

# **RFDbase-USA**

## **Geochemical Database of the USA**

An Integrated Database of Oil, Gas, and Source Rock  
Analytical Data from Petroliferous Basin  
of the Continental United States

**GEOMARK RESEARCH, LTD.**

**A Proposal**

**GEOMARK**

# RFDbase-USA

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### INTRODUCTION

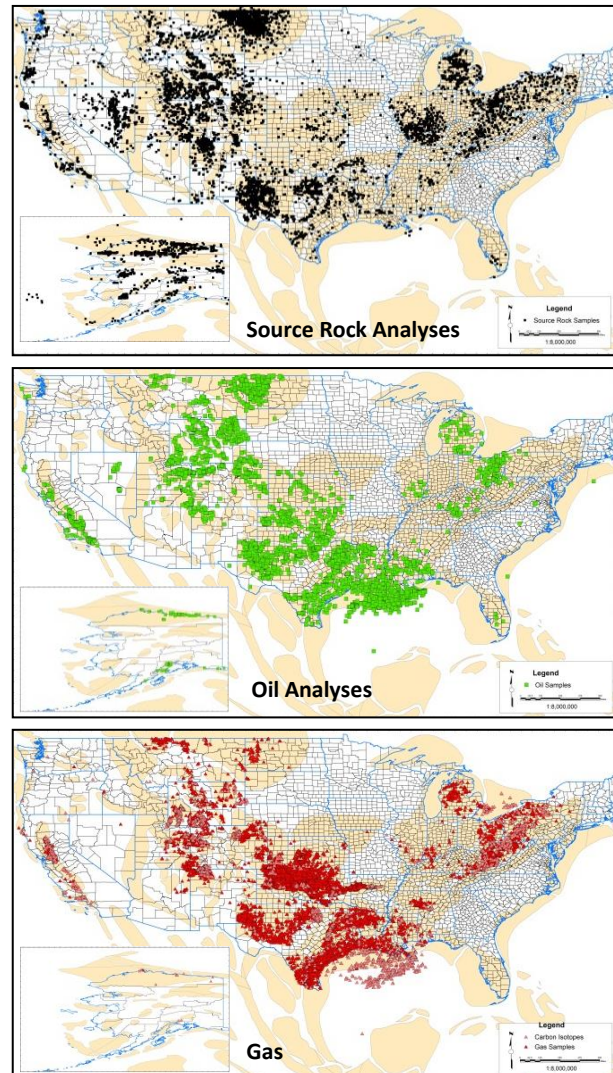
GeoMark is offering a new service to the oil and gas industry through the introduction of the Source Rock Geochemical Database. This proposal is for the United States portion of this database. International coverage will be added by June, 2013.

The USA Geochemical Database couples the new source rock data module with GeoMark's expansive oil and gas dataset within the United States to provide representative samples from virtually every productive basin in the United States. Participants will have access to over 4,600 crude oil analyses, 10,500 gas analyses (4,700 with carbon isotope results), and 102,000 source rock analyses. **Figures 1, 2 & 3** provide a geographical representation of the US Geochemical Database's coverage, and **Appendix A** provides a detailed listing of the database samples by USGS Province. More detail can be provided upon request.

The USA Geochemical Database, paired with GeoMark's RFDbase platform for accessing data, provides the industry with a high quality, low cost method for obtaining future oil and gas analyses. RFDbase.com is GeoMark's proprietary GIS-enabled web platform through which participants are able to access all licensed and proprietary data. This platform allows an unlimited number of users from the participating company to log into the database; any time, from anywhere. Data can be conveniently searched, displayed and exported in order to be integrated with proprietary databases of participating companies. Data within RFDbase.com are divided into a "closed" section for the storage of proprietary data, and a large "open" section for the storage of non-exclusive data which is accessible to all participants.

This new integrated database is perfectly designed for companies pursuing exploration efforts for unconventional opportunities in North America. Direct access to thousands of source rock, oil and gas analyses will enable your exploration teams to rapidly assess a large number of basins/formations, without divulging your potential interest outside your company.

**Figure 1.** Source Rock, Oil & Gas samples

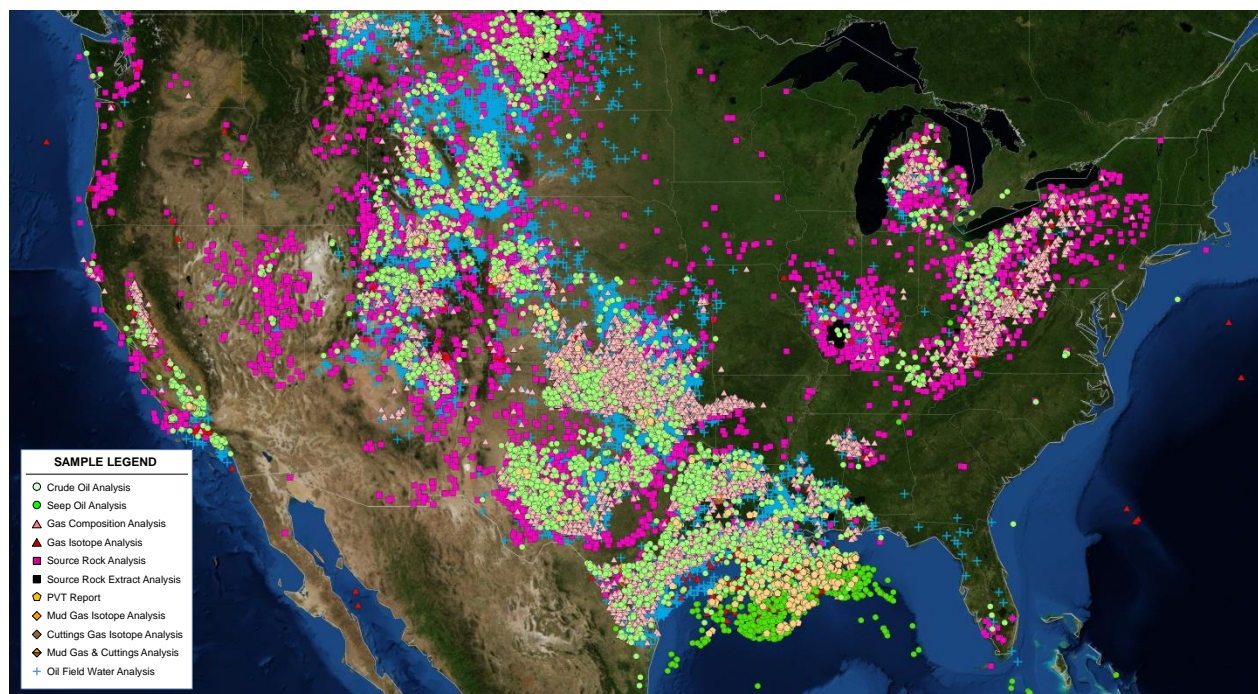


## TERMS AND CONDITIONS

The price of the USA Oil & Gas Database is \$180,000.00 per year for the combined Source Rock, Oil & Gas Modules. The initial license is for a three (3) year minimum. Companies may elect to remain in the Database after year three, but this will not be an obligation. It is possible to license only the oil, gas or source rock portion of the database, or any combination of the three. Companies already participating in other database modules (i.e. OILS) will receive a credit from the full licensing fee.

Participants in the USA Oil & Gas Database will also receive discounts when purchasing North American interpretive reports from GeoMark. Depending on the vintage of the study, this discount will range from 15% to 33%.

GeoMark is constantly adding new data to each of the modules, creating a dynamic database that will expand and improve with time. The various modules within RFDbase can be viewed at [www.RFDbase.com](http://www.RFDbase.com). The website contains a demonstration routine allowing visitors access to all search and display functions on a limited set of selected samples.

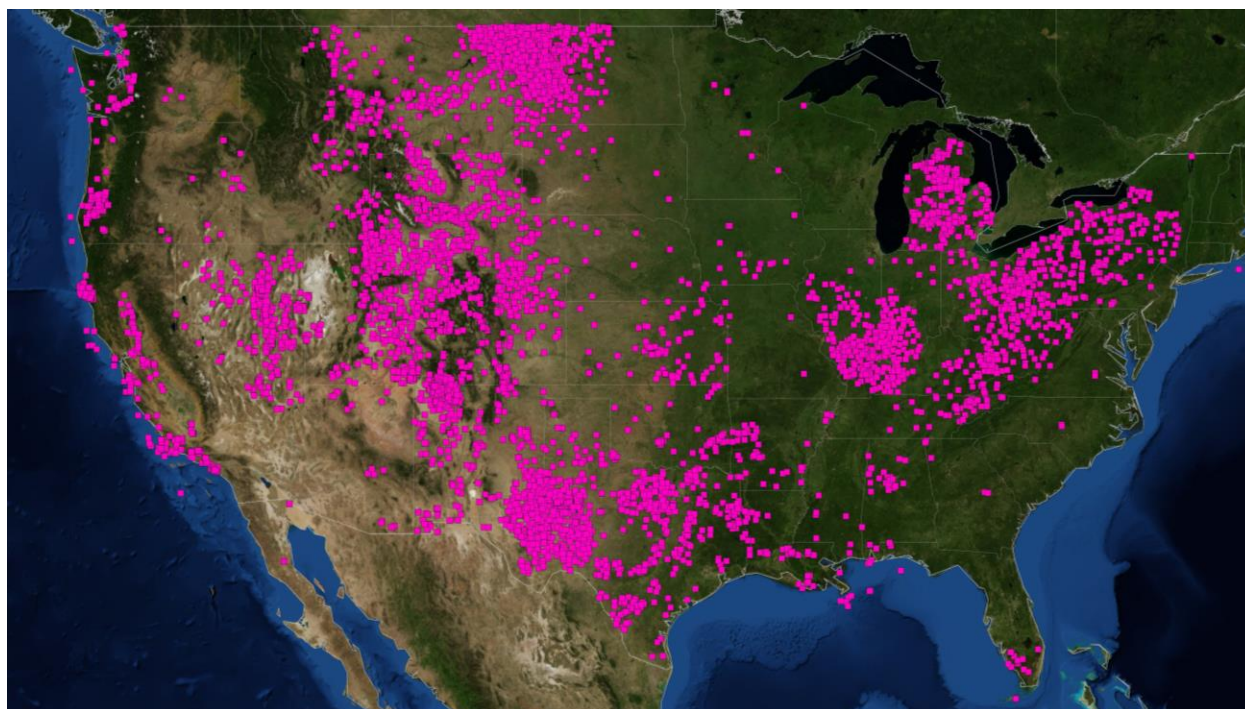


**Figure 2.** Screen shot of the USA Geochemical Database showing coverage of all data.

## OVERVIEW OF RFDATABASE.COM

RFDbase.com is an interactive web interface overlaying a Microsoft SQL Server database populated with petroleum fluid or source rock data. The system has been designed to accommodate all types of source rock and reservoir fluid data to be stored in the Database. It currently holds Source Rock, Oil, Oil Seep, Gas, Gas Seep, Water, PVT, Source Rock Extracts, Flow Assurance (wax and asphaltene), and Mud Gas Isotopes data. The mapping interface provided by RFDbase.com can be used to geographically search for targeted data, while other tools are provided to develop simple and more complex queries of the SQL database.





**Figure 3.** Distribution of only the Source Rock Module sample locations.

Some of the specific functions of RFDbase are listed below.

- Search features allow for extensive data searching by rock or fluid properties, field information across all available types of data (oil, gas, source rock, etc.).
- The web-enabled Geographical Information System (GIS) mapping application provides for data searching and comparative analyses in a more visual environment. With the mapping interface, comparisons of multiple rocks or fluids on a geographical basis can be made.
- A number of options for printing and/or downloading data:
  - Data tables can be downloaded in several format types, including Microsoft Excel™ or Microsoft Access™.
  - Graphical data can be viewed on screen, or downloaded in PDF format.
  - GeoMark's standard Geochemical Summary sheet may be viewed on screen, printed, or saved as a PDF.
  - Raw GC and GC/MS data are also downloadable from the website.
- The broadband capabilities of RFDbase will handle multiple simultaneous users and there is unlimited password access to any/all users within a participating company.
- The program allows for real time plotting of selected data or data sets.

Please contact GeoMark for a full demonstration of the entire RFDbase program, or for any other questions concerning the US Geochemical Database.

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## APPENDIX A USGS Provenance List

List chart showing sample numbers by USGS Provenance in the USA Oil & Gas Database

USGS Provenance	Source Rock Number of Wells	Source Rock Number of Samples	Oil Samples	Gas Samples
Albuquerque-Santa Fe Rift	33	412	3	1
Algonquin Arch-Michigan Basin			4	57
Anadarko Basin	30	376	135	2,748
Appalachian Basin	592	13,308	165	969
Arkoma Basin	53	449	5	690
Atlantic Mesozoic OCS	1	1	2	0
Beaufort Shelf OCS	18	2,493	7	2
Bend Arch-Fort Worth Basin	192	2,971	170	455
Big Horn Basin	51	1,071	105	94
Black Warrior Basin	24	387	3	102
Cambridge Arch-Central Kansas Uplift	22	181	75	335
Central Coastal	80	125		1
Cherokee Platform	20	171	10	197
Cincinnati Arch	36	717	21	13
Cook Inlet OCS	4	337	2	0
Denver Basin	208	1,688	254	306
East Texas Basin	101	1,015	195	348
Eastern Great Basin	633	1,809	38	1
Eastern Oregon-Washington	8	296	2	3
Florida Peninsula	14	277	6	
Forest City Basin	21	121	1	22
Gulf Cenozoic OCS	14	33	727	1,484
Gulf Mesozoic OCS	2	14	21	34
Idaho-Snake River Downward	9	140		2
Illinois Basin	421	1,627	16	80
Las Animas Arch	7	42	55	48
Los Angeles Basin	21	27	151	10
Louisiana-Mississippi Salt Basins	45	746	161	348
Marathon Thrust Belt	29	266	5	7
Michigan Basin	267	3,481	62	163
Montana Thrust Belt	176	2,799	6	36
Nemaha Uplift	26	206	2	140
North-Central Montana	103	488	73	148
Northern Alaska	1,225	9,612	103	53
Northern Arizona	21	22	4	72
Northern Coastal	115	239	5	23
Ordos Basin				1
Palo Duro Basin	34	590	3	589
Paradox Basin	177	775	86	237
Park Basins	50	193	13	8
Permian Basin	723	5,138	652	702
Powder River Basin	98	1,014	190	133
Raton Basin-Rio Grande Uplift	108	833		37
Rocky Mountain Deformed Belt			8	0
Sacramento Basin	33	3,270	12	1,304
San Joaquin Basin	13	374	209	43
San Juan Basin	513	2,741	50	967
Santa Barbara-Ventura Basin OCS	7	85	1	
Santa Maria Basin	117	208	5	7
Sedgwick Basin	20	94	4	138
Sonoma-Livermore Basin			3	1
South-Central New Mexico	87	1,129		2
Southern Alaska	85	1,898	70	3
Southern Oklahoma	3	35		147
Southwest Montana	40	438	4	28
Southwestern Wyoming	265	3,309	203	791
Sevier Basin	63	680	50	387
Uinta Basin	53	838	155	412
Ventura Basin	105	137	7	54
Western Great Basin	78	327		2
Western Gulf	323	2,499	342	1,578
Western Oregon-Washington	164	2,481	5	16
Williston Basin	1,104	6,834	131	164
Wind River Basin	281	1,482	75	185
Wyoming Thrust Belt	125	9,789	83	99
<b>Totals</b>	<b>9,291</b>	<b>95,138</b>	<b>4,955</b>	<b>17,027</b>