inch Sch 40 PVC GW Monitoring Well

Ground Elevation: 5,704.56 feet
Top of Casing Elevation: 5,707.71 feet

Completion

<table>
<thead>
<tr>
<th>Depth (Ft.)</th>
<th>Lithology</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0' - 2'</td>
<td>Fill</td>
<td>0' - 2' Fill, fine grain sand, silt, clay, some cobbles, dark yellowish brown (10YR 4/2), moist</td>
</tr>
<tr>
<td>2' - 4'</td>
<td>Fill</td>
<td>2' - 4' Fill, silt, some fine sand, dark yellowish orange (10YR 6/6), dry</td>
</tr>
<tr>
<td>4' - 10'</td>
<td>Fill</td>
<td>4' - 10' Fill, fine and medium grain sand, some cobbles, pieces of wood, moderate brown (5YR 4/4)</td>
</tr>
<tr>
<td>10' - 19'</td>
<td>SW</td>
<td>10' - 19' Similar material as above with color change to greenish gray (5GY 6/1), probable Louviers Alluvium</td>
</tr>
<tr>
<td>19' - 30'</td>
<td>SF</td>
<td>19' - 30' Fox Hills Sandstone, fine grain sand, dark yellowish orange (10YR 6/6), moist</td>
</tr>
</tbody>
</table>

Static Water Level 22.99' bgs measured 02/27/07
@ 25' - 26' becomes moist to wet

Total Depth of Borehole 30 feet bgs
Depth to Water 22.99 feet bgs

Total Depth of Well 30 feet bgs
2" Sch. 40 PVC Blank Casing +3.15' ags to 14.75' bgs
2" Sch. 40 PVC 0.020" Slot Screen 14.75' to 29.75' bgs
2" Sch. 40 PVC End Cap 29.75' to 30' bgs
10/20 Colorado Silica Sand 12' to 30' bgs
Hydrated Bentonite Surface Seal 0' to 12' bgs
3'x3'x4" Concrete Surface Pad with 6" Steel Protective Casing and Locking Cover to +3.67' ags

GAMMA (CPM)
Background 15,000 cpm

18,400
20,300
18,300
15,500
16,600
14,300

S.M. STOLLER CORPORATION