Using RBDMS to Manage Oil and Gas Activities in New York and Display Data Using the RBDMS Wellbore Schematic Utility

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New York State has a long history of Oil and Gas development

• First gas well drilled in 1821
• First regulatory laws passed 1879 (e.g. plugging requirements)
• First comprehensive regulations enacted in 1963
Introduction of computers allowed for digital record keeping

- Unix database to capture vertical well data (Lat, Long, and depth)
- Flat files made public on a nightly basis
Advent of directional drilling necessitated significant database changes

- Enter RBDMS
- Decimal Lat and Longs for top hole, bottom hole, kickoff point
- TVD and TMD
- Casing and cementing information
**API WELL #** | **Well Name** | **Hole** | **Operator Name** | **Status** | **Type** | **County** | **Field**
---|---|---|---|---|---|---|---
31-015-26037-00-00 | Nowlan 1 (626469) | 26037 | Chesapeake Appalachia, L.L.C. | AC | GE | Chemung | Langdon Hill

### Down hole location:

<table>
<thead>
<tr>
<th>Type</th>
<th>Location</th>
<th>TMD</th>
<th>TVD</th>
<th>FtNS</th>
<th>Latitude</th>
<th>FtEW</th>
<th>Longitude</th>
<th>XLoc</th>
<th>YLoc</th>
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<tbody>
<tr>
<td>Surface</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bottom Hole</td>
<td></td>
<td>12426</td>
<td>10106</td>
<td></td>
<td>76.638787</td>
<td>42.168247</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production Z0</td>
<td></td>
<td>10660</td>
<td>10084</td>
<td></td>
<td>76.637364</td>
<td>42.165672</td>
<td></td>
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</table>

### Perforation:

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Top</th>
<th>Bottom</th>
<th>Spacing</th>
<th>NumShots</th>
<th>Method</th>
<th>Perf Date</th>
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</table>

### Casing and other features:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Diameter</th>
<th>Weight</th>
<th>Grade</th>
<th>Type</th>
<th>Top</th>
<th>Bottom</th>
<th>New Pipe</th>
<th>Install Date</th>
<th>Remove Date</th>
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<tr>
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<td>26</td>
<td>P-110</td>
<td></td>
<td>0</td>
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<td>12/29/2007</td>
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<td>HOLE</td>
<td>8 1/2</td>
<td></td>
<td></td>
<td></td>
<td>6534</td>
<td>10682</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HOLE</td>
<td>6 1/2</td>
<td></td>
<td></td>
<td></td>
<td>10682</td>
<td>12426</td>
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<td></td>
<td></td>
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<tr>
<td>COND</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>HOLE</td>
<td>17 1/2</td>
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<td></td>
<td>35</td>
<td>1265</td>
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<td></td>
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<tr>
<td>SURF</td>
<td>13 3/9</td>
<td>54.5</td>
<td>J-55</td>
<td></td>
<td>0</td>
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<td></td>
<td></td>
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<tr>
<td>HOLE</td>
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<td></td>
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<td>1265</td>
<td>6634</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>INTER</td>
<td>9 5/8</td>
<td>47</td>
<td>N-80</td>
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<td>0</td>
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</table>
NY has “Classic” RBDMS data structure

- SQL Server backend, MS Access front end
- GWPC funded custom development of the front end
- Adapted for the Mined Land Reclamation Program in our division
## Customized Mining DB

### NYSDEC Mining Database

<table>
<thead>
<tr>
<th>Region</th>
<th>Mine ID</th>
<th>Status</th>
<th>Mine Name</th>
<th>Company Name</th>
<th>County</th>
<th>Town</th>
<th>SWIS</th>
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<tbody>
<tr>
<td>7</td>
<td>70317</td>
<td>R</td>
<td>DOT Contract #250180 Davis Property</td>
<td>4 D Quarries</td>
<td>Cortland</td>
<td>Cincinnatus</td>
<td>1120</td>
</tr>
<tr>
<td>4</td>
<td>40020</td>
<td>A</td>
<td>Colarusso Quarry - Newman Rd.</td>
<td>A Colarusso &amp; Son Inc</td>
<td>Columbia</td>
<td>Greenport</td>
<td>1040</td>
</tr>
<tr>
<td>8</td>
<td>80261</td>
<td>R</td>
<td>Coulsen mine</td>
<td>Coulson, Ronald</td>
<td>Steuben</td>
<td>Troopsburg</td>
<td>4668</td>
</tr>
<tr>
<td>8</td>
<td>80676</td>
<td>R</td>
<td>Brantner Pit</td>
<td>A L Blades &amp; Sons Inc</td>
<td>Chemung</td>
<td>big Flats</td>
<td>0724</td>
</tr>
<tr>
<td>8</td>
<td>80578</td>
<td>R</td>
<td>Meads Creek Pit</td>
<td>A L Blades &amp; Sons Inc</td>
<td>Steuben</td>
<td>Campbell</td>
<td>4630</td>
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<tr>
<td>8</td>
<td>80041</td>
<td>N</td>
<td></td>
<td>A L Blades &amp; Sons Inc</td>
<td>Steuben</td>
<td>Corning</td>
<td>4638</td>
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<tr>
<td>9</td>
<td>90483</td>
<td>R</td>
<td>Smith Pit #1</td>
<td>Blades Construction Products Corp</td>
<td>Allegany</td>
<td>Hume</td>
<td>0258</td>
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<tr>
<td>9</td>
<td>90640</td>
<td>R</td>
<td>Stannards Borrow Pit</td>
<td>A L Blades &amp; Sons Inc</td>
<td>Allegany</td>
<td>Willing</td>
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<tr>
<td>6</td>
<td>60907</td>
<td>R</td>
<td>Kiwanis Road Mine</td>
<td>A Servidone Inc</td>
<td>Oneida</td>
<td>Lee</td>
<td>3042</td>
</tr>
</tbody>
</table>
eReport

- Yearly production is entered via .NET application, saved as XML
- Operators can link their database to an Access database
- Conversion to XML
- XML files uploaded to our database
  - QC checks
New York State Department of Environmental Conservation
Division of Mineral Resources
Keeping the public informed

• In addition to the flat file (updated nightly)
• GWPC funded development for the Online Searchable Database
• Provides more data than the historic file
• Many search criteria, extensive metadata available
• Data can be exported into CSV, Excel spreadsheet, and KML files
  – Similar application for Mining
• Oil and gas production data posted on July 1, after 6 month confidential period (yearly data).
Wells Data Search

The heart of the searchable online database is the ability to locate and track wells regulated by the Department of Environmental Conservation. In addition, the law also regulates brine disposal.

Three common ways to search on a single well are the API Well Number, Hole Number, and any options that can be used singly or in combination. From within the search results, you can get production-related information. If this data is available, the link will be active. If no data exists results available from this page.

Help for Wells Data Search

General Search Tips/Help

Build Search Here

County: equals "Chemung"
Wellbore diagram tool

- Vertical wells are the well and surrounding geology easy to visualize
- Horizontal and directional wells are tricky
- Ability to visualize
  - Gives regulators a better idea of what is underground
  - Gives public a better sense of
    - how a well is constructed
    - depth, scale and dimensions of a well
    - detailed geology of the area
    - plan view reveals the extent of the well, as well as relationship to nearby surface features
Original Well Bore Application
Directional Well with Multiple Strings

*Production cement should not be shown to surface
*Production cement should not be shown to surface
ePermit

• Allows operators to submit their permits to drill online
• Division staff will use to evaluate APDs and issue permits
**Build Permit**

**Ownership**

**Construction Information**

Note: Activity Type **cannot be changed** after advancing from this screen.

* Activity Type:
  - Drill a new well
  - Plugback an existing well
  - Deepen an existing well
  - Convert an existing well
  - Drill a new sidetrack

Existing API Number: [Field]

**Owner Information**

* Name of Owner: [Field]

This will be covered by the following financial security:
  - Blanket
  - Individual
  - Exempt

**Contact Information**

Contact information while drilling.

* Contact Name: [Field]
* Business Address: [Field]
* Business Phone: [Field]
### Regional Review

#### Previous Review

* Environmental Review previously completed? If yes, you may skip the rest of the Environmental Review Fields
  - [ ] Yes
  - [ ] No

#### Environmental Review Fields

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the submitted EAF adequate?</td>
<td>[ ] Yes, [ ] No, [ ] Additional Info Required</td>
</tr>
<tr>
<td>Are all off sets and environmental setbacks adequate?</td>
<td>[ ] Yes, [ ] No, [ ] Additional Info Required</td>
</tr>
<tr>
<td>Based on the presite inspection is the location adequate?</td>
<td>[ ] Yes, [ ] No, [ ] Additional Info Required</td>
</tr>
<tr>
<td>Is the site in the buffer or contained in a regulated wetland?</td>
<td>[ ] Yes, [ ] No, [ ] Additional Info Required</td>
</tr>
<tr>
<td>Is the site in a federally designated Flood Zone?</td>
<td>[ ] Yes, [ ] No, [ ] Additional Info Required</td>
</tr>
</tbody>
</table>
Marcellus Shale Gas Play

• WV, OH, PA and NY of great interest to Operators (MD apps)
• Differing regulatory approaches
• Public Controversy surrounding Hydraulic Fracturing practices
Hydraulic Fracturing

• State Environmental Quality Review Act
• The 1992 GEIS (Generic Environmental Impact Statement
  – GEIS/Conventional drilling and stimulation:
  – up to 80,000 gallons of water
• Draft Supplemental GEIS
  – “Slick water” shale fracturing:
  – Over one million gallons of water used
• Both address proppant and additives
During scoping, NYS collected and reviewed information from:

- Other regulators (national, state, RBCs, etc)
- Industry
- Public
- Chemical information was collected from suppliers
Draft Supplemental Generic Environmental Impact Statement

- High Volume (>80 thousand gallons) Hydraulic Fracturing of Marcellus Shale and other Low Permeability Reservoirs
- 90 day public comment period
- More than 13000 comments
  - Approximately 5000 email campaigns
  - Approx 8000 unique comments
SGEIS Comment Application

- Funded by NYSERDA/GWPC
- Review is ongoing
Public Comments captured into an online database application

To Submit a Comment
- Select “Submit Comment Online”. You will be taken to a screen with two tabs. Complete the information required on the first tab so that we may contact you when the review is complete.
- Use the second tab to enter all of your comments in the text box provided and select the topics that you are responding to. Multiple topics may be selected.
- Submit your comments by clicking the "Submit" button.

Adding Documentation
If you would like to add documentation in support of your comments, please attach this documentation using the email link provided to you after you have submitted your comments. You must use the subject line provided to ensure that your attachment is included with your comments. There is a limit of 20 Mb for attachments to e-mails.

Submit Comment Online
Submit directly into the database
Review

Please ban natural gas drilling in New York State

1. Hydrofracking is invasive and unsafe. The process has caused damage to water supplies in Pennsylvania and other states, including blown up wells and property damage.

2. The Marcellus Shale supplies naturally safe drinking water to all of NYC residents and Westchester.

3. Hydrofracking involves toxic chemicals at dangerous pressure miles below the surface where it can't be controlled. The chemical waste will contaminate not only the water supply of 9 million people but the property, recreation and quality of life of watershed residents not to

WEB Submitted Comment on 2009-12-31
Commentor Supplied Categories: Other

Assign Campaign:
- none

Assign Categories & Category Notes:
- Select Appropriate Categories:
  - Alternatives: remove
  - Hydrofrac chemicals/chemical disclosure: remove
  - Hydrofrac design/procedure/monitoring: remove
  - Naturally Occurring Radioactive Materials: remove
  - NYC Watershed: remove
  - Prohibition of development: remove

Notes for Alternatives:
We must invest in and develop sustainable energy sources and not strip mine every last acre of our beautiful environment for the last drop of fossil fuels.

Notes for Hydrofrac chemicals/chemical disclosure:
Hydrofracking involves toxic chemicals at dangerous pressure miles below the surface where it can't be controlled.
Future development

• eComplete
  – Seen as an extension of ePermit
  – Less staff time spent on dataentry

• HF (Hydraulic Fracturing) module
HF module:
(Potential) new data elements:

- Source water
- Disposition of fluids
- Product/chemical information
Questions?

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