

# GeoWebFace Introduction

John Esch  
Michigan Department of Environmental Quality  
Office of Oil, Gas, and Minerals  
Permitting and Technical Services Section  
Petroleum and Mining Geology Unit  
[eschj@michigan.gov](mailto:eschj@michigan.gov)  
517-241-1534

PTTC, Mt. Pleasant, Michigan  
March 30, 2012



## Acknowledgements

- Steve Wilson-DEQ-OOGM His Idea!
- DEQ-OOGM staff- testing review, evaluation
- Linda and Bill Harrison-for squeezing us in at the last minute-giving us a deadline
- Michigan DTMB-CSS
  - Scott Reynolds
  - Ron Thomas
  - Gary Taylor
  - Bob Reszka
  - Jason Bau

## GeoWebFace-Yes it is Available

<http://www.michigan.gov/deqgeowebface/> -Main Page

- Beta (quiet)-release-just yesterday
- Likely full public release-soon
- Work in progress
- Several issues still exist
- Looking for comments and suggestions
  - Data
  - Functionality

<http://ww2.deq.state.mi.us/geowebface/> -Application Page

## GeoWebFace

- GeoWebFace is an internet mapping and data access application.
- The GeoWebFace allows users to view Michigan oil and gas, mining and geological data in an online mapping environment.
- In addition the GeoWebFace allows users to download oil and gas datasets such as driller's logs, permit well files, and rasterlogs for selected wells or by the county.
- The GeoWebFace is focused primarily on Michigan oil and gas well data, thus some of the functionality for tools such as **Identify** and **Labeling** only work on the oil and gas well locations.

# GeoWebFace Functionality

- Background maps consisting of a street map, topographic map or aerial photos are available
- Can turn on/off individual layers to see relationships between layers
- Can make custom map and send bookmark to colleague so they can view same map
- Simple GIS functionality
- GIS search tool
- Text search tool

## GeoWebFace Home Page

The screenshot shows the GeoWebFace Home Page on the Michigan Department of Environmental Quality (DEQ) website. The page features a navigation menu with links to Michigan.gov Home, DEQ, Online Services, Permits, Programs, Site Map, Contacts, Locations, and a search bar. A sidebar on the left lists various environmental topics such as Land, Gas, Oil, and Minerals, Geological Mapping, and Land Cleanup. The main content area is titled "GeoWebFace - online Geologic Maps and Data" and includes a "New Application almost ready for use..." announcement. Below the announcement is a map of Michigan with red circular markers indicating well locations. The page also contains "More Information" links and a footer with the URL [www.michigan.gov/deggeowebface](http://www.michigan.gov/deggeowebface).



## Three main tabs to display and manipulate data on the map.

Layers Tool

- The **Layers Tool tab** allows you to select which layers will be displayed on the map. You can also change the transparency on layers

Map Tools

- The Map Tools tab has six main functions. Selecting any of these options will open additional dialog boxes with additional options to enter information
  - Quick Zoom
  - Identify
  - Select
  - Buffer
  - Measure
  - Bookmark

Data Search

- Allows one to select data without using map interface

## GWF Map -vs- GWF Result

GeoWebFace Map

GeoWebFace Results

- Users of the Oil and Gas data will quickly become familiar with toggling back and forth between the Map Window and the Results Window
- The GWF Results window will give you the resulted on Identified or Selected Oil and Gas Wells or groups of wells.
- From here you can download the selected data to an Excel Spreadsheet, view an short report on specific well, download geological records like drillers logs, permit wellfiles or downhole geophysical logs (aka rasterlogs).

# Map Navigation

- Many different ways to move about the map

The screenshot shows a toolbar with icons for Zoom In, Zoom Out, Pan, Clear, Zoom Extents, and Map Nav Info. Below the toolbar is a vertical scroll bar and a context menu with options: Full Extent, Previous Extent, and Next Extent. To the right is a list of navigation methods:

- Drag the mouse to pan
- Mouse Scroll Forward to zoom in
- Mouse Scroll Backward to zoom out
- **Shift** + Drag the mouse to zoom in
- **Shift** + **Ctrl** + Drag the mouse to zoom out
- **Shift** + Click to recenter
- Double-click to zoom in
- Use arrow keys to pan
- Use **+** key to zoom in a level
- Use **-** key to zoom out a level

# Map Tools

Layers Tool      Map Tools      Data Search

Map Tools tab

Quick Zoom      Identify      Select      Buffer      Measure      Bookmark

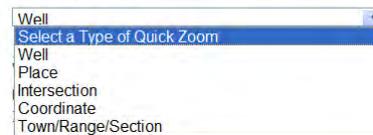
## Map Tools>Quick Zoom

- **Quick Zoom allows you to zoom to specific locations on the Map. Locations can be found by entering information about:**
  - Well
  - Place
  - Intersection
  - Coordinate
  - Town / Range /Sec



### GeoWebFace Quick Zoom Tools

Separate from Data Search, Quick Zoom enables you to zoom to a specified location. Select a zoom type to display its content below and to assist you in zooming the map.



## Map Tools>Identify

- The **Identify** tool displays general information for a single oil and gas well bottom hole location or the latitude and longitude of a point not on a well.
- To use the identify tool, zoom or navigate to an area of interest; turn on the Well Type-Bottom Hole Locations or Bottom Hole Locations-Single Symbol under the LayersTool tab.
- Under the Map Tools tab, click the Identify tool, then click on a well bottom hole location.
- The result of an Identify displays a summary table.
- To get additional data click on the GeoWebFace Results tab.
- Identify Tool only works on oil and gas well bottom hole locations or can be used to find the latitude and longitude of a point.

**GeoWebFace Identify**  
Click on the map to identify general Well information.

API Number:	21101525150100
Permit Number:	54067
Lease Name:	ONEKAMA
Well ID:	1-34
Status:	Producing
Total Depth:	6062
Producing Formation:	NIAGARAN BROWN
Latitude:	44.35945
Longitude:	-86.2305
Place:	Onokama
County:	Manistee
TRS:	22N15W34
Map-click Lat:	44.35940
Map-click Lon:	-86.23083

**GeoWebFace Identify**  
Click on the map to identify general Well information.

Place:	Brown
County:	Manistee
TRS:	22N15W12
Map-click Lat:	44.32159
Map-click Lon:	-86.08046

If you click on a point that is not on a on an oil and gas well bottom hole location, the Identify Tool will display the latitude and longitude, County, Township, and TN,RN,SEC of that point

## Map Tools>Select

- The **Select Tool** allows you to select one or more oil and gas well bottom hole locations from the map by drawing a polygon outline or a bounding box.
- To use the Select Tool, zoom or navigate to an area of interest; turn on the Well Type-Bottom Hole Locations or Bottom Hole Locations-Single Symbol under the Layers Tool tab.
- Under the Map Tools tab, click the main Select Tool, then draw a polygon or bounding box to select the oil and gas wells bottom hole locations of interest, then click on the Select button below.
- The selected wells will be displayed in the GeoWebface Results page.
- Click on the GeoWebFace Map to view to selected wells on the map

API Number	Permit Number	Well Name & Location	Well Type	Well Status	Total Depth	Producing Formation	Comments
211170200000	2876	WARRIOR, ALBERT I	Dry Hole	Plugging Approved	2106		Produced Shell
211172000000	28504	WILSON, WALTER W. I	Dry Hole	Plugging Approved	1401		4" Surface Log; 20" Well Log; 10" Well Log; 10" Well Log; 10" Well Log

## Bookmark

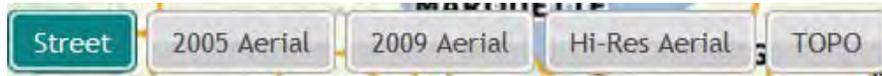
- Allows sharing and collaboration of your custom map with others
- Allows you to save your map for future use
- Turn on layers and zoom into area of interest
- Under Map Tools Tab, click the Bookmark icon
- Copy and paste the bookmarked URL into the body of an email message
- Sent email message to Colleague where they can copy and paste the URL into a browser and see your exact same map

**GeoWebFace Bookmarks**  
Bookmark your map settings to retrieve for future use. Clicking the "Bookmark" button below will generate a URL address which can be used to recreate the current map. You may copy and paste the address in an email to share your map with others.

Bookmark

<http://ww2qa.deq.state.mi.us/geowebface/mcgl.asp?bkmk=78f2994c1bfb3b0e4a9fcd9f3f03489a>

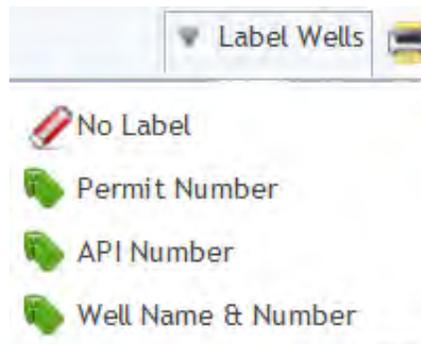
## Background Maps



- **Street** view icon displays a street map. This view also includes lakes, waterways, and political boundaries. This is the default background map.
- **2005** or **2009 Aerial** view icon displays the NAIP (National Agriculture Imagery Program) aerial mosaic.
- **Hi-Res Aerial** view icon displays aerial imagery in the highest resolution available for the area. Coverage varies across the state.
- **TOPO** icon displays the USGS 1:24,000 topographic quadrangle maps of the area.

## Label Wells

- **Label Wells** provides a list of methods of labeling the oil and gas wells in the Map Area.
- The default for Label Wells is **No Label**.



## Layers Tool-Major Layer Categories

- **Oil and Gas Information**
- **Mining and Minerals**
- **Geology**
- **Public Land Survey System**
- **Ownership and Mineral Leases**

Layers Tool | Map Tools | Data Search



### GeoWebFace Layers

Toggle layer visibility by clicking the corresponding checkbox. Activate the transparency slider for a layer by clicking on the radio button to the right.

- *Each of these Major Layer Categories has several sublayers within them*
- *Transparency can be set for layers within a category*

	Activate Transparency Slider
<input type="checkbox"/> Oil and Gas Information	<input type="radio"/>
<input type="checkbox"/> Mining and Minerals	<input type="radio"/>
<input type="checkbox"/> Geology	<input type="radio"/>
<input type="checkbox"/> Public Land Survey System	<input type="radio"/>
<input type="checkbox"/> Ownership and Mineral Leases	<input type="radio"/>

## Oil and Gas Information

- Bottom Hole Locations
- Plugged Wells
- Directional Start Holes
- Lines for Directional Holes
- Drilling Applications
- Well Type - Bottom Hole Locations
  - Permitted Well Locations
  - Oil Wells
  - Natural Gas Wells
  - Gas Condensate Wells
  - Gas Injection Wells
  - Gas Storage Wells
  - Liquefied Petroleum
  - Gas Storage Wells
  - Gas Production and Brine Disposal Wells
  - Brine Disposal Wells
  - Dry Holes
  - Water Injection Wells
  - Other Injection Wells
  - Observation Wells
  - Other Well Types
- Hydrogen Sulfide Wells
- Oil and Gas Fields by Formation
  - Other
  - Michigan Stray
  - Berea Sandstone
  - Antrim Shale
  - Traverse Limestone
  - Dundee
  - Reed City Zone
  - Detroit River
  - Detroit River Sour Zone
  - Detroit River Ritchfield
  - Amherstburg/Sylvania
  - Salina
  - A-1 Carbonate
  - Brown Niagaran
  - Burnt Bluff/Clin/Man
  - Trenton/Black River
  - PDC/Glenwood
  - County Antrim Shale Fields
- General Spacing Order Antrim
- General Spacing Order Niagaran
- General Spacing Order Trenton-Black River
- General Spacing Order Glenwood and below
- Gas Storage Fields
- Uniform Spacing Plans
- Active Oil and Gas Drilling Units

## Mining and Minerals

- Sand and Gravel Operations
- Critical Dune Areas
- Designated Dune Areas
- Coal Mine Shafts
- Coal Mines
- Coal Basin
- Underground Mines

## Geology

- Michigan Watersheds
- Great Lakes Watershed
- Quaternary Geology Features
- End Moraine and Ice Contact Outwash
- Quaternary Geology
- Part 303 Final Wetlands Inventory
- MNFI Landcover, Circa 1800
- Waterfalls
- Outcrops and Thin Drift
- Structural Lineaments
- Major Structural Features
- Cuestas
- Midcontinent Rift
- Sedimentary Basins
- Bedrock Geology
- Elevation Shaded Relief Map
  - Elevation (feet)
  - Hillshade of Elevation
- Bouguer Gravity Anomaly
  - Bouguer Gravity (milligals)
  - Bouguer Gravity Anomaly Map Hillshade
- Magnetic Anomaly
  - Magnetic Anomaly Map (nanoteslas)
  - Magnetic Anomaly Map Hillshade

## Ownership and Mineral Leases

- State Ownership Type – Label
  - Surface – Blue
  - FEE – Black
  - Mineral – Red
- Reserved Minerals
- Lease Number – Label
- Lease Classification Recommendation
- DNR Ownership
- Federal Land
- National Forests

## Public Land Survey System

- Town Range
- Public Land Survey System Sections
- Quarter-Quarter Section Subdivisions
- USGS Topographical Quad Index (24K)

## Likely Future Layers

- Bedrock Topography
- Drift Thickness
- Bedrock Valleys
- Known or Suspected Karst
- Marker Bed Structure Contour Maps
- Isopach Maps
- Precambrian Basement Contours
- Basement Terrains
- USGS Mineral Resources Data Systems
- 1:100,000 Topo Contours
- 1:24,000 Topo Contours
- Type Section Locations
- Base of Fresh Water Surface
- Production Reporting Units (PRU) Polygons
- Secondary Recovery/Water Flood Areas
- Wells with Rasterlogs
- Wells with cores and samples
- Non Metallic Quarries
- Sand Dunes: Coastal and Inland
- Great Lakes Bathymetry
- Published Geologic Map Outlines
- DEQ-OOGM District/Coverage
- County High Points and Low Points
- Places of Geologic Interest Cliffs, Scenic Vistas, etc.,
- Wellhead Protection Areas\*
- SSURGO County Soils (With Attributes)\*
- Wellogic Water Well Data\*
- DNR Mineral Lease Auction Results\*

Make suggestions for other layers on the Feedback page!

\* = potential layer

## Data Search Tab

Layers Tool | Map Tools | **Data Search**

GeoWebFace Data Search  
Separate from Quick Zoom, Data Search enables you to retrieve data for a specified Well location.

**Well**  
Enter a Well attribute below and then click the Search button to retrieve data.

Permit Number:   
*Example: 45643*

API Number:   
*Example: 21079456430000*

Well Name:   
*Example: State Garfield*

Company Name:   
*Example: BreitBurn*

Field Name:   
*Example: Garfield*

PRU:   
*Example: 18731*

- Allows one to select data without using map interface
- Useful if you know exactly which wells, company, field name or PRU you want data for
- Clear previous data searches before beginning another search

# GeoWebFace Results tab

API Number	Permit Number	Well Name & Number	Well Type	Well Status	Total Depth	Producing Formation	Download
21007503540000	50304	NEEDALA 10-29	Natural Gas Well	Producing	859		<a href="#">Raster Logs</a> <a href="#">Drillers Log</a> <a href="#">Well File</a> <a href="#">Report</a> <a href="#">Map It</a>
21007499950000	49995	WEGMEYER 4-32	Natural Gas Well	Producing	890		<a href="#">Raster Logs</a> <a href="#">Drillers Log</a> <a href="#">Well File</a> <a href="#">Report</a> <a href="#">Map It</a>
21007519530000	51953	BERIAULT 1-5	Location	Terminated Permit			<a href="#">Well File</a> <a href="#">Report</a> <a href="#">Map It</a>
21007501800000	50918	LUKE 7-36	Natural Gas Well	Producing	1000		<a href="#">Raster Logs</a> <a href="#">Drillers Log</a> <a href="#">Well File</a> <a href="#">Report</a> <a href="#">Map It</a>

- If you selected an oil and gas well or a group of wells, choosing the **GeoWebFace Results** tab provides access to the following scanned documents, computer generated reports and or files:
  - **RasterLogs,**
  - **Drillers Logs,**
  - **Well File,**
  - **Summary Report**

In addition you can Download to additional data fields to and Excel spreadsheet

# GeoWebFace Results tab Download Results of Selection to Excel

API Number	Well Name	Status	Depth	Formation	County	State
21007503540000	NEEDALA 10-29	Producing	859		Weld	CO
21007499950000	WEGMEYER 4-32	Producing	890		Weld	CO
21007519530000	BERIAULT 1-5	Terminated Permit			Weld	CO
21007501800000	LUKE 7-36	Producing	1000		Weld	CO

This allows more data fields to be viewed and downloaded

# GeoWebFace Results tab Well Summary Report


**Department of Environmental Quality**  
 GeoWebFace


**MICHIGAN.GOV**  
 Michigan's Official Web Site

**WELL SUMMARY REPORT**      API NO: 21-007-49995-00-00  
 PERMIT NO: 49995

Operator		Well	
CHEVRON MICHIGAN LLC		WEGMEYER 4-32	
Permit Issued:	Drilling Started:	Well Completed:	Well Type:
1995-06-12	1995-10-11	1995-11-02	Natural Gas Well
Well Status:		Producing	
Surface Location County Name		Township	
ALPENA		WILSON	
Town Range Section	QTRQTRQTR	Latitude	Longitude
10N-7E-32	NENW/4	44.939061	-83.6251496
Bottom Location County Name		Township	
ALPENA		WILSON	
Town Range Section	QTRQTRQTR	Latitude	Longitude
10N-7E-32	NENW/4	44.939061	-83.6251496
Well Elevations:		Depths Measured From:	
Ground: 750, Derrick Floor: 1, Mtly Bushing: 750		Mtly Bushing	
Formation at Total Depth		Drilled Total Depth	True Vertical Total Depth
TRAVERSE LIMESTONE		890	
Producing Formation			
Note: For vertical wells, the bottom hole location is the same as the surface location.			

# GeoWebFace Results tab - Download Drillers Logs      Permit Wellfiles

4 Pages      2-208-JE      Exploratory  
 Millen Tap. (Alcona Co.)      Dry  
 Jack Hall Company

State-Millen No. 1      Permit No. 24102  
 Drilling Contractor: North American Drilling Co. (Rotary)

Location: SE 1/4 NE 1/4 NW 1/4 Section 2, T.28N., R.7E,  
 300' from North and 200' from East line of quarter section.  
 Elevation: 877.0 feet above sea level (rig fl.)

Record by: William Hestak from driller's log and core chips 2094-2723 and 2904-2987,  
 some formation logs from Schlumberger Super Ray-Scanner (SRS).

	Thickness (feet)	Depth (feet)
<b>PLEISTOCENE:</b>		
Drifts:		
Sand and clay	170	170
Gravel and boulders	62	232
Gravel and clay	159	391 SCH.
<b>MISSISSIPPIAN:</b>		
Goldens:		
Shale, gray	68	460
Sand, gray	65	525
Shale, gray	5	530
Shale, blue	30	560
Shale, gray	80	640
Redrock	23	663 SCH.
Sanbury:		
Shale, black	31	694 SCH.
Berna-Bedford:		
Sand and shale	76	770
Shale, gray	85	855 SCH.
<b>MISSISSIPPIAN-DEVONIAN:</b>		
Alps:		
Shale, dark brown	264	1119
Shale, dark brown to black	85	1204 SCH.
<b>DEVONIAN:</b>		
Traverse:		
Shale, dark brown to black?	46	1250
Shale, dark gray	50	1300
Thin arg. chert, gray	16	1316
Shale, gray	151	1467
Lime, brown and gray	253	1720
Lime, gray, thin's some lime, brown	132	1852
Shale, gray and lime	59	1912 SCH.
Dundas:		
Lime, gray	80	1992
Lime, brown and gray	128	2120
Lime, brown and gray, with anhydrite	81	2201 SCH.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - GEOLOGICAL SURVEY DIVISION  
**APPLICATION FOR PERMIT TO DRILL AND OPERATE A WELL**

DRILL     DEEPEN  
 REPAIR     REPAIR AND DEEPEN

1. Application to be required if permit is used.    2. Fee schedule?    3. Fee amount?    4. Do you permit entry?

5. Licensee:  State Application     General & Specific     Oil     Gas     Steam     Other     Other (Specify)

6. For each permit number:    7. Contaminant listed    8. Contaminant    9. Bond number    10. Bond amount

11. Applicant: Name of permittee as listed    12. Address    13. Phone    14. Location

15. Licensee or well name (if as listed as possible)    16. Well number    17. County

18. Location: NE 1/4 of NE 1/4 of Sec 33, T.28N. R.7E, W.1/2    19. Township:    20. County:

21. Location well in two directions from nearest lines of quarter section and drilling line (see instructions)

22. Location:    23. Direction:    24. Direction:    25. Direction:    26. Direction:

27. Bond certificate and permit to:    28. Permit number:    29. Permit date:    30. Permit expiration:

31. Bond certificate and permit to:    32. Permit number:    33. Permit date:    34. Permit expiration:

35. Bond certificate and permit to:    36. Permit number:    37. Permit date:    38. Permit expiration:

39. Bond certificate and permit to:    40. Permit number:    41. Permit date:    42. Permit expiration:

43. Bond certificate and permit to:    44. Permit number:    45. Permit date:    46. Permit expiration:

47. Bond certificate and permit to:    48. Permit number:    49. Permit date:    50. Permit expiration:

51. Bond certificate and permit to:    52. Permit number:    53. Permit date:    54. Permit expiration:

55. Bond certificate and permit to:    56. Permit number:    57. Permit date:    58. Permit expiration:

59. Bond certificate and permit to:    60. Permit number:    61. Permit date:    62. Permit expiration:

63. Bond certificate and permit to:    64. Permit number:    65. Permit date:    66. Permit expiration:

67. Bond certificate and permit to:    68. Permit number:    69. Permit date:    70. Permit expiration:

71. Bond certificate and permit to:    72. Permit number:    73. Permit date:    74. Permit expiration:

75. Bond certificate and permit to:    76. Permit number:    77. Permit date:    78. Permit expiration:

79. Bond certificate and permit to:    80. Permit number:    81. Permit date:    82. Permit expiration:

83. Bond certificate and permit to:    84. Permit number:    85. Permit date:    86. Permit expiration:

87. Bond certificate and permit to:    88. Permit number:    89. Permit date:    90. Permit expiration:

91. Bond certificate and permit to:    92. Permit number:    93. Permit date:    94. Permit expiration:

95. Bond certificate and permit to:    96. Permit number:    97. Permit date:    98. Permit expiration:

99. Bond certificate and permit to:    100. Permit number:    101. Permit date:    102. Permit expiration:

103. Bond certificate and permit to:    104. Permit number:    105. Permit date:    106. Permit expiration:

107. Bond certificate and permit to:    108. Permit number:    109. Permit date:    110. Permit expiration:

111. Bond certificate and permit to:    112. Permit number:    113. Permit date:    114. Permit expiration:

115. Bond certificate and permit to:    116. Permit number:    117. Permit date:    118. Permit expiration:

119. Bond certificate and permit to:    120. Permit number:    121. Permit date:    122. Permit expiration:

123. Bond certificate and permit to:    124. Permit number:    125. Permit date:    126. Permit expiration:

127. Bond certificate and permit to:    128. Permit number:    129. Permit date:    130. Permit expiration:

131. Bond certificate and permit to:    132. Permit number:    133. Permit date:    134. Permit expiration:

135. Bond certificate and permit to:    136. Permit number:    137. Permit date:    138. Permit expiration:

139. Bond certificate and permit to:    140. Permit number:    141. Permit date:    142. Permit expiration:

143. Bond certificate and permit to:    144. Permit number:    145. Permit date:    146. Permit expiration:

147. Bond certificate and permit to:    148. Permit number:    149. Permit date:    150. Permit expiration:

151. Bond certificate and permit to:    152. Permit number:    153. Permit date:    154. Permit expiration:

155. Bond certificate and permit to:    156. Permit number:    157. Permit date:    158. Permit expiration:

159. Bond certificate and permit to:    160. Permit number:    161. Permit date:    162. Permit expiration:

163. Bond certificate and permit to:    164. Permit number:    165. Permit date:    166. Permit expiration:

167. Bond certificate and permit to:    168. Permit number:    169. Permit date:    170. Permit expiration:

171. Bond certificate and permit to:    172. Permit number:    173. Permit date:    174. Permit expiration:

175. Bond certificate and permit to:    176. Permit number:    177. Permit date:    178. Permit expiration:

179. Bond certificate and permit to:    180. Permit number:    181. Permit date:    182. Permit expiration:

183. Bond certificate and permit to:    184. Permit number:    185. Permit date:    186. Permit expiration:

187. Bond certificate and permit to:    188. Permit number:    189. Permit date:    190. Permit expiration:

191. Bond certificate and permit to:    192. Permit number:    193. Permit date:    194. Permit expiration:

195. Bond certificate and permit to:    196. Permit number:    197. Permit date:    198. Permit expiration:

199. Bond certificate and permit to:    200. Permit number:    201. Permit date:    202. Permit expiration:

203. Bond certificate and permit to:    204. Permit number:    205. Permit date:    206. Permit expiration:

207. Bond certificate and permit to:    208. Permit number:    209. Permit date:    210. Permit expiration:

211. Bond certificate and permit to:    212. Permit number:    213. Permit date:    214. Permit expiration:

215. Bond certificate and permit to:    216. Permit number:    217. Permit date:    218. Permit expiration:

219. Bond certificate and permit to:    220. Permit number:    221. Permit date:    222. Permit expiration:

223. Bond certificate and permit to:    224. Permit number:    225. Permit date:    226. Permit expiration:

227. Bond certificate and permit to:    228. Permit number:    229. Permit date:    230. Permit expiration:

231. Bond certificate and permit to:    232. Permit number:    233. Permit date:    234. Permit expiration:

235. Bond certificate and permit to:    236. Permit number:    237. Permit date:    238. Permit expiration:

239. Bond certificate and permit to:    240. Permit number:    241. Permit date:    242. Permit expiration:

243. Bond certificate and permit to:    244. Permit number:    245. Permit date:    246. Permit expiration:

247. Bond certificate and permit to:    248. Permit number:    249. Permit date:    250. Permit expiration:

251. Bond certificate and permit to:    252. Permit number:    253. Permit date:    254. Permit expiration:

255. Bond certificate and permit to:    256. Permit number:    257. Permit date:    258. Permit expiration:

259. Bond certificate and permit to:    260. Permit number:    261. Permit date:    262. Permit expiration:

263. Bond certificate and permit to:    264. Permit number:    265. Permit date:    266. Permit expiration:

267. Bond certificate and permit to:    268. Permit number:    269. Permit date:    270. Permit expiration:

271. Bond certificate and permit to:    272. Permit number:    273. Permit date:    274. Permit expiration:

275. Bond certificate and permit to:    276. Permit number:    277. Permit date:    278. Permit expiration:

279. Bond certificate and permit to:    280. Permit number:    281. Permit date:    282. Permit expiration:

283. Bond certificate and permit to:    284. Permit number:    285. Permit date:    286. Permit expiration:

287. Bond certificate and permit to:    288. Permit number:    289. Permit date:    290. Permit expiration:

291. Bond certificate and permit to:    292. Permit number:    293. Permit date:    294. Permit expiration:

295. Bond certificate and permit to:    296. Permit number:    297. Permit date:    298. Permit expiration:

299. Bond certificate and permit to:    300. Permit number:    301. Permit date:    302. Permit expiration:

303. Bond certificate and permit to:    304. Permit number:    305. Permit date:    306. Permit expiration:

307. Bond certificate and permit to:    308. Permit number:    309. Permit date:    310. Permit expiration:

311. Bond certificate and permit to:    312. Permit number:    313. Permit date:    314. Permit expiration:

315. Bond certificate and permit to:    316. Permit number:    317. Permit date:    318. Permit expiration:

319. Bond certificate and permit to:    320. Permit number:    321. Permit date:    322. Permit expiration:

323. Bond certificate and permit to:    324. Permit number:    325. Permit date:    326. Permit expiration:

327. Bond certificate and permit to:    328. Permit number:    329. Permit date:    330. Permit expiration:

331. Bond certificate and permit to:    332. Permit number:    333. Permit date:    334. Permit expiration:

335. Bond certificate and permit to:    336. Permit number:    337. Permit date:    338. Permit expiration:

339. Bond certificate and permit to:    340. Permit number:    341. Permit date:    342. Permit expiration:

343. Bond certificate and permit to:    344. Permit number:    345. Permit date:    346. Permit expiration:

347. Bond certificate and permit to:    348. Permit number:    349. Permit date:    350. Permit expiration:

351. Bond certificate and permit to:    352. Permit number:    353. Permit date:    354. Permit expiration:

355. Bond certificate and permit to:    356. Permit number:    357. Permit date:    358. Permit expiration:

359. Bond certificate and permit to:    360. Permit number:    361. Permit date:    362. Permit expiration:

363. Bond certificate and permit to:    364. Permit number:    365. Permit date:    366. Permit expiration:

367. Bond certificate and permit to:    368. Permit number:    369. Permit date:    370. Permit expiration:

371. Bond certificate and permit to:    372. Permit number:    373. Permit date:    374. Permit expiration:

375. Bond certificate and permit to:    376. Permit number:    377. Permit date:    378. Permit expiration:

379. Bond certificate and permit to:    380. Permit number:    381. Permit date:    382. Permit expiration:

383. Bond certificate and permit to:    384. Permit number:    385. Permit date:    386. Permit expiration:

387. Bond certificate and permit to:    388. Permit number:    389. Permit date:    390. Permit expiration:

391. Bond certificate and permit to:    392. Permit number:    393. Permit date:    394. Permit expiration:

395. Bond certificate and permit to:    396. Permit number:    397. Permit date:    398. Permit expiration:

399. Bond certificate and permit to:    400. Permit number:    401. Permit date:    402. Permit expiration:

403. Bond certificate and permit to:    404. Permit number:    405. Permit date:    406. Permit expiration:

407. Bond certificate and permit to:    408. Permit number:    409. Permit date:    410. Permit expiration:

411. Bond certificate and permit to:    412. Permit number:    413. Permit date:    414. Permit expiration:

415. Bond certificate and permit to:    416. Permit number:    417. Permit date:    418. Permit expiration:

419. Bond certificate and permit to:    420. Permit number:    421. Permit date:    422. Permit expiration:

423. Bond certificate and permit to:    424. Permit number:    425. Permit date:    426. Permit expiration:

427. Bond certificate and permit to:    428. Permit number:    429. Permit date:    430. Permit expiration:

431. Bond certificate and permit to:    432. Permit number:    433. Permit date:    434. Permit expiration:

435. Bond certificate and permit to:    436. Permit number:    437. Permit date:    438. Permit expiration:

439. Bond certificate and permit to:    440. Permit number:    441. Permit date:    442. Permit expiration:

443. Bond certificate and permit to:    444. Permit number:    445. Permit date:    446. Permit expiration:

447. Bond certificate and permit to:    448. Permit number:    449. Permit date:    450. Permit expiration:

451. Bond certificate and permit to:    452. Permit number:    453. Permit date:    454. Permit expiration:

455. Bond certificate and permit to:    456. Permit number:    457. Permit date:    458. Permit expiration:

459. Bond certificate and permit to:    460. Permit number:    461. Permit date:    462. Permit expiration:

463. Bond certificate and permit to:    464. Permit number:    465. Permit date:    466. Permit expiration:

467. Bond certificate and permit to:    468. Permit number:    469. Permit date:    470. Permit expiration:

471. Bond certificate and permit to:    472. Permit number:    473. Permit date:    474. Permit expiration:

475. Bond certificate and permit to:    476. Permit number:    477. Permit date:    478. Permit expiration:

479. Bond certificate and permit to:    480. Permit number:    481. Permit date:    482. Permit expiration:

483. Bond certificate and permit to:    484. Permit number:    485. Permit date:    486. Permit expiration:

487. Bond certificate and permit to:    488. Permit number:    489. Permit date:    490. Permit expiration:

491. Bond certificate and permit to:    492. Permit number:    493. Permit date:    494. Permit expiration:

495. Bond certificate and permit to:    496. Permit number:    497. Permit date:    498. Permit expiration:

499. Bond certificate and permit to:    500. Permit number:    501. Permit date:    502. Permit expiration:

503. Bond certificate and permit to:    504. Permit number:    505. Permit date:    506. Permit expiration:

507. Bond certificate and permit to:    508. Permit number:    509. Permit date:    510. Permit expiration:

511. Bond certificate and permit to:    512. Permit number:    513. Permit date:    514. Permit expiration:

515. Bond certificate and permit to:    516. Permit number:    517. Permit date:    518. Permit expiration:

519. Bond certificate and permit to:    520. Permit number:    521. Permit date:    522. Permit expiration:

523. Bond certificate and permit to:    524. Permit number:    525. Permit date:    526. Permit expiration:

527. Bond certificate and permit to:    528. Permit number:    529. Permit date:    530. Permit expiration:

531. Bond certificate and permit to:    532. Permit number:    533. Permit date:    534. Permit expiration:

535. Bond certificate and permit to:    536. Permit number:    537. Permit date:    538. Permit expiration:

539. Bond certificate and permit to:    540. Permit number:    541. Permit date:    542. Permit expiration:

543. Bond certificate and permit to:    544. Permit number:    545. Permit date:    546. Permit expiration:

547. Bond certificate and permit to:    548. Permit number:    549. Permit date:    550. Permit expiration:

551. Bond certificate and permit to:    552. Permit number:    553. Permit date:    554. Permit expiration:

555. Bond certificate and permit to:    556. Permit number:    557. Permit date:    558. Permit expiration:

559. Bond certificate and permit to:    560. Permit number:    561. Permit date:    562. Permit expiration:

563. Bond certificate and permit to:    564. Permit number:    565. Permit date:    566. Permit expiration:

567. Bond certificate and permit to:    568. Permit number:    569. Permit date:    570. Permit expiration:

571. Bond certificate and permit to:    572. Permit number:    573. Permit date:    574. Permit expiration:

575. Bond certificate and permit to:    576. Permit number:    577. Permit date:    578. Permit expiration:

579. Bond certificate and permit to:    580. Permit number:    581. Permit date:    582. Permit expiration:

583. Bond certificate and permit to:    584. Permit number:    585. Permit date:    586. Permit expiration:

587. Bond certificate and permit to:    588. Permit number:    589. Permit date:    590. Permit expiration:

591. Bond certificate and permit to:    592. Permit number:    593. Permit date:    594. Permit expiration:

595. Bond certificate and permit to:    596. Permit number:    597. Permit date:    598. Permit expiration:

599. Bond certificate and permit to:    600. Permit number:    601. Permit date:    602. Permit expiration:

603. Bond certificate and permit to:    604. Permit number:    605. Permit date:    606. Permit expiration:

607. Bond certificate and permit to:    608. Permit number:    609. Permit date:    610. Permit expiration:

611. Bond certificate and permit to:    612. Permit number:    613. Permit date:    614. Permit expiration:

615. Bond certificate and permit to:    616. Permit number:    617. Permit date:    618. Permit expiration:

619. Bond certificate and permit to:    620. Permit number:    621. Permit date:    622. Permit expiration:

623. Bond certificate and permit to:    624. Permit number:    625. Permit date:    626. Permit expiration:

627. Bond certificate and permit to:    628. Permit number:    629. Permit date:    630. Permit expiration:

631. Bond certificate and permit to:    632. Permit number:    633. Permit date:    634. Permit expiration:

635. Bond certificate and permit to:    636. Permit number:    637. Permit date:    638. Permit expiration:

639. Bond certificate and permit to:    640. Permit number:    641. Permit date:    642. Permit expiration:

643. Bond certificate and permit to:    644. Permit number:    645. Permit date:    646. Permit expiration:

647. Bond certificate and permit to:    648. Permit number:    649. Permit date:    650. Permit expiration:

651. Bond certificate and permit to:    652. Permit number:    653. Permit date:    654. Permit expiration:

655. Bond certificate and permit to:    656. Permit number:    657. Permit date:    658. Permit expiration:

659. Bond certificate and permit to:    660. Permit number:    661. Permit date:    662. Permit expiration:

663. Bond certificate and permit to:    664. Permit number:    665. Permit date:    666. Permit expiration:

667. Bond certificate and permit to:    668. Permit number:    669. Permit date:    670. Permit expiration:

671. Bond certificate and permit to:    672. Permit number:    673. Permit date:    674. Permit expiration:

675. Bond certificate and permit to:    676. Permit number:    677. Permit date:    678. Permit expiration:

679. Bond certificate and permit to:    680. Permit number:    681. Permit date:    682. Permit expiration:

683. Bond certificate and permit to:    684. Permit number:    685. Permit date:    686. Permit expiration:

687. Bond certificate and permit to:    688. Permit number:    689. Permit date:    690. Permit expiration:

691. Bond certificate and permit to:    692. Permit number:    693. Permit date:    694. Permit expiration:

695. Bond certificate and permit to:    696. Permit number:    697. Permit date:    698. Permit expiration:

699. Bond certificate and permit to:    700. Permit number:    701. Permit date:    702. Permit expiration:

703. Bond certificate and permit to:    704. Permit number:    705. Permit date:    706. Permit expiration:

707. Bond certificate and permit to:    708. Permit number:    709. Permit date:    710. Permit expiration:

711. Bond certificate and permit to:    712. Permit number:    713. Permit date:    714. Permit expiration:

715. Bond certificate and permit to:    716. Permit number:    717. Permit date:    718. Permit expiration:

719. Bond certificate and permit to:    720. Permit number:    721. Permit date:    722. Permit expiration:

723. Bond certificate and permit to:    724. Permit number:    725. Permit date:    726. Permit expiration:

727. Bond certificate and permit to:    728. Permit number:    729. Permit date:    730. Permit expiration:

731. Bond certificate and permit to:    732. Permit number:    733. Permit date:    734. Permit expiration:

735. Bond certificate and permit to:    736. Permit number:    737. Permit date:    738. Permit expiration:

739. Bond certificate and permit to:    740. Permit number:    741. Permit date:    742. Permit expiration:

743. Bond certificate and permit to:    744. Permit number:    745. Permit date:    746. Permit expiration:

747. Bond certificate and permit to:    748. Permit number:    749. Permit date:    750. Permit expiration:

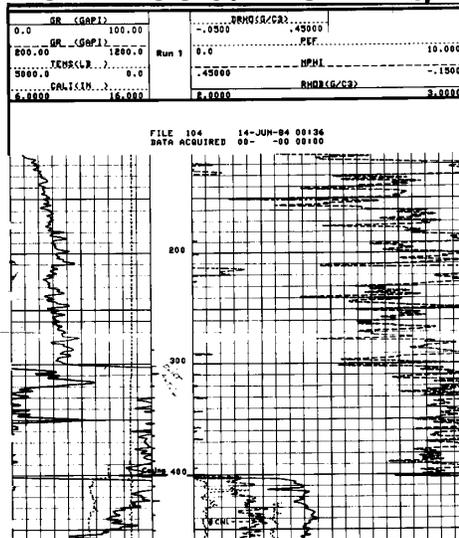
751. Bond certificate and permit to:    752. Permit number:    753. Permit date:    754. Permit expiration:

755. Bond certificate and permit to:    756. Permit number:    757. Permit date:    758. Permit expiration:

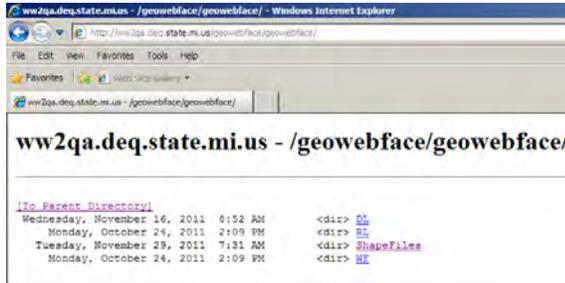
759

# GeoWebFace Results tab Rasterlogs Download/Viewing

- You can download rasterlogs individually or
- View in Schlumberger BlueView or
- You can download in bulk from GWF FTP site



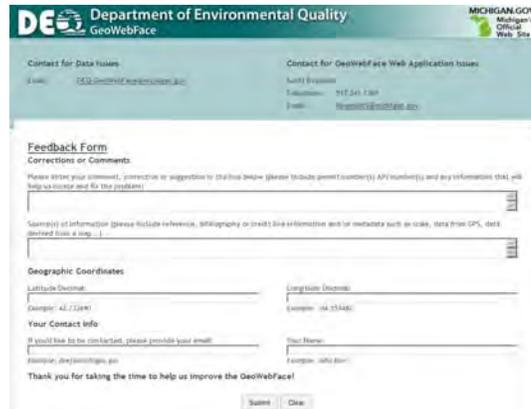
# GeoWebFace FTP Site



Name	Size	Type	Date Modified
02042_DL.PDF	35KB	Adobe Acrobat Document	2/5/2011 8:26 PM
02017_DL.PDF	27KB	Adobe Acrobat Document	2/5/2011 8:26 PM
02038_DL.PDF	24KB	Adobe Acrobat Document	2/3/2011 8:26 PM
02076_DL.PDF	9KB	Adobe Acrobat Document	1/28/2011 5:15 PM
09404_DL.PDF	18KB	Adobe Acrobat Document	1/28/2011 5:15 PM
11119_DL.PDF	27KB	Adobe Acrobat Document	1/28/2011 5:22 PM
14076_DL.PDF	68KB	Adobe Acrobat Document	1/13/2011 2:03 PM
22075_DL.PDF	32KB	Adobe Acrobat Document	1/13/2011 2:06 PM
22045_DL.PDF	70KB	Adobe Acrobat Document	1/13/2011 2:21 PM
22048_DL.PDF	74KB	Adobe Acrobat Document	1/13/2011 2:22 PM
22108_DL.PDF	54KB	Adobe Acrobat Document	1/13/2011 2:22 PM
22154_DL.PDF	22KB	Adobe Acrobat Document	1/13/2011 2:22 PM
22285_DL.PDF	78KB	Adobe Acrobat Document	1/13/2011 2:22 PM
22274_DL.PDF	126KB	Adobe Acrobat Document	1/13/2011 2:22 PM
24339_DL.PDF	146KB	Adobe Acrobat Document	1/13/2011 2:24 PM
24339_DL.PDF	54KB	Adobe Acrobat Document	1/13/2011 2:24 PM

- Data is organized by 3 digit County code
- Scanned Oil and Gas Records available from GWF Map Search, Data Search or FTP Site:
  - DL-Drillers Logs
  - WF-Permit Wellfiles
  - RL-Rasterlogs
- Shapefiles (oil & gas well locations only-for now)

# Feedback



We really like positive feedback!

- Online Feedback form
- Or send email to
  - [DEQ-GeoWebFace@michigan.gov](mailto:DEQ-GeoWebFace@michigan.gov)
- Make suggestions for additions
- Report omissions and errors

# Learning Resources

- Users Guide
- Tip Sheets
- FAQ
- 2-3 hour demonstrations across the state if enough interest
- Webinars?
- Videos
  - Send email to [eschj@michigan.gov](mailto:eschj@michigan.gov) for links to draft videos



## Known Issues

- Bookmark Tool not working
- Data Search has 200 well limit
- Permit Numbers w/4 digits ex>PN 2345
  - Drillers logs and Wellfiles not connecting in Results page,
  - But are available on GeoWebFace FTP site
- Printing is very limited
- Oil and Gas Shapefiles FTP download not working
- Map Tools>Quick Zoom>Wells>PRU not working
- Oil and Gas Wells>Directional Start Hole on by default
- Oil and Gas Well Labels look poor over aerial photos
- Duplicate PN (pre-permit well, BDW, Mineral Wells)
- Many layers are older versions and will be updated soon
  - Oil and Gas Fields
  - Structural Lineaments
  - Cuestas

## GeoWebFace Future Releases

- Updated data
  - Oil and Gas Fields, etc.,
- Added functionality
- Additional layers
- Printing is limited in this release, it will improved in later releases



## Question/Contact?

- John Esch
  - (517) 241-1534
  - [eschj@michigan.gov](mailto:eschj@michigan.gov)
- Or
- [DEQ-GeoWebFace@michigan.gov](mailto:DEQ-GeoWebFace@michigan.gov)

