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Reconnaissance Assessment of the CO_2 Sequestration Potential in the Triassic Age Rift Basin Trend of South Carolina, Georgia, and Northern Florida

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DISCLAIMER

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REVIEWS AND APPROVALS

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EXECUTIVE SUMMARY

A reconnaissance assessment of the carbon dioxide (CO_2) sequestration potential within the Triassic age rift trend sediments of South Carolina, Georgia and the northern Florida Rift trend was performed for the Office of Fossil Energy, National Energy Technology Laboratory (NETL). This rift trend also extends into eastern Alabama, and has been termed the South Georgia Rift by previous authors, but is termed the South Carolina, Georgia, northern Florida, and eastern Alabama Rift (SGFAR) trend in this report to better describe the extent of the trend.

The objectives of the study were to : **1)** integrate all pertinent geologic information (literature reviews, drilling logs, seismic data, etc.) to create an understanding of the structural aspects of the basin trend (basin trend location and configuration, and the thickness of the sedimentary rock fill), **2)** estimate the rough CO_2 storage capacity (using conservative inputs), and **3)** assess the general viability of the basins as sites of large-scale CO_2 sequestration (determine if additional studies are appropriate). The CO_2 estimates for the trend include South Carolina, Georgia, and northern Florida only.

The study determined that the basins within the SGFAR trend have sufficient sedimentary fill to have a large potential storage capacity for CO_2. The deeper basins appear to have sedimentary fill of over 15,000 feet. Much of this fill is likely to be alluvial and fluvial sedimentary rock with higher porosity and permeability. This report estimates an order of magnitude potential capacity of approximately 137 billion metric tons for supercritical CO_2. The pore space within the basins represent hundreds of years of potential storage for supercritical CO_2 and CO_2 stored in aqueous form.

There are many sources of CO_2 within the region that could use the trend for geologic storage. Thirty one coal fired power plants are located within 100 miles of the deepest portions of these basins. There are also several cement and ammonia plants near the basins. Sixteen coal fired power plants are present on or adjacent to the basins which could support a low pipeline transportation cost.

The current geological information is not sufficient to quantify specific storage reservoirs, seals, or traps. There is insufficient hydrogeologic information to quantify the saline nature of the water present within all of the basins. Water data in the Dunbarton Basin of the Savannah River Site indicates dissolved solids concentrations of greater than 10,000 parts per million (not potential drinking water).

Additional reservoir characterization is needed to take advantage of the SGFAR trend for anthropogenic CO_2 storage. The authors of this report believe it would be appropriate to study the reservoir potential in the deeper basins that are in close proximity to the current larger coal fired power plants (Albany-Arabi, Camilla-Ocilla, Alamo-Ehrhardt, and Jedburg basin).

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LIST OF ABBREVIATIONS

A&A	Applin and Applin
ark	arkose
C&W	Chowns and Williams
COCORP	Consortium for Continental Reflection Profiling
congl	conglomerate
DB	Diabase
Dio	Dioritic
EM	Eagle Mills Formation
F&P	Falls and Prowell
GGS	Georgia Geological Survey
Gran	Granitic
J/Tr	Jurassic/Triassic lithology
Lith	Lithology
M&S	Marine and Siple
Mz	Mesozoic
N&T	Neathery and Thomas
NATCARB	National Carbon Sequestration Database and Geographic Information System
NETL	National Energy Technology Laboratory
Qtz	Quartzite
Rb	Red Beds
PrC/C	Pre-Cambrian or Cambrian
S&C	Steele and Colquhoun
SCDNR	South Carolina Department of Nature Resources
Sed	Sediments
SEISDTA	Seismic Data
SGFAR	South Carolina, Georgia, Florida, Alabama Rift
sh	shale
SRNL	Savannah River National Laboratory
SRS	Savannah River Site
ss	sandstone
TD	total depth
TERAS	Thermal Energy Recovery Aqueous Separation-System
Well Name	Well number cited in the reference

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INTRODUCTION

Many researchers have documented the presence of large scale buried pre-Cretaceous age rift basins buried under the Coastal Plains of South Carolina, Georgia, northern Florida, and eastern Alabama (Hurst, 1965; Bain, 1972; Marine, 1974; Barnett, 1975; Popenoe and Zietz, 1977; Gohn et al., 1978; Daniels et al, 1983; and Klitgord et al, 1984 and 1988). The rocks within the basins are typically thought to be of Triassic and Jurassic age. Chowns and Williams (1983) integrated drilling to create a somewhat detailed assessment of the basins and the nature of the rocks filling the basins in Georgia. The Chowns and Williams interpretation of the location and configuration of the basin trend is illustrated in Figure 1. The rift trend has been termed the South Georgia Rift by previous authors, but is termed the South Carolina, Georgia, northern Florida, and eastern Alabama Rift (SGFAR) trend in this report to better describe the extent of the trend.

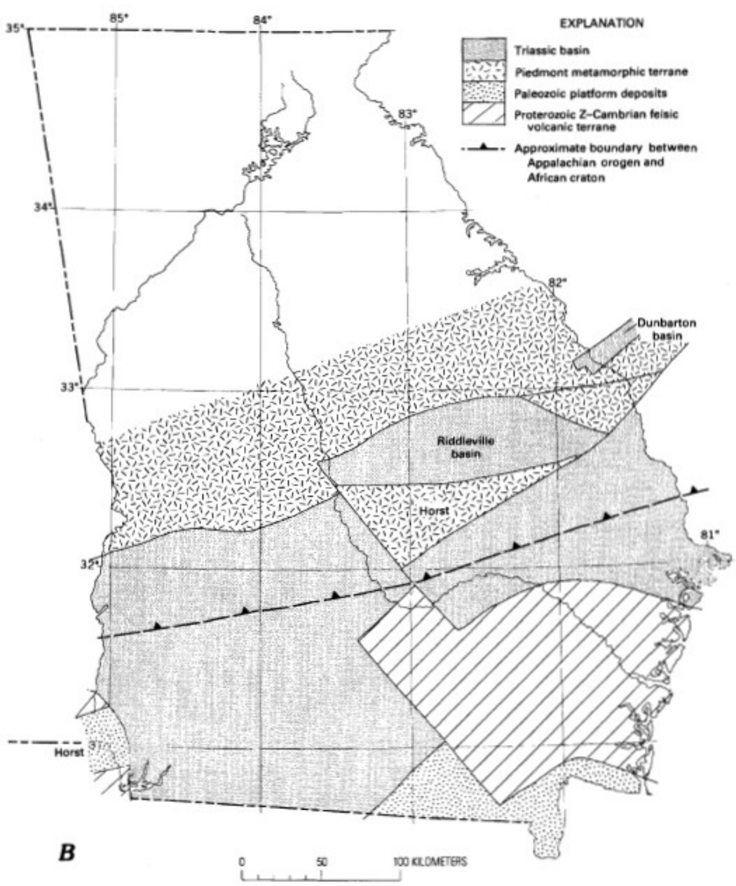

Figure 1. Chowns and Williams (1983) Interpretation of the Extent of the Triassic Basin Complex in Georgia

The Consortium for Continental Reflection Profiling (COCORP) performed multi-channel seismic surveys in Georgia and South Carolina in the early 1980's. Researchers using the COCORP data and well data documented the general configuration of the buried basins and made interpretations on the nature of the rocks filling the basins (Ackermann, 1983; Chowns and Williams (1983); Schilt et al., 1983; Behrendt, 1986; Cook et al., 1981; Kaufman, 1987; McBride et al., 1987; McBride et al., 1988; McBride et al., 1989; McBride, 1991). Oil exploration studies in the region have also contributed information on the configuration of the basins in the trend and the sedimentary fill.

The increase in carbon dioxide (CO_2) concentration in the atmosphere is thought by many scientists to be a major contribution to global climate change. The US Department of Energy manages a Carbon Sequestration Program to study geologic storage methods for large quantities of anthropogenic CO_2. The program is administered by the National Energy Technology Laboratory (NETL). The Triassic age basins of South Carolina, Georgia, Florida and Alabama were recognized as potential storage sites for large quantities of CO_2. The Savannah River National Laboratory (SRNL) proposed an integration of the available geologic data to perform a reconnaissance level assessment of the CO_2 storage potential within the South Carolina, Georgia, northern Florida parts of the rift complex.

NETL provided funding for this study through SRNL. SRNL elected to support graduate research at the University of South Carolina to perform this literature based study of basin trend. The literature reviews, well data assessment, seismic interpretations, and basin structure interpretations were performed by Mr. David Heffner, a graduate student of Dr. James Knapp (University of South Carolina Department of Earth and Ocean Sciences).

The objectives of this study are: **1)** integrate all pertinent geologic information (literature reviews, drilling logs, seismic data, etc.) to create an understanding of the structural aspects of the basin trend (basin trend location and configuration, and the thickness of the sedimentary rock fill), **2)** estimate the rough CO_2 storage capacity (using conservative inputs), and **3)** assess the general viability of the basins as sites of large-scale CO_2 sequestration (determine if additional studies are appropriate). The CO_2 estimates for the trend include South Carolina, Georgia, and northern Florida only.

WELL AND SEISMIC DATA

Stratigraphic tops from wells are sourced from a rather robust review of the literature. Most of the wells that penetrated the basins were drilled for hydrocarbon exploration over a long period of time. Table 1 provides the data from nine wells that penetrated through the Coastal Plain and through the Mesozoic sediments within the basins and terminated into the underlying basement rocks. The basement rocks range from igneous and metamorphic rocks to Paleozoic age sedimentary rocks. These wells are located in South Carolina, Georgia, Florida, and Alabama.

Table 1. Wells Which Penetrated Through the Coastal Plain and Through the Mesozoic Section of the Basins and into Basement

Well Name	State	County	Latitude	Longitude	ELEV	Total Depth	J/Tr	E K unc	E base	Base Rock	Reference
B-70	FL	Washington	30.752	-85.607	86	13720	EM	-10674	-11094	Ordovician Sed	Barnett 1975
DP161	GA	Turner	31.753	-83.745	480	17815	RB	-4100	-16910	Gran/Dio OQtz	Lith Log - GGS
DRB9	SC	Barnwell	33.25	-81.616	296	2694	RB	-708	-2331	Gneiss	S&C 1985
GGS-1145	GA	Early	31.170	-85.073	190	7567	RB	-6398	-6440	Devonian Sed	C&W 1983
GGS-121	GA	Early	31.172	-85.077	187	7320	RB	-5590	-6413	Devonian Sed	A&A 1964
GGS-3001	GA	Seminole	30.860	-84.885	98	7098	RB	-6772	-6906	Granite	C&W 1983
GGS-3447	GA	Washington	32.918	-82.635	382	9386	RB	-728	-7948	Schist	Lith Log - GGS
N&T-29	AL	Monroe	31.727	-87.306	213	10367	Mz	-10029	-10037	Schist and gneiss	N&T 1975
RIC-543	SC	Richland	33.875	-80.702	184	557	RB	-340	-359.5	Saprolite	Core - SCDNR

Abbreviations are as follows:

A&A 1964 – Applin and Applin (1964), Base Rock – basement lithology, C&W – Chowns and Williams (1983), DB – diabase, Dio – Dioritic, EM – Eagle Mills Formation, GGS – Georgia Geological Survey, Gran – Granitic, J/Tr – Jurassic/Triassic lithology, Lith – Lithology, Mz – Mesozoic, N&T – Neathery and Thomas (1975), Qtz – Quartzite, RB – red beds, S&C – Steele and Colquhoun (1985), SCDNR – South Carolina Department of Nature Resources, Sed – sediments, Well Name – Well number cited in the reference, E K unc – elevation for the Cretaceous unconformity (sea level) at the base of the coastal plain

Table 2 provides data from 111 wells that penetrated through the Coastal Plain and terminated into rocks that are thought to be of Triassic or Jurassic age. The rocks at the bottom of the wells are variable in type (red beds, conglomerates, sandstone, clay, diabase, basalt, rhyolite, and igneous rock). These wells are located in South Carolina, Georgia, Florida, and Alabama.

Table 2. Wells Which Penetrated Through the Coastal Plain and Bottomed Into Presumed Mesozoic Sedimentary, Volcanic, or Igneous Rock

Well Name	State	County	Latitude	Longitude	Elev.	Total Depth	Jur./Tr. Lithology	E K unc.	Reference
32Y020	GA	Burke	33.065	-81.720	250	1385	Red Beds	-1125	F&P 2011
36Q318	GA	Chatham	32.116	-82.555	20	3407	Red Beds?	-2950	Geophy Logs - GGS
B-20	FL	Franklin	29.608	-85.045	37	14284	Eagle Mills, DB	-13813	Barnett 1975
B-22	FL	Gulf	29.809	-85.231	25	14574	L. Triassic	-14473.7	Barnett 1975
B-28	FL	Holmes	30.730	-85.978	140	11201	Eagle Mills	-10100	Barnett 1975
B-29	FL	Jefferson	30.315	-83.852	55	7034	Eagle Mills	-6544.4	Barnett 1975
B-34	FL	Leon	30.300	-84.205	34	10466	Eagle Mills, DB	-8415.3	Barnett 1975
B-36	FL	Liberty	30.181	-84.727	62	12131	Eagle Mills, DB	-11690	Barnett 1975
B-41	FL	Okaloosa	30.782	-86.772	186	15250	Eagle Mills	-14974	Barnett 1975
B-42	FL	Okaloosa	30.798	-86.640	171	14514	Eagle Mills, DB	-13924	Barnett 1975
B-65	FL	Wakulla	30.266	-84.526	100	122420	Eagle Mills	-11574	Barnett 1975

Table 2. Wells Which Penetrated Through the Coastal Plain and Bottomed Into Presumed Mesozoic Sedimentary, Volcanic, or Igneous Rock *(Continued)*

Well Name	State	County	Latitude	Longitude	Elev.	Total Depth	Jur./Tr. Lithology	E K unc.	Reference
B-68	FL	Walton	30.650	-86.121	141	11533	Eagle Mills	-11281	Barnett 1975
B-69	FL	Walton	30.968	-86.28	295	12028	Eagle Mills, DB	-11091	Barnett 1975
BRK-644	SC	Berkley	33.404	-79.933	75	1826	Red Beds	-1714	Core - SCDNR
CAL-224A	FL		29.785	-84.381	-30	10526	Eagle Mills		Ball et al 1988
CC#1	SC	Dorcestor	32.888	-80.359	18	2598	basalt	-2443	Gohn et al 1983
CC#2	SC	Dorcestor	32.906	-80.311	20	2976	basalt	-2526	Gohn et al 1983
CC#3	SC	Dorcestor	32.902	-80.317	20	3780	basalt, red beds	-2523	Gohn et al 1983
COL-241	SC	Colleton	33.015	-80.928	80	13750	Red Beds	-1910	Geol Log
DOR-211	SC	Dorcestor	33.156	-80.521	78	2060	basalt	-1887	Core - SCDNR
DP-160	GA	Dooly	32.233	-83.625	335	3380	Red beds	-1865	Lith Log - GGS
DP163	GA	Dooly	32.154	-83.713	404	7394	Red beds	-2335	Lith Log - GGS
DRB10	SC	Barnwell	33.204	-81.58	251	4206	red ms, ark ss	-920	M&S; S&C
FLO-103	SC	Florence	34.169	-79.788			Hard Red Clay	-582	S&C 1985
FLO-123	SC	Florence	34.196	-79.752			Hard Red Clay	-599	S&C 1985
FLO-124	SC	Florence	34.196	-79.752			Hard Red Clay	-607	S&C 1985
FLO-125	SC	Florence	34.192	-79.747			Hard Red Clay	-600	S&C 1985
FLO-126	SC	Florence	34.196	-79.58			Hard Red Clay	-540	S&C 1985
FLO-127	SC	Florence	34.199	-79.771			Hard Red Clay	-578	S&C 1985
FLO-139	SC	Florence	34.179	-79.761			Hard Red Clay	-603	S&C 1985
FLO-140	SC	Florence	34.175	-79.771			Hard Red Clay	-585	S&C 1985
FLO-146	SC	Florence	34.169	-79.788			Hard Red Clay	-577	S&C 1985
FLO-149	SC	Florence	34.196	-79.752			Hard Red Clay	-604	S&C 1985
FLO-154	SC	Florence	34.199	-79.784			Hard Red Clay	-570	S&C 1985
FLO-268	SC	Florence	34.170	-79.789	113	716	Red Beds	-575	Core - SCDNR
FLO-33	SC	Florence	34.200	-79.765			Hard Red Clay	-579	S&C 1985
FLO-5	SC	Florence	34.198	-79.773			Hard Red Clay	-588	S&C 1985
FLO-87	SC	Florence	34.199	-79.784			Hard Red Clay	-567	S&C 1985
GEO-24	SC	Georgetown	33.371	-79.289	10	1870	Hard black slate	-1850	S&C 1985
GGS-108	GA	Crisp	31.826	-83.769	364	5010	Sandstone	-3856	C&W 1983
GGS-109	GA	Mitchell	31.141	-84.070	330	7487	Red Beds	-5890	Lith log - GGS
GGS-148	GA	Appling	31.879	-82.383	219	4098		-3856	Herrick 1961
GGS-172	GA	Emanuel	32.8	-82.233	200	1833	Red beds?		Paleo Log - GGS
GGS-190	GA	Montgomery	32.216	-82.480	293	3424	Diabase	-3097	C&W 1983
GGS-192	GA	Calhoun	31.565	-84.823	345	5265	Red Beds	-3505	A&A 1964
GGS-296	GA	Sumter	32.158	-84.302	509		Arkosic SS, DB		C&W 1983
GGS-3080	GA	Wheeler	32.045	-82.638	157	4075	Red Beds	-3543	Lith Log - GGS
GGS-3099	GA	Lowndes	30.936	-83.406	243	5244	Ark SS, SH	-4653	C&W 1983
GGS-3113	GA	Lowndes	30.990	-83.252	157	8550	Red Beds??	-4493	Lith Log - GGS
GGS-3114	GA	Thomas	30.786	-83.962	266	6672	Ark SS, SH, DB	-6287	C&W 1983
GGS-3115	GA	Lowndes	30.848	-83.187	201	5002	Red shale	-4331	C&W 1983

Table 2. Wells Which Penetrated Through the Coastal Plain and Bottomed Into Presumed Mesozoic Sedimentary, Volcanic, or Igneous Rock *(Continued)*

Well Name	State	County	Latitude	Longitude	Elev.	Total Depth	Jur./Tr. Lithology	E K unc.	Reference
GGS-3120	GA	Lowndes	30.859	-83.056	171	5052	Red Beds?	-4069	Lith Log - GGS
GGS-3122	GA	Lowndes	30.905	-83.281	191	5003	Ark SS, SH, DB	-4485	C&W 1983
GGS-3128	GA	Jeff Davis	31.767	-82.750	272	4063	Red Beds?	-3668	Lith Log - GGS
GGS-3137	GA	Pulaski	32.325	-83.540	324	6180	Ark SS, SH, DB	-1873	C&W 1983
GGS-3147	GA	Twiggs	32.550	-83.443	440	1545	Diabase		C&W 1983
GGS-3154	GA	Worth	31.317	-83.736	325	5567	Ark SS, SH	-5100	C&W 1983
GGS-3165	GA	Wilkinson	32.715	-83.224	480	1547	Red Beds	-752	C&W 1983
GGS-3353	GA	Washington	32.930	-82.610	342	4000	Red Beds	-834	Lith Log - GGS
GGS-336	GA	Wheeler	31.980	-82.645	185	4002	Ferruginous SS		C&W 1983
GGS-3441	GA	Washington	32.935	-82.620	390	5641	Fanglomerate	-710	Lith log - GGS
GGS-3456	GA	Colquitt	31.237	-83.913	348	6902	Conglomerate	-5442	Paleo Log - GGS
GGS-3457	GA	Jeff Davis	31.759	-82.756	287	11470		-3713	Res. Log - GGS
GGS-3514	GA	Wilkinson	32.717	-83.191	440	1362	Red beds	-730	Lith Log - GGS
GGS-3632	GA	Johnson	32.714	-82.779	230	3008	Red beds	-1444	Lith Log - GGS
GGS-3634	GA	Appling	31.833	-82.457	226	4154	Red beds	-3668	Lith Log - GGS
GGS-375	GA	Telfair	32.029	-82.809	236	4008	Red siltstone	-3764	Lith Log - GGS
GGS-442	GA	Sumter	32.018	-84.308	431	5240	Ark SS, SH, DB	-2504	C&W 1983
GGS-491	GA	Pulaski	32.301	-83.479	328	6035	Ark SS, SH, DB	-2022	C&W 1983
GGS-496	GA	Clinch	31.152	-82.862	205	4232		-3950	A&A 1964
GGS-505	GA	Marion	32.148	-84.436	600	4010	Ark SS, SH, DB	-1810	C&W 1983
GGS-51	GA	Laurens	32.477	-82.758	280	2548	Red Beds	-1760	Paleo Log - GGS
GGS-52	GA	Wayne	31.391	-81.806	73	4626	Arkosic SS	-4497	C&W 1983
GGS-619	GA	Dooly	32.041	-83.65	442	3748	Ark SS	-3070	C&W 1983
GGS-855	GA	Screven	32.583	-81.427	130	2677	Red Beds?	-2370	Paleo Log - GGS
GGS-95	GA	Toombs	32.152	-82.371	198	3680	Congl ark	-3465	C&W 1983
GGS-960	GA	Pulaski	32.325	-83.415	305	2929	DB	-2195	C&W 1983
JAS-426	SC	Jasper	32.618	-80.995	63	2900	Red Beds		Pers. comm.
Mal_1920	SC	Dorcestor	33.036	-80.180	70	2560	Basalt (DB?)	-2380	Paleo Log - SCDNR
N&T-36	AL	Escambia	31.187	-87.552	292	15346	Basalt	-14748	N&T 1975
N&T-49	AL	Escambia	31.180	-86.737	140	12155	Igneous Rock	-11915	N&T 1975
N&T-50	AL	Conecuh	31.207	-86.725	145	12870	Diabase	-12625	N&T 1975
N&T-51	AL	Covington	31.158	-86.668	254	12750	Igneous Rock	-12165	N&T 1975
N&T-52	AL	Crenshaw	31.643	-86.431	396	10830	Arkose		N&T 1975
N&T-53	AL	Barbour	31.835	-85.464	554	5215	Rhyolite, ark SS	-3390	N&T 1975
N&T-54	AL	Barbour	31.761	-85.408	504	5546	Ark, DB	-4839	N&T 1975
N&T-55	AL	Henry	31.352	-85.169	192	6610	Ark, basalt	-5748	N&T 1975
N&T-56	AL	Geneva	31.089	-85.945	146	8792	Rhyolite	-8514	N&T 1975
ORG-393	SC	Orangeburg	33.508	-80.865	257	1138	Red Beds	-857	Core - SCDNR
P5R	SC	Barnwell	33.149	-81.615	207	1313	Hard red rock	-1010	M&S; S&C

Table 2. Wells Which Penetrated Through the Coastal Plain and Bottomed Into Presumed Mesozoic Sedimentary, Volcanic, or Igneous Rock *(Continued/End)*

Well Name	State	County	Latitude	Longitude	Elev.	Total Depth	Jur./Tr. Lithology	E K unc.	Reference
RIC-348	SC	Richland	33.818	-80.638	150	680	hard sand & clay	-493	S&C 1985
SSW6	SC	Colleton	32.881	-80.581			Basalt?		Pers comm.
SUM-104	SC	Sumter	33.935	-80.347			Hard Red Clay	-515	S&C 1985
SUM-111	SC	Sumter	33.933	-80.346			Hard Red Clay	-540	S&C 1985
SUM-120	SC	Sumter	33.863	-80.381			Hard Red Clay	-550	S&C 1985
SUM-140	SC	Sumter	33.934	-80.35			Hard Red Clay	-539	S&C 1985
SUM-146	SC	Sumter	33.936	-80.345			Hard Red Clay	-562	S&C 1985
SUM-153	SC	Sumter	33.865	-80.376			Hard Red Clay	-539	S&C 1985
SUM-161	SC	Sumter	33.916	-80.324			Hard Red Clay	-474	S&C 1985
SUM-165	SC	Sumter	33.893	-80.368			Hard Red Clay	-536	S&C 1985
SUM-175	SC	Sumter	33.862	-80.381			Hard Red Clay	-513	S&C 1985
SUM-340	SC	Sumter	33.990	-80.358	180	690	Red Beds	-450	Core - SCDNR
SUM-56	SC	Sumter	33.936	-80.348			Hard Red Clay	-543	S&C 1985
SUM-64	SC	Sumter	33.935	-80.35			Hard Red Clay	-603	S&C 1985
SUM-65	SC	Sumter	33.921	-80.373			Hard Red Clay	-585	S&C 1985
SUM-69	SC	Sumter	33.935	-80.346			Hard Red Clay	-588	S&C 1985
SUM-7	SC	Sumter	33.935	-80.348			Hard Red Clay	-527	S&C 1985
SUM-71	SC	Sumter	33.917	-80.321			Hard Red Clay	-621	S&C 1985
SUM-8	SC	Sumter	33.934	-80.346			Hard Red Clay	-534	S&C 1985
SUM-84	SC	Sumter	33.916	-80.324			Hard Red Clay	-587	S&C 1985
WIL-29	SC	Williamsburg	33.728	-79.805	62	1319	red sandy clay	-1122	S&C 1985

Abbreviations are as follows:

A&A 1964 – Applin and Applin (1964), ark – arkose, Base Rock – basement lithology, C&W – Chowns and Williams (1983), congl – conglomerate, DB – diabase, Dio – Dioritic, EM – Eagle Mills Formation, F&P 2001 – Falls and Prowell (2001), GGS – Georgia Geological Survey, Gran – Granitic, J/Tr – Jurassic/Triassic lithology, Lith – Lithology, M&S – Marine and Siple (1974), Mz – Mesozoic, N&T – Neathery and Thomas (1975), PrC/C – Pre-Cambrian or Cambrian, Qtz – Quartzite, RB – red beds, SCDNR – South Carolina Department of Natural Resources, S&C – Steele and Colquhoun (1985), Sed – sediments, sh – shale, ss – sandstone, TD – total depth, Well Name – Well number cited in the reference, E K unc – elevation for the Cretaceous unconformity (sea level) at the base of the coastal plain

Table 3 provides data from 129 wells that penetrated through the Coastal Plain and terminated into rocks that are Paleozoic or older in age. The rocks at the bottom of the wells typically consist of igneous, metamorphic and volcanic rocks of Paleozoic or Precambrian age, and Paleozoic sedimentary rocks. These wells are located in South Carolina, Georgia, Florida, and Alabama.

Table 3. Wells Which Penetrated Through the Coastal Plain and Went Straight Into Pre-Mesozoic Rocks

Well Name	State	County	Latitude	Longitude	Elevation	Total Depth	E K unc.	Basement Rock	Reference
AIK-2448	SC	Aiken	33.624	-81.849	490	170	368.5	"Bedrock"	SCDNR 2007
AIK-2449	SC	Aiken	33.539	-81.855	494	340	181	"Bedrock"	SCDNR 2007
AIK-59	SC	Aiken	33.641	-81.320	460	900	-230	Granite	SCDNR 2007
ALL-348	SC	Allendale	33.025	-81.384	281	1732		Granite	Pers. comm.
ALL-357	SC	Allendale	33.113	-81.506	248	1420		Schist	Pers. comm.
B-1	FL	Alachua	29.752	-82.202	186	2861	-2438	Quartzite, Ordovician	Barnett 1975
B-10	FL	Citrus	28.830	-82.807	22	6020	-5864	Quartzitic SS (Devonian)	Barnett 1975
B-13	FL	Columbia	30.207	-82.600	191	2890	-2657	Paleozoic	Barnett 1975
B-14	FL	Columbia	30.273	-82.605	157	3196	-3019	Paleozoic	Barnett 1975
B-17	FL	Duval	30.246	-81.954	95	3743	-3542	Quartzitic SS, Paleozoic	Barnett 1975
B-18	FL	Duval	30.230	-82.018	93	3521	-3364	Quartzitic SS, Paleozoic	Barnett 1975
B-19	FL	Duval	30.390	-81.850	90	4250	-4060	Paleozoic	Barnett 1975
B-2	FL	Alachua	29.808	-82.238	150	3340	-3163	Quartzite, Ordovician	Barnett 1975
B-21	FL	Gulf	29.753	-85.254	34	14297	-14226	Dacite Porphyry	Barnett 1975
B-23	FL	Gulf	30.171	-85.373	81	13284	-12816	Granodiorite	Barnett 1975
B-3	FL	Bay	30.375	-85.940	67	12313	-12191	Granite	Barnett 1975
B-30	FL	Lafayette	29.856	-83.021	74	5501	-3641	Paleozoic SH and SS	Barnett 1975
B-35	FL	Levy	29.091	-82.917	25	4735	-4570	Devonian	Barnett 1975
B-37	FL	Liberty	30.132	-84.863	76	12400	-11964	Altered Granophyre	Barnett 1975
B-4	FL	Bradford	30.111	-82.088	150	3154	-2834	Quartzitic SS, Paleozoic	Barnett 1975
B-40	FL	Nassau	30.647	-81.599	36	5469	-5050	Quartzitic SS, Paleozoic	Barnett 1975
B-54	FL	Putnam	29.513	-81.568	33	5572	-4392	Rhyolite	Barnett 1975
B-55	FL	St. Johns	29.955	-81.393	42	4850	-4788	Quartizitic SS, Paleozoic	Barnett 1975
B-56	FL	St. Johns	29.852	-81.457	40	4583	-4522	Quartizitic SS, Paleozoic	Barnett 1975
B-58	FL	Suwanee	30.282	-83.117	97	4520	-3628	Paleozoic sandstone	Barnett 1975
B-59	FL	Suwanee	30.233	-83.047	107	4496	-3532	Paleozoic sandstone	Barnett 1975
B-60	FL	Taylor	30.231	-83.700	63	7036	-5744	Paleozoic	Barnett 1975
B-63	FL	Union	30.041	-82.521	150	3061	-2896	Paleozoic	Barnett 1975
B-64	FL	Union	30.097	-82.427	139	3035	-2890	Paleozoic	Barnett 1975
B-66	FL	Walton	30.399	-86.292	44	14515	-14435	Granite	Barnett 1975
B-67	FL	Walton	30.783	-86.350	214	12340	-12071	Meta. volcanic SS	Barnett 1975
B-71	FL	Washington	30.469	-85.769	128	11692	-11426	PrC/C meta-ark & qtzite	Barnett 1975
B-72	FL	Washington	30.543	-85.790	152	11593	-11328	PrC/C meta-ark & qtzite	Barnett 1975

Table3. Wells Which Penetrated Through the Coastal Plain and Went Straight Into Pre-Mesozoic Rocks *(Continued)*

Well Name	State	County	Latitude	Longitude	Elevation	Total Depth	E K unc.	Basement Rock	Reference
B-9	FL	Citrus	28.974	-82.648	24	4794	-4714	Quartzitic SS, Paleozoic	Barnett 1975
BFT-2055	SC	Beaufort	32.191	-80.704	10	3833	-3823	Rhyolite	Snipes et al
BRN-239	SC	Barnwell	33.436	-81.236	210	1149	-640	"Basement"	SCDNR 2007
BRN-364	SC	Barnwell	33.255	-81.637	303		-752	"Bedrock"	SCDNR 2007
CAL-132	SC	Calhoun	33.832	-81.023	350	488	-110	"Bedrock"	SCDNR 2007
CTF-60	SC	Chesterfield	34.512	-80.247	530	490	55	Saprolite	SCDNR 2007
DAR-124	SC	Darlington	34.373	-80.065	215		-233	"Bedrock"	SCDNR 2007
DIL-121	SC	Dillon	34.328	-79.283	95	646	-533	"Bedrock"	SCDNR 2007
DP39	GA	Macon	32.2	-84.033	290	2140		Schist	C&W 1983
FLO-293	SC	Florence	34.137	-79.769	95	757	-662	"Bedrock"	SCDNR 2007
GGS-107	GA	Atkinson	31.266	-82.950	217	4296	4003	Volcanic Tuff	Herrick 1961
GGS-119	GA	Pierce	31.395	-82.070	75	4375	4273	Granite	C&W 1983
GGS-1197	GA	Glynn	31.373	-81.566	13	4431	4311	Porphyritic rhyolite	C&W 1983
GGS-1198	GA	Camden	30.851	-81.858	14	4690	4518	Paleozoic Sed	C&W 1983
GGS-1199	GA	Camden	30.843	-81.734	22	4597	4520	Paleozoic Sed	C&W 1983
GGS-120	GA	Pierce	31.440	-82.062	70	4355	4278	Weathered Granite	Lith Log - GGS
GGS-131	GA	Burke	33.237	-81.923	129	620	473	Saprolite?	Herrick 1961
GGS-144	GA	Clinch	30.929	-82.798	177	3848	3657	Ordovician Sed	A&A 1964
GGS-150	GA	Echols	30.615	-82.781	144	4003	3513	Ordovician Sed	A&A 1964
GGS-153	GA	Camden	31.041	-81.88	52	4955	4622	Felsic Tuff	C&W 1983
GGS-158	GA	Echols	30.738	-82.925	156	3916	3755	Ordovician Sed	A&A 1964
GGS-166	GA	Echols	30.683	-82.877	148	3865	3634	Ordovician Sed	C&W 1983
GGS-169	GA	Echols	30.693	-82.686	142	4062	3588	Ordovician Sed	A&A 1964
GGS-189	GA	Echols	30.758	-82.911	181	4185	3939	Silurian Sed	A&A 1964
GGS-193	GA	Houston	32.440	-83.816	419	1494		Biotite Gneiss	C&W 1983
GGS-194	GA	Houston	32.401	-83.733	364	1698	1321	Cryst. Rock	Herrick 1961
GGS-223	GA	Washington	32.990	-83.004	480	605	-88	Biotite Gneiss	C&W 1983
GGS-3105	GA	Dodge	32.257	-83.289	302	4529	2458	Granite	Paleo Log - GGS
GGS-3127	GA	Coffee	31.451	-83.135	280	4339	4026	Porphyritic rhyolite	C&W 1983
GGS-3146	GA	Wayne	31.517	-81.873	58	4487	4382	Vitric crystal tuff	C&W 1983
GGS-3201	GA	Wayne	31.548	-81.726	74	4371	4216	Vitric tuff	C&W 1983
GGS-338	GA	Clinch	30.783	-82.439	176	4588	3667	Igneous Rock	A&A 1964
GGS-341	GA	Chattahoochee	32.245	-84.799	550	1205	635	Cryst. Rock	Herrick 1961
GGS-3439	GA	Washington	32.954	-82.638	373	2576	717	Schist	Lith Log
GGS-357	GA	Bibb	32.780	-83.637	364	303	-63	Cryst. Rock	Herrick 1961
GGS-363	GA	Liberty	31.688	-81.347	26	4254	4224	Porphyritic rhyolite	C&W 1983
GGS-3633	GA	Wayne	31.500	-81.747	90	4592	4410	Tuff	Well Logs
GGS-3758	GA	Burke	33.23	-81.878	245	859	607	Biotite Gneiss	F&P 2001
GGS-3794	GA	Burke	33.178	-81.786	240	1010.5	756	Biotite Gneiss	F&P 2001
GGS-468	GA	Coffee	31.712	-82.894	308	4130	3802	Granite	C&W 1983
GGS-361	GA	Bibb	32.780	-83.637	305	253	-56	Cryst. Rock	Herrick 1961
GGS-476	GA	Marion	32.286	-84.462	600	1770	990	Cryst. Rock	Herrick 1961

Table 3. Wells Which Penetrated Through the Coastal Plain and Went Straight Into Pre-Mesozoic Rocks *(Continued)*

Well Name	State	County	Latitude	Longitude	Elevation	Total Depth	E K unc.	Basement Rock	Reference
GGS-481	GA	Clinch	30.855	-82.722	147	4088	3806	Ordovician Sed	A&A 1964
GGS-509	GA	Coffee	31.716	-82.896	299	3556	3811	Granite	Paleo Log - GGS
GGS-651	GA	Wayne	31.52	-81.684	49	4544	4268	Vitric crystal tuff	C&W 1983
GGS-7	GA	Bibb	32.715	-83.699	358	509	138	Cryst. Rock	Herrick 1961
GGS-719	GA	Glynn	31.245	-81.633	15	4736	4685	Granite	C&W 1983
GGS-730	GA	Treutlen	32.388	-82.540	351	3240	2702	Gneiss	C&W 1983
GGS-789	GA	Treutlen	32.361	-82.473	245	3180	2921	Biotite Gneiss	Paleo Log - GGS
GGS-876	GA	Charlton	30.791	-81.991	25	4579	4455	Paleozoic Sed	C&W 1983
GGS-94	GA	Washington	32.957	-82.808	465	872.5	406	Cryst. Rock	Herrick 1961
HOR-547	SC	Horry	33.684	-78.942	20	1574	-1554	"Basement"	SCDNR 2007
KER-100	SC	Kershaw	34.168	-80.794	405	233	172	"Bedrock"	SCDNR 2007
KER-66	SC	Kershaw	34.416	-80.329	222	182	40	Granite	SCDNR 2007
LEE-75	SC	Lee	34.202	-80.174	197	554	339.5	Saprolite	Core - SCDNR
LEX-844	SC	Lexington	33.746	-81.107	367	548	173	Saprolite	Core - SCDNR
MLB-112	SC	Marlboro	34.626	-79.689	137	345	-183	"Bedrock"	SCDNR 2007
MLB-137	SC	Marlboro	34.538	-79.749	98	369	-257	"Bedrock"	SCDNR 2007
MRN-78	SC	Marion	33.861	-79.330	35		-1123	Granite Saprolite	S&C 1985
MRN-90	SC	Marion	34.247	-79.520	65	601	-535	"Bedrock"	SCDNR 2007
N&T-10	AL	Sumter	32.721	-88.205	205	4586	-2870	Dolostone	N&T 1975
N&T-11	AL	Sumter	32.506	-87.998	105	3754	-3465	SS and dark-gray shale	N&T 1975
N&T-12	AL	Marengo	32.390	-87.866	250	4523	-3625	Limestone	N&T 1975
N&T-13	AL	Marengo	32.424	-87.548	235	4018	-2875	Slate or phyllite & qtzite	N&T 1975
N&T-14	AL	Marengo	32.216	-87.635	188	6002	-4072	Chlorite sericite phyllite	N&T 1975
N&T-15	AL	Wilcox	32.212	-87.480	242	4538	-3828	Slate, schist, qtzite	N&T 1975
N&T-16	AL	Wilcox	32.186	-87.442	220	4148	-3900	Slate	N&T 1975
N&T-17	AL	Clarke	31.957	-87.804	314	8648	-8301	Quartzite	N&T 1975
N&T-20	AL	Choctaw	32.019	-88.419	251	12500	-8869	Dolomite marble	N&T 1975
N&T-23	AL	Dallas	32.117	-87.128	151	3848	-3619	Chlorite schist	N&T 1975
N&T-24	AL	Wilcox	32.106	-87.291	135	7110	-6935	Chlorite schist	N&T 1975
N&T-26	AL	Wilcox	31.969	-87.091	186	5780	-5294	schist	N&T 1975
N&T-27	AL	Wilcox	31.924	-87.321	182	7512	-7238	phyllite-schist	N&T 1975
N&T-28	AL	Clarke	31.861	-87.751	450	10506	-10025	Gneiss	N&T 1975
N&T-30	AL	Monroe	31.617	-87.352	251	10030	-9674	Schist & gneiss	N&T 1975
N&T-31	AL	Monroe	31.538	-87.581	51	13890	-12999	Gneiss (granite?)	N&T 1975
N&T-32	AL	Monroe	31.328	-87.524	372	14447	-14068	Antigorite	N&T 1975
N&T-33	AL	Conecuh	31.270	-87.405	368	14417	-13994	Volcanic conglomerate	N&T 1975
N&T-34	AL	Escambia	31.245	-87.472	345	14730	-14285	Volcanic rubble	N&T 1975
N&T-35	AL	Escambia	31.208	-87.524	357	15106	-14698	Granite	N&T 1975
N&T-37	AL	Conecuh	31.310	-87.213	277	12200	-11903	Granite	N&T 1975
N&T-38	AL	Escambia	31.191	-86.950	140	12155	-11915	Granitic Igneous rock	N&T 1975
N&T-41	AL	Montgomery	32.256	-86.297	222	2007	-1673	Crystallines (granites)	N&T 1975

Table 3. Wells Which Penetrated Through the Coastal Plain and Went Straight Into Pre-Mesozoic Rocks *(Continued/End)*

Well Name	State	County	Latitude	Longitude	Elevation	Total Depth	E K unc.	Basement Rock	Reference
N&T-40	AL	Montgomery	32.253	-86.400	242	2083	-1838	Metamorphic	N&T 1975
N&T-42	AL	Bullock	32.201	-85.887	270	1714	-1423	Granite gneiss	N&T 1975
N&T-43	AL	Bullock	32.188	-85.894	210	1685	-1469	Gneiss and amphibolite	N&T 1975
N&T-44	AL	Bullock	32.092	-85.942	430	2523	-2072	Diorite	N&T 1975
N&T-45	AL	Pike	31.845	-85.984	342	2632.5	-2290	Crystalline rock	N&T 1975
N&T-46	AL	Pike	31.623	-86.121	438	2691	-2227	schist	N&T 1975
N&T-47	AL	Henry	31.308	-85.178	302	6392	-6048	Diorite	N&T 1975
N&T-48	AL	Houston	31.004	-85.339	140	8100	-7415	SS, gray, fine-grained	N&T 1975
N&T-6	AL	Sumter	32.821	-88.199	125	7662	-2395	SS, qtz-pebble congl	N&T 1975
N&T-9	AL	Greene	32.715	-87.957	130	2616	-2230	Dolostone	N&T 1975
RIC-305	SC	Richland	34.008	-80.827	300		-6	"Bedrock"	SCDNR 2007
RIC-432	SC	Richland	33.893	-80.722	200	544	-340	Granite	SCDNR 2007
RIC-613	SC	Richland	34.112	-80.884	415	240	180	"Bedrock"	SCDNR 2007

Abbreviations are as follows:

A&A 1964 – Applin and Applin (1964), ark – arkose, Base Rock – basement lithology, C&W – Chowns and Williams (1983), congl – conglomerate, DB – diabase, Dio – Dioritic, EM – Eagle Mills Formation, F&P 2001 – Falls and Prowell (2001), GGS – Georgia Geological Survey, Gran – Granitic, J/Tr – Jurassic/Triassic lithology, Lith – Lithology, M&S – Marine and Siple (1974), Mz – Mesozoic, N&T – Neathery and Thomas (1975), PrC/C – Pre-Cambrian or Cambrian, Qtz – Quartzite, RB – red beds, SCDNR – South Carolina Department of Natural Resources, SCDNR 2007 – South Carolina Department of Natural Resources (2007), S&C – Steele and Colquhoun (1985), Sed – sediments, sh – shale, ss – sandstone, Well Name – Well number cited in the reference

Stratigraphic tops derived from seismic refraction surveys are presented in Table 4 and Table 5. Seismic surveys include studies performed by Ackermann et al (1983) in the vicinity of Charleston SC, COCORP in Georgia and South Carolina, and SEISDATA provided by Geophysical Pursuit, Inc. The elevation trends of the seismic data was useful in understanding the faulting and basins configuration, point data derived from the surveys and provided on the tables was useful in the development of structure contour maps.

Table 4. Data Points Derived From Seismic Refraction Surveys in the Vicinity of Charleston, SC by Ackermann, 1983

Point Name	Latitude	Longitude	E K unc.	E base	Basin Thickness
Ackermann Point 1	33.117	-80.433	-2500	-7216	4716
Ackermann Point 4	33.028	-80.248	-2400	-8167.2	5767
Ackermann Point 6	33.062	-80.155	-2300	-7544	5244
Ackermann Point 9	33.149	-79.961	-2250	-4592	2342
Ackermann Point 10	32.892	-80.331	-2700	-4126	1426
Ackermann Point 14	33.042	-80.001	-2300	-4231	1931
Ackermann Point 15	33.092	-79.886	-2300	-3378	1078
Ackermann Point 16	33.066	-79.762	-2450	-2820	370
Ackermann Point 21	32.923	-79.870	-3000	-7334	4334
Ackermann Point 23	32.814	-80.099	-3400	-6232	2832
Ackermann Point 24	32.690	-80.269	-3100	-6756	3656
Ackermann Point 25	32.682	-80.067	-3600	-7216	3616

E base – elevation for the basement contact, E K unc – elevation for the Cretaceous unconformity (sea level) at the base of the coastal plain

Table 5. Points Derived From Interpretations Of Seismic Reflection Surveys In FL, GA, And SC. COCORP Data Provided By Institute For The Study Of The Continents At Cornell University. Licensed Data From SEISDATA Lines Provided Courtesy Of Geophysical Pursuit, Inc.

Line Name	Latitude	Longitude	SP	E K unc.	E base	Basin Thickness
COCORP SC-2	32.967	-80.253	80	-2607	-4840	2233
COCORP SC-2	32.963	-80.285	130	-2572	-4676	2103
COCORP SC-2	32.942	-80.330	210	-2530	-4788	2257
COCORP SC-2	32.930	-80.367	270	-2527	-4837	2310
SEISDATA - 4	32.796	-80.145	-	-3384	-7465	4081
SEISDATA - 4	32.819	-80.174	-	-3325	-6699	3374
SEISDATA - 4	32.835	-80.243	-	-3203	-6190	2987
SEISDATA - 4	32.839	-80.264	-	-3165	-6063	2898
SEISDATA - 4	32.849	-80.312	-	-3023	-5726	2702
SEISDATA - 4	32.919	-80.388	-	-2894	-4903	2008
SEISDATA - 4	32.981	-80.390	-	-2825	-10348	7522
SEISDATA - 4	33.011	-80.387	-	-2794	-10114	7319
SEISDATA - 4	33.032	-80.383	-	-2672	-9535	6862
SEISDATA - 4	33.052	-80.395	-	-2667	-8763	6095
SEISDATA - 4	33.080	-80.455	-	-2561	-7798	5237
SEISDATA - 4	33.093	-80.543	-	-2527	-7135	4608
SEISDATA - 4	33.181	-80.763	-	-2212	-4424	2212
SEISDATA - 4	33.254	-80.831	-	-1961	-3795	1834
SEISDATA - 4	33.265	-80.855	-	-1961	-3453	1492
SEISDATA - 4	33.288	-80.879	-	-1910	-2622	711
SEISDATA - 4	33.468	-81.016	-	-1330	-4319	2989
SEISDATA - 4	33.491	-81.028	-	-1365	-7840	6475
SEISDATA - 4	33.542	-81.037	-	-1529	-6226	4697
SEISDATA - 4	33.591	-81.048	-	-1418	-4521	3103
SEISDATA - 4	33.622	-81.061	-	-1311	-3458	2146
SEISDATA - 4	33.641	-81.047	-	-1365	-2502	1137
SEISDATA - 4	33.669	-81.057	-	-1355	-2144	789
SEISDATA - 6	33.090	-82.015	-	-1377	-10658	9281
SEISDATA - 6	33.072	-81.988	-	-1478	-9158	7680
SEISDATA - 6	33.041	-81.927	-	-1549	-7854	6304
SEISDATA - 6	33.031	-81.901	-	-1518	-7438	5919
SEISDATA - 6	33.000	-81.823	-	-1658	-6262	4603
SEISDATA - 6	32.989	-81.792	-	-1670	-5945	4274
SEISDATA - 6	32.975	-81.758	-	-1750	-4931	3181
SEISDATA - 6	32.951	-81.741	-	-1926	-3778	1852
SEISDATA - 6	32.933	-81.713	-	-1946	-2940	994

Table 5. Points Derived From Interpretations Of Seismic Reflection Surveys In FL, GA, And SC. COCORP Data Provided By Institute For The Study Of The Continents At Cornell University. Licensed Data From SEISDATA Lines Provided Courtesy Of Geophysical Pursuit, Inc. *(Continued)*

Line Name	Latitude	Longitude	SP	E K unc.	E base	Basin Thickness
SEISDATA - 6	32.911	-81.688	-	-1960	-2495	535
SEISDATA - 6	32.670	-81.567	-	-2657	-14713	12055
SEISDATA - 6	32.606	-81.516	-	-2800	-13328	10528
SEISDATA - 6	32.522	-81.451	-	-2902	-11521	8619
SEISDATA - 6	32.483	-81.418	-	-2923	-11293	8369
SEISDATA - 6	32.468	-81.406	-	-2951	-11069	8117
SEISDATA - 6	32.386	-81.333	-	-2975	-9488	6513
SEISDATA - 6	32.357	-81.303	-	-3045	-8967	5922
SEISDATA - 6	32.324	-81.251	-	-3123	-8636	5513
SEISDATA - 8	31.685	-81.723	-	-3448	-3911	463
SEISDATA - 8	31.709	-81.744	-	-3330	-4428	1097
SEISDATA - 8	31.746	-81.798	-	-3248	-5421	2173
SEISDATA - 8	31.770	-81.817	-	-3276	-5880	2604
SEISDATA - 8	31.807	-81.870	-	-3337	-6777	3440
SEISDATA - 8	31.970	-81.977	-	-3162	-7869	4707
SEISDATA - 8	32.079	-82.133	-	-3014	-9011	5996
SEISDATA - 8	32.115	-82.190	-	-3213	-9086	5873
SEISDATA - 8	32.130	-82.221	-	-3085	-9717	6631
SEISDATA - 8	32.141	-82.253	-	-3010	-10094	7084
SEISDATA - 8	32.166	-82.273	-	-3050	-9955	6905
SEISDATA - 8	32.205	-82.361	-	-2860	-12025	9165
SEISDATA - 8	32.215	-82.394	-	-2856	-13054	10198
SEISDATA - 8	32.224	-82.425	-	-2865	-14098	11232
SEISDATA - 8	32.481	-82.598	-	-2192	-2833	641
SEISDATA - 8	32.612	-82.616	-	-1842	-4367	2524
SEISDATA - 8	32.634	-82.64	-	-1610	-5230	3620
SEISDATA - 8	32.648	-82.667	-	-1659	-5508	3848
SEISDATA - 8	32.660	-82.704	-	-1606	-5651	4045
SEISDATA - 8	32.699	-82.716	-	-1461	-6100	4638
SEISDATA - 8	32.735	-82.721	-	-1715	-6251	4536
SEISDATA - 8	32.761	-82.739	-	-1645	-5668	4023
SEISDATA - 8	32.789	-82.748	-	-1572	-7547	5975
SEISDATA - 8A	32.843	-82.685	-	-1470	-6437	4967
SEISDATA - 8A	32.856	-82.663	-	-1470	-6591	5121
SEISDATA - 8A	32.892	-82.666	-	-1260	-8794	7534
COCORP FL-1	30.686	-83.239	30	-3010	-7766	4756

Table 5. Points Derived From Interpretations Of Seismic Reflection Surveys In FL, GA, And SC. COCORP Data Provided By Institute For The Study Of The Continents At Cornell University. Licensed Data From SEISDATA Lines Provided Courtesy Of Geophysical Pursuit, Inc. *(Continued/End)*

Line Name	Latitude	Longitude	SP	E K unc.	E base	Basin Thickness
COCORP FL-1	30.556	-83.225	191	-3185	-11658	8473
COCORP FL-1	30.516	-83.216	237	-3255	-12960	9705
COCORP GA-10	30.616	-83.562	200	-3801	-12624	8823
COCORP GA-10	30.700	-83.666	350	-4102	-11613	7511
COCORP GA-10	30.743	-83.659	400	-4102	-10517	6415
COCORP GA-10	30.823	-83.666	500	-4102	-8841	4739
COCORP GA-11	31.264	-83.834	30	-4595	-12761	8165
COCORP GA-11	31.393	-83.882	190	-4725	-14332	9607
COCORP GA-11	31.490	-83.878	300	-4431	-12236	7805
COCORP GA-11	31.532	-83.869	350	-4354	-11266	6912
COCORP GA-11	31.622	-83.876	460	-4385	-16572	12187
COCORP GA-11	31.650	-83.902	500	-4371	-15753	11382
COCORP GA-11	31.686	-83.927	550	-4350	-14430	10080
COCORP GA-12	31.062	-83.897	100	-4865	-8029	3164
COCORP GA-12	31.133	-83.898	180	-4690	-8228	3538
COCORP GA-13	31.770	-84.018	20	-4179	-11585	7406
COCORP GA-13	31.810	-84.019	70	-3867	-10090	6223
COCORP GA-13	31.852	-84.001	120	-3773	-9054	5281
COCORP GA-13	32.029	-83.992	330	-3230	-6720	3489
COCORP GA-16	31.803	-82.132	110	-3094	-7548	4454
COCORP GA-16	31.753	-82.133	180	-3080	-6946	3866
COCORP GA-16	31.690	-82.133	250	-3066	-6515	3449
COCORP GA-16	31.550	-82.144	410	-3020	-4357	1337
COCORP GA-16	31.520	-82.147	450	-2954	-4267	1313
COCORP GA-19	32.346	-83.711	110	-2004	-2513	508
COCORP GA-19	32.312	-83.721	150	-2249	-3028	779
COCORP GA-19	32.230	-83.721	250	-2691	-4397	1705
COCORP GA-19	32.188	-83.720	300	-2530	-5762	3231
COCORP GA-19	32.146	-83.712	350	-2611	-7689	5078
COCORP GA-19	32.110	-83.713	390	-2793	-8729	5936
COCORP GA-19	32.056	-83.714	450	-3094	-11833	8739
COCORP GA-19	31.981	-83.698	550	-3496	-10822	7325
COCORP GA-19	31.855	-83.719	700	-3689	-11301	7612
COCORP GA-20	32.267	-83.813	610	-2194	-3074	880
COCORP GA-20	32.288	-83.777	660	-2086	-4172	2086
COCORP GA-20	32.287	-83.723	710	-2289	-3927	1638

E base – elevation for the basement contact, E K unc – elevation for the Cretaceous unconformity (sea level) at the base of the coastal plain, SP – shot point

CONFIGURATION OF THE TRIASSIC BASIN IN SOUTH CAROLINA, GEORGIA AND NORTHERN FLORIDA

Data from wells and seismic were used to construct structure contour maps of the base of the overlying Cretaceous, and the bottoms of the Triassic basins. An isopach map of the fill within the basins was also constructed.

Figure 2 displays a COCORP seismic reflection survey that runs approximately perpendicular to the basin trend. The reflections from the survey are interpreted as a half graben. The COCORP seismic survey is old and of moderate quality, but basins are clearly identifiable. The lack of well control and the presence of many diabase sills contribute to the potential error in interpretation.

Figure 3 is a structure contour map of the base of the Cretaceous sediments and represents the approximate location of the basal Cretaceous unconformity, which also represents the top of the fill within the Triassic basins. The map also provides an interpretation of the extent of the rift basin complex and inferred faulting.

The erosional structure on top of the basins in southwestern Georgia and north-northwestern Florida (Southwest Georgia Embayment) appear to be affected by the configuration of the Triassic basins. The erosional surface of the Southeast Georgia Embayment is shifted more to the south and appears less affected by basin structure. The higher elevations in northern Florida appear controlled by rocks resistant to erosion of the Paleozoic Suwannee Terrain. A large fold-out scale map is provided in the appendix and CD.

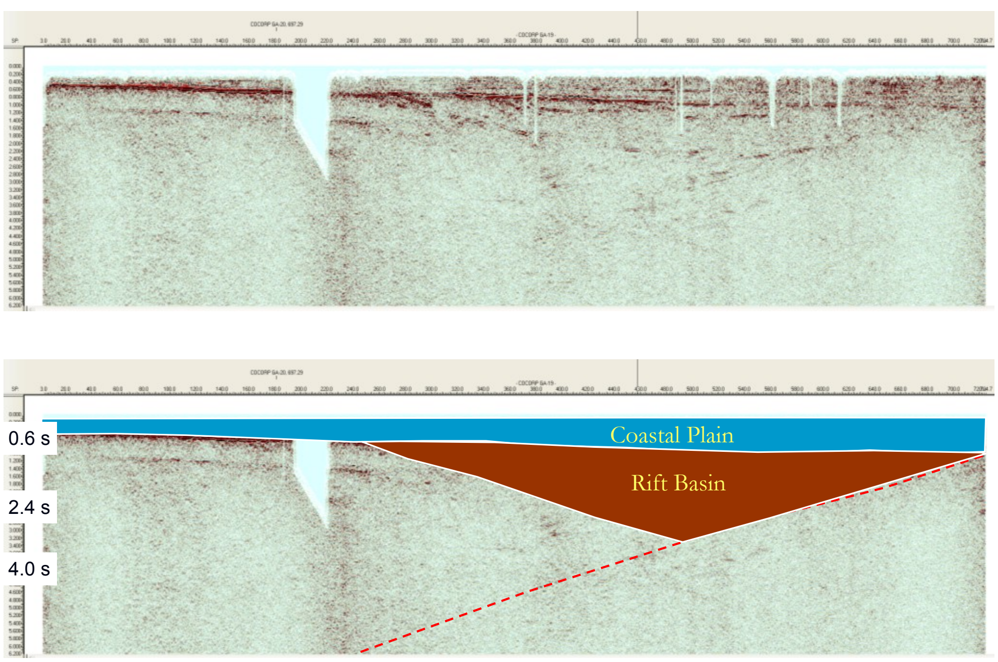

Figure 2. Interpretation of COCORP Seismic Reflection Survey of a Half Graben Rift Basin

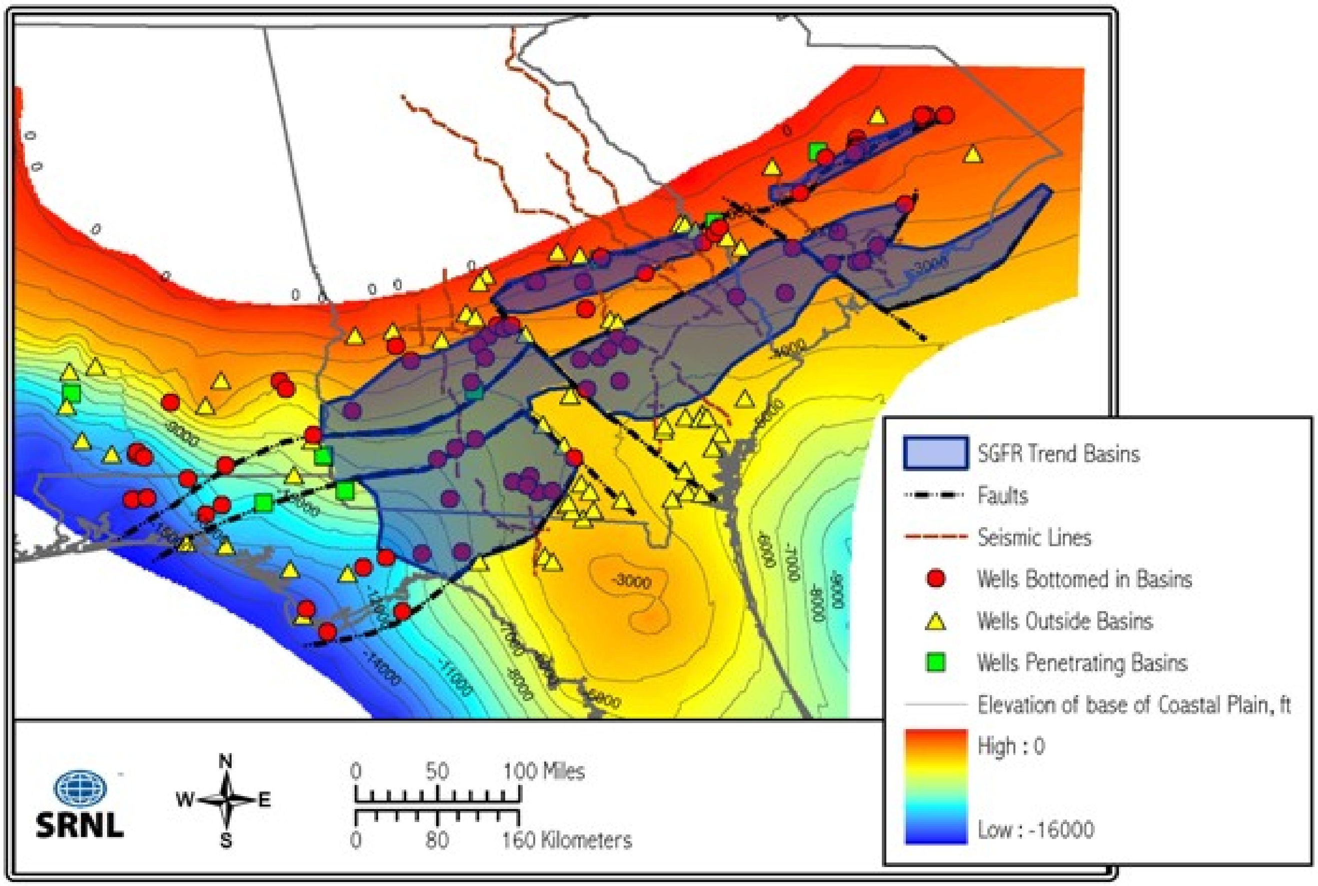

Figure 3. Structure Contour Map Of The Base Of The Coastal Plain Sediments

Figure 4 is a structure contour map of the SGFAR trend. The basin trend is very large, with its length extending through South Carolina, Georgia, and into northern Florida and the Florida panhandle, and southern Alabama. The primary goal of this study was to concentrate on the basin configuration and extent in South Carolina, Georgia, and northern Florida. The structure map demonstrates that the basins are a series of long, deep, northeast-southwest trending en echelon half grabens.

The en echelon half graben basins in the southwest of the trend appear to be down-dropped to the southeast, with the thickest sediment accumulation on the southeast side of the basins. The basins in the middle of the trend seem to be down-dropped to the northwest, (thickest sediments on the northwest side of the basin) and the basins on the northeast of the trend are down to the southeast. The basin boundary faults that form the long sides of the grabens are likely normal. The transfer faults that form the short ends of the basins are more complex. The varying depths of the basins and the difference in down-drop direction, as shown on the structure contour map, suggest considerable rotation is likely on the transfer faults. Large fold-out scale maps of the basin trend are provided in the appendix, and CD.

For ease of discussion, the basins of the complex in southwest Georgia and northern Florida are named Albany-Arabi (named for deepest portion of the basin in Georgia), Camilla-Ocilla, and Madison-DuPont (named deepest part of the onshore contiguous basin in Georgia and Florida). The south central Georgia and southeast South Carolina basins are named Riddleville-Dunbarton, and Alamo-Ehrhardt. The South Carolina basins are named Orangeburg-Florence, and Jedburg. The names are based upon the towns and cities present on the ends of the deepest part of each basin. Figure 5 and Figure 6 illustrate the names of the basins in South Carolina, Georgia and Florida.

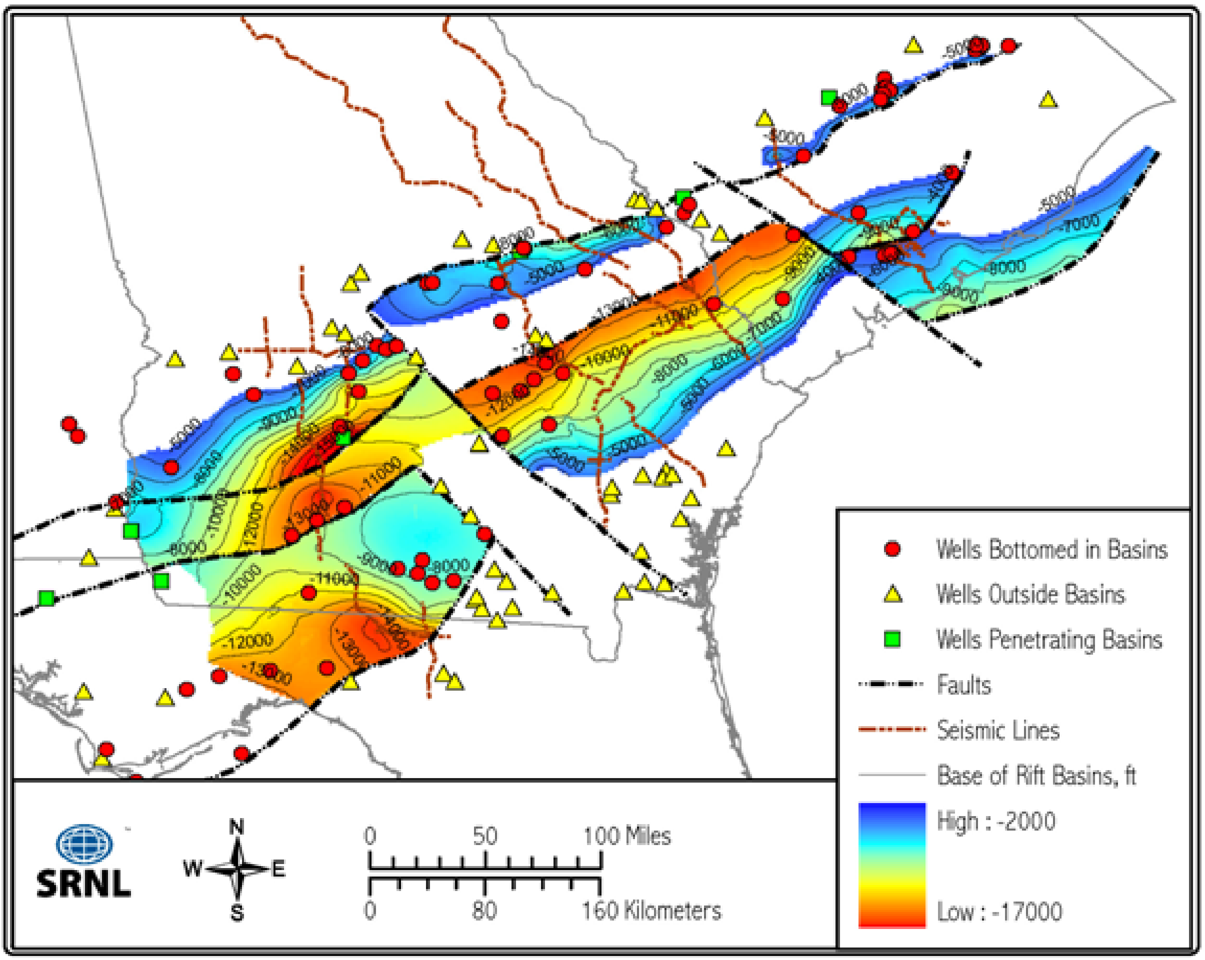

Figure 4. Structure Contour Map Of The Base Of The SGFAR Trend Basins

The Albany-Arabi, Camilla-Ocilla, and Madison-DuPont en echelon basins cover an area in Georgia and Florida of approximately 19,600 square miles. The Albany-Arabi basin is the deepest of the basins with a depth of approximately 17,000 feet. The Riddleville-Dunbarton, and Alamo-Ehrhardt basins cover an area of approximately 11,700 square miles. The Alamo-

Ehrhardt basin is the deepest with a depth of approximately 13,000 feet. The Orangeburg-Florence, and Jedburg basins cover an area of approximately 8000 square miles not considering offshore parts of the Jedburg basin. The Orangeburg-Florence basin has a maximum depth of approximately 6000 feet, with the Jedburg having a maximum depth of approximately 9000 feet.

The overall size of the South Carolina, Georgia, north Florida Triassic basin complex is much larger than the other Triassic basin along the east coast of the United States. In total the basin complex covers almost 40,000 square miles.

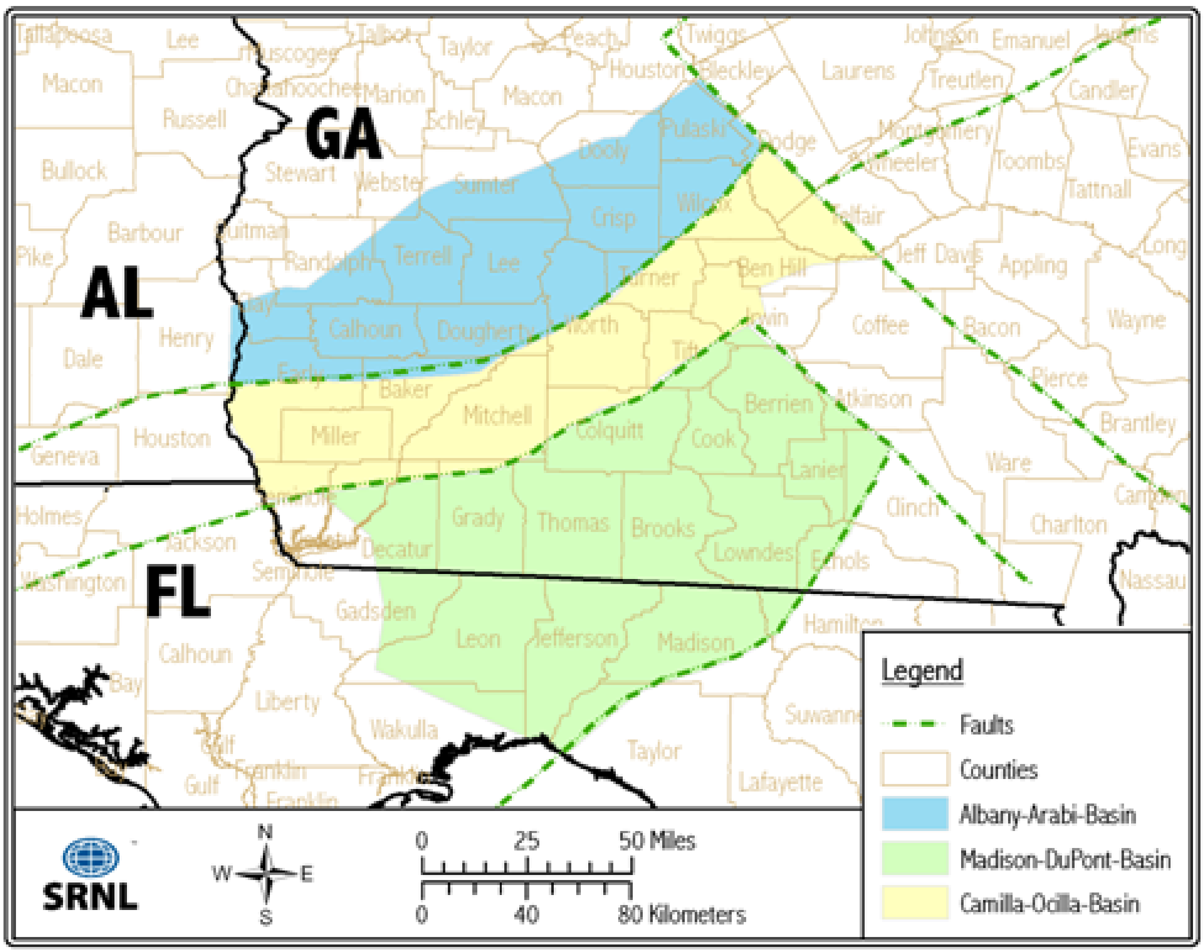

Figure 5. Location of Albany-Arabi, Camilla-Ocilla, and Madison-DuPont Basins.

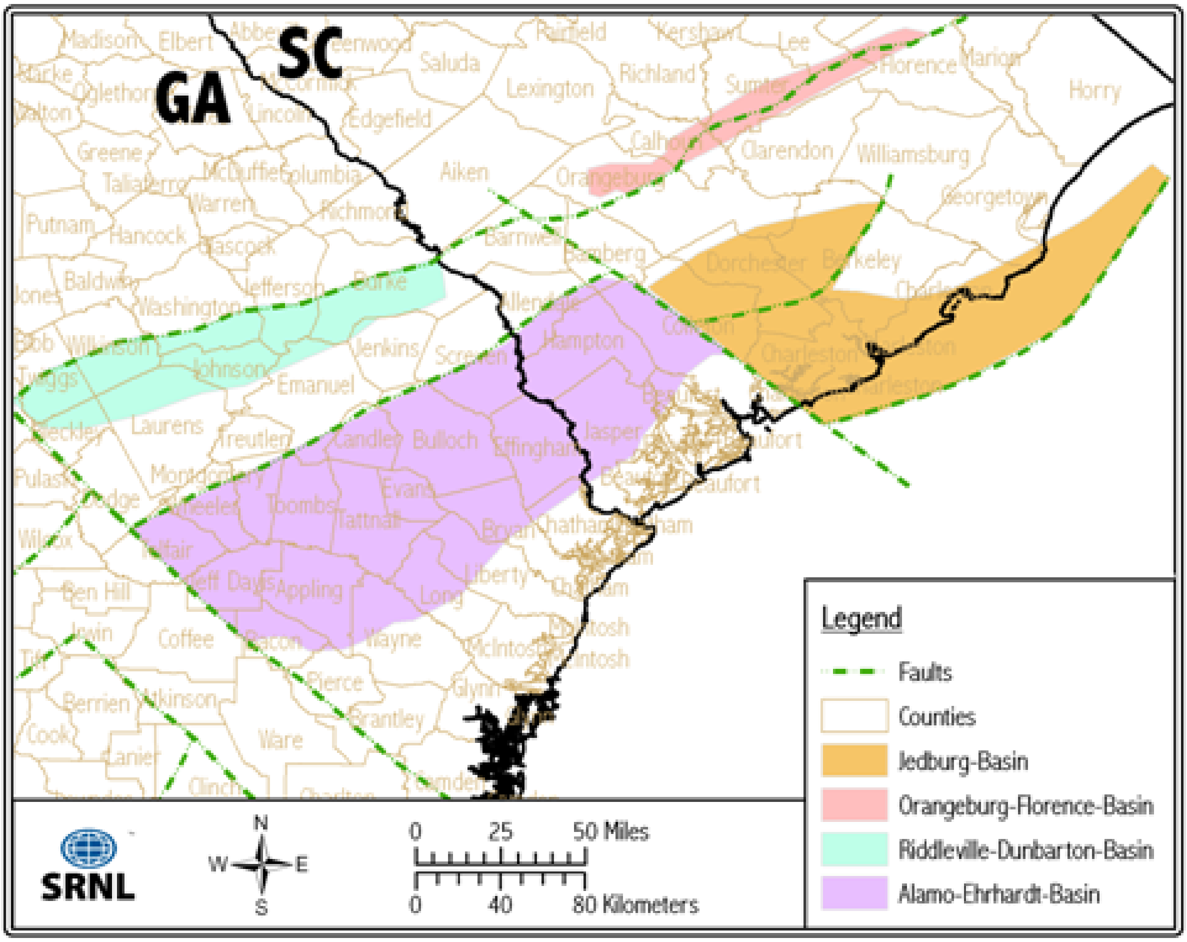

Figure 6. **Location of Riddleville-Dunbarton, Alamo-Ehrhardt, Orangeburg-Florence, and Jedburg Basins**

Figure 7 is an isopach map illustrating the thickness of the sedimentary fill in the basins of the trend. Well data indicate that the fill consists of conglomerates, sandstones, red beds, basalt, diabase sills and dikes, volcanics (rhyolites and tuffs), and igneous intrusives.

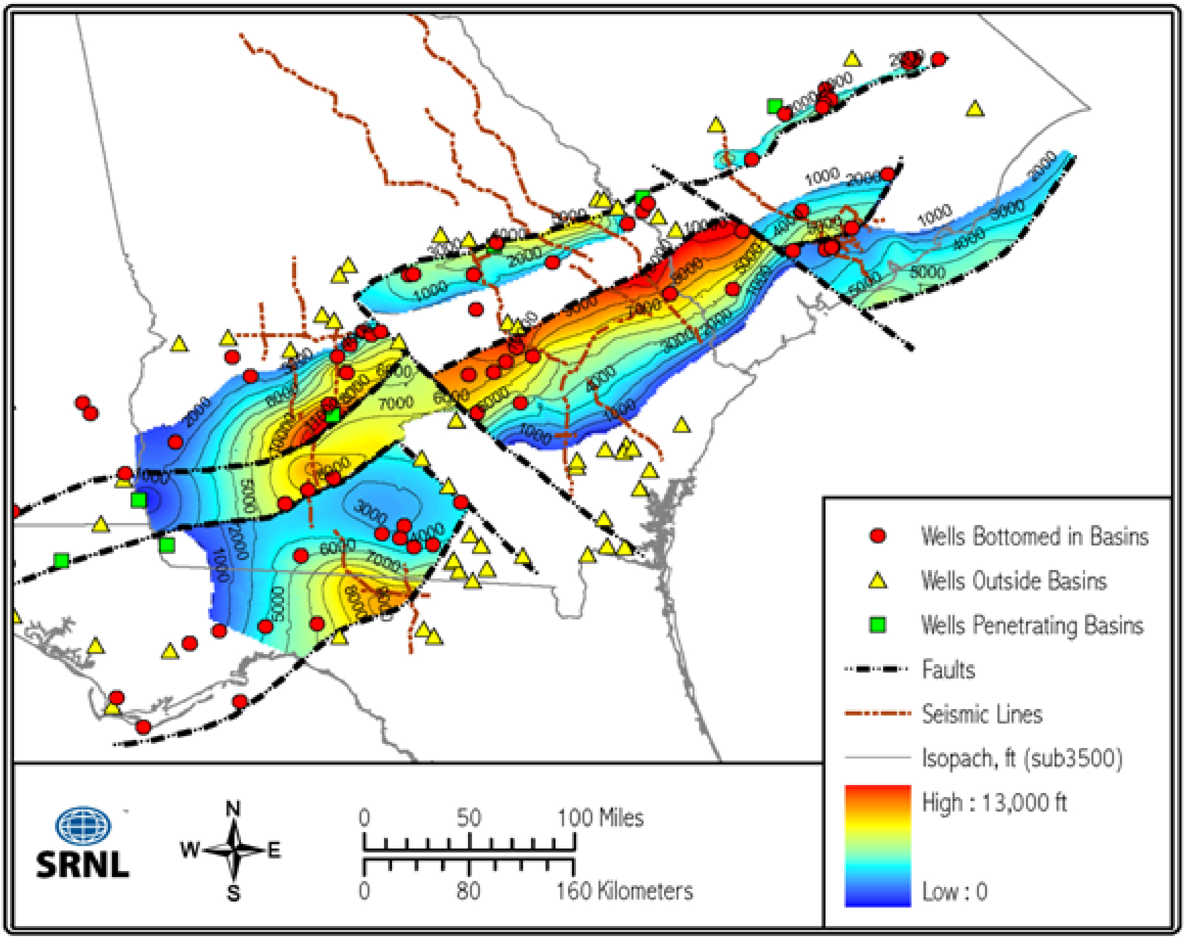

Figure 7. Isopach Map Of The SGFAR Trend Basins

BASIN EVOLUTION AND FILLING

Many Triassic age continental rift basins display similar depositional sequences where the basal unit is a fluvial deposit that becomes a deep-water lacustrine unit, which gradually becomes a shallow water lacustrine and fluvial deposit. This pattern of deposition is called tripartite deposition, and is likely the result of infilling of a growing basin where the length of boundary faults increase with the accumulation of sediment (Schlische, 1990).

The Triassic basins of the northeast and middle Atlantic states of the United States are relatively small compared to SGFR trend. According to McBride et al (1987) the interpretation of the basin area by Chowns and Williams is over 10 times the size of the Newark-Gettysburg-Culpepper Triassic basin system (the largest of the other basin systems in the eastern US). Our evaluation of the system suggests that it is at least 6 to 7 times larger than these more northern basins. Given the large size of the SGFAR it is likely that the sedimentary architecture could be more developed with larger sedimentary sequences present.

A larger basin system that may be similar to the SGFAR trend basins is the Cuyo Triassic basin near town of Potrerillos in the Mendoza region of Argentina. The Cuyo basin is a know oil producing region, and there are excellent outcrops of the alluvial and fluvial deposits. The depositional sequence in the Cuyo starts with basalts and welded debris flows that are interbedded with ash fall tuffs at the base of the basin. Conglomerates (fanglomerates) of the Rio Mendoza Formation overly the basalts, ash and debris flows, and represent the alluvial sequence (Ramos, 2008). The Uspallata Formation overlies the Rio Mendoza and consists of the fluvial facies (red beds, sandstones, siltstones, etc.). Figure 8 is a photograph of the welded debris flows that are interbedded with ash fall tuffs in the lower part of the Cuyo basin sequence. Figure 9 is a photograph of the ash fall tuffs and basalt flows that are interbedded within the basal section.

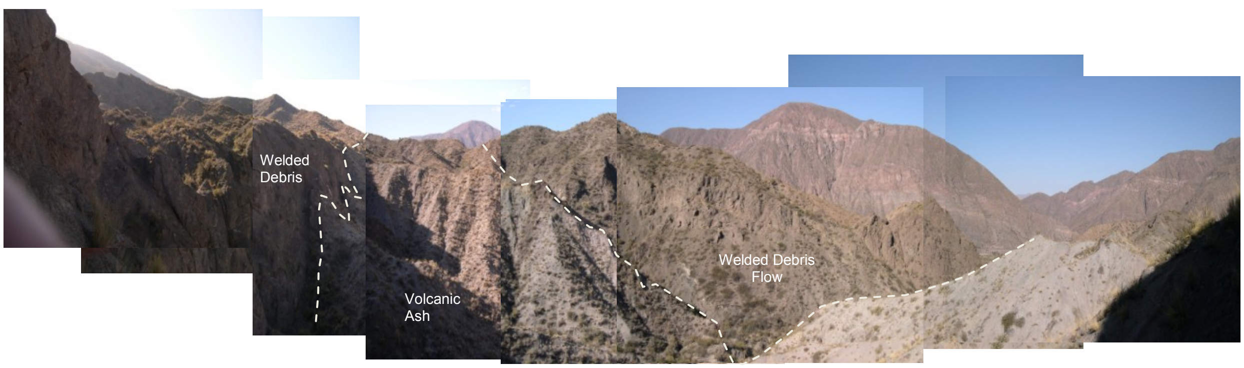

Figure 8. Interbedded Welded Debris Flows And Ash Fall Tuffs

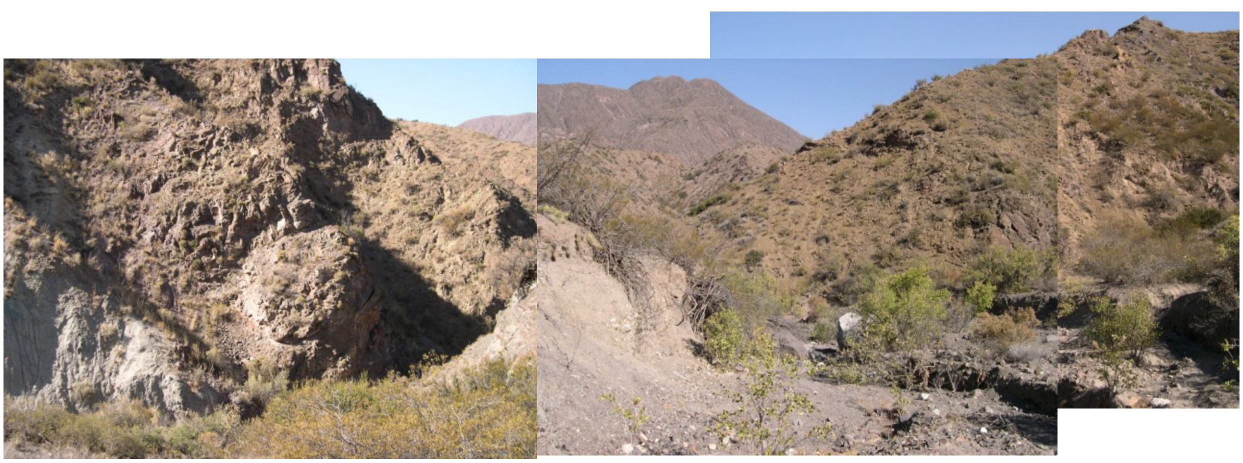

Figure 9. Interbedded Alkali Basalts And Ash Fall Tuffs

Figure 10 is a photograph of the general sequence overlying the basalts, debris flows, and ash deposits. Figure 11 is a photograph of the fanglomerates of the Rio Mendoza Formation. Figure 12 is a photograph of the red beds of the Uspallata. Figure 13 are photographs of the fluvial sandstones of the Uspallata Formation. The majority of the sediment accumulation of the Cuyo basin is alluvial and fluvial deposits. The lacustrian deposits of the Cacheuta Formation are relatively thin in outcrop in the Potrerillos area (Spalletti et al, 2008).

The fluvial and alluvial sediments of tripartite depositional package have the greatest potential for carbon dioxide sequestration because of the greater porosity and permeabilities likely to be present. The lacustrian deposits are typically fine grained. It is probable that there are many thousands of feet of fluvial and alluvial deposits present in the SGFAR trend basins.

Figure 10. **General Exposed Triassic Sequence Near Potrerillos, Mendoza, Argentina, Along The Pan American Highway**

Figure 11. Fanglomerates Of The Rio Mendoza Formation

Figure 12. Red Beds of the Uspallata Group.

Figure 13. Sandstones Of The Uspallata Group

CARBON DIOXIDE STORAGE POTENTIAL IN SGFAR TREND BASIN

There is only one well (DP161) that penetrates through the deeper portions of the Albany-Arabi basin. This well appears to have penetrated sedimentary packages that resemble a tripartite deposition sequence with definite accumulations of shales that are likely of lacustrine origin. There is very little information on the sedimentary architecture of the SGFAR trend basins due to the limited deep wells. The lack of detailed subsurface information makes it difficult to provide a detailed estimate of the CO_2 storage potential. However, it is possible to make an order of magnitude estimate based upon sediment volume that can be used to rank the region for comparison purposes.

Water chemistry data by Marine (1974) from wells in the Dunbarton basin indicate that the water would be considered saline (greater than 10,000 ppm total dissolved solids). Mechanisms for carbon dioxide storage in saline formations include structural trapping, hydrodynamic trapping, residual trapping, dissolution and mineralization. Saline formations typically must meet the basic safe storage criteria: 1) sufficient pressure and low enough temperature to keep the CO_2 liquid or supercritical, 2) presence of seal systems that will contain the buoyant nature of the CO_2, and 3) hydrogeologic conditions that will tend to isolate the CO_2 in the formation, when storing supercritical CO_2 (DOE, 2010).

Currently there is not sufficient information to determine if extensive seal systems exist in the SGFAR trend basins. However, the probable tripartite sequence within the Albany-Arabi basin suggests that seals maybe present. There is sufficient pressure to maintain the CO_2 in liquid or supercritical form. It is likely that the temperatures are not too high, and that there is sufficient complexity within the depositional packages to isolate injected CO_2.

According to DOE (2010) the volumetric equation used to calculate the CO_2 storage resource mass estimate (GCO2) for geologic storage in saline formations is:

GCO2 = At hg φtot ρEsaline

The total area (*At*), gross formation thickness (*hg*), and total porosity (φ*tot*) terms account for the total bulk volume of pore space available. The CO_2 density (*ρ*) converts the reservoir volume of CO_2 to mass. Rather than using an irreducible water saturation parameter explicitly, the storage efficiency factor (*Esaline*) reflects the fraction of the total pore volume that will be occupied by the injected CO_2.

Typically efficiency factors of 1% or less are selected for limited knowledge situations. Table 6 provides the average width and length, average thickness for basin fill greater than 3500 feet below land surface (bls), the calculated volume, and an estimated CO_2 storage capacity with a 1% efficiency factor, and a 15% effective porosity. The storage capacity of Table 6 is slightly more conservative that the DOE (2010) method because an effective porosity for a typical sand is used rather than total porosity. Total porosity would be close to double the effective porosity selected in these calculations. The calculations use a 21.2 kg/ft3 density for CO_2 that relates to an average pressure of 180 bar at 47 degrees centigrade. The deeper portions of the basins were used in the calculations. Specifically, the basin lengths and widths were restricted to parts of the basins where there would be at least 5000 feet of overburden. The selected pressures for CO_2 match well with the average hydrostatic pressures likely to be encountered in the deeper portions of the basins. Formational temperatures are not known, but the region is known for relatively low geothermal gradient which is consistent with the selected temperature for the CO_2.

DOE (2010) provides a low and high estimate of 12.6 and 60 billion metric tons for the South Carolina and Georgia basins. The approximately 137 billion metric ton estimate provided in Table 6. is somewhat conservative and suggests that the basins may have approximately twice the capacity of the previous maximum estimate, based upon the revised configuration of the basins. Even at an efficiency factor of 0.5% the basins represent a significant potential storage volume.

Table 6. Order Of Magnitude Estimate Of Potential Supercritical CO_2 Storage

Basin	Average Width	Average Length	Average Thickness >3,500 feet below land surface	Volume *(Ft^3)*	1% Efficiency Factor *(Ft^3)*	15% Effective Porosity *(Ft^3)*	Metric Tons Supercritical CO_2 Storage Capacity*
Albany-Arabi	149,700	480,500	9500	6.83E+14	6.83E+12	1.03E+12	2.17E+10
Camilla-Ocilla	122,400	617,760	8100	6.12E+14	6.12E+12	9.19E+11	1.95E+10
Madison-DuPont	273,200	443,500	10250	1.24E+15	1.24E+13	1.86E+12	3.95E+10
Riddleville-Dunbarton	72,200	496,300	5120	1.83E+14	1.83E+12	2.75E+11	5.83E+09
Alamo-Ehrhardt	219,000	737,000	9100	1.47E+15	1.47E+13	2.20E+12	4.67E+10
Orangeburg-Florence	23,000	290,000	4000	2.67E+13	2.67E+11	4.00E+10	8.48E+08
Jedburg	83,000	232,000	5500	1.06E+14	1.06E+12	1.59E+11	3.37E+09
Total				**4.32E+15**	**4.32E+13**	**6.48E+12**	**1.37E+11**

SRNL has developed an aqueous storage technology that takes advantage of dissolution based trapping of CO_2. This process dissolves the CO_2 in formation water in the well prior to injection into the formation. The CO_2 + formation water mixture is denser than the original formation water and forms a non-buoyant solution that requires no seal system or geologic traps for safe storage. Due to the non-buoyant nature of the storage process there are no sweep efficiency problems. The process can be used to store relatively pure CO_2 aqueously, or it can be coupled with an in-well aqueous CO_2 capture system that removes the CO_2 from flue gas. These complementary technologies have been termed the TERAS-System (Thermal Energy Recovery Aqueous Separation-System) and are patent pending. Using the TERAS-System it is possible to store approximately 40 billion metric tons of CO_2 (approximately a third of the supercritical volume). It is probable that the storage potential is much larger because of the lower area limitations, the lack of volumetric sweep efficiency issues, and because it is not necessary to have seals and traps.

CO_2 SOURCE PROXIMITY

There are a large number of coal fired power plants in South Carolina, Georgia, and Northern Florida that are in close proximity to the basins of the SGFAR trend. Figure 15 illustrates the coal fired plants in the region that could benefit from the potential CO_2 storage in the basins. There are 16 power plants on or adjacent to the basins in South Carolina, Georgia, and western Florida. Figure 16 illustrates the regional CO_2 sources from cement and ammonia production that could benefit from potential storage in the basins.

Table 7 provides itemization of the specific power plant sources and the distance to the deepest portion of the larger basins which have the greatest storage potential. The distances are calculated using the basin source distance reference point shown on Figure 14 and Figure 15.

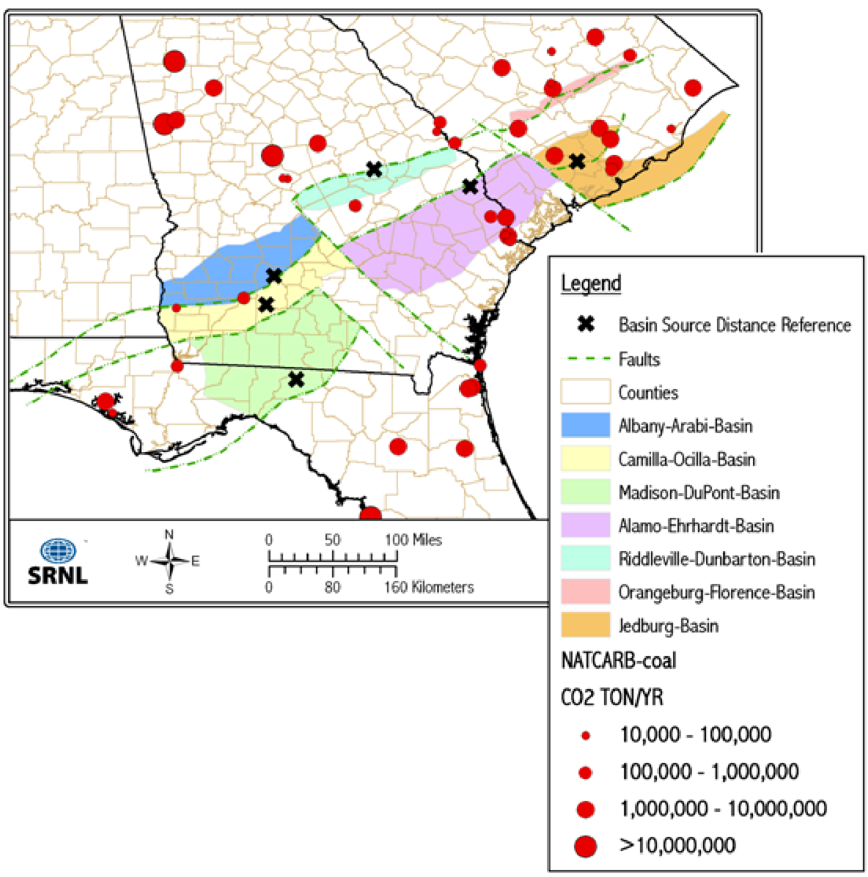

Figure 14. Coal Fired Power Plants Relative To The SGFAR Trend Basins. Source Data Per NATCARB, 2011

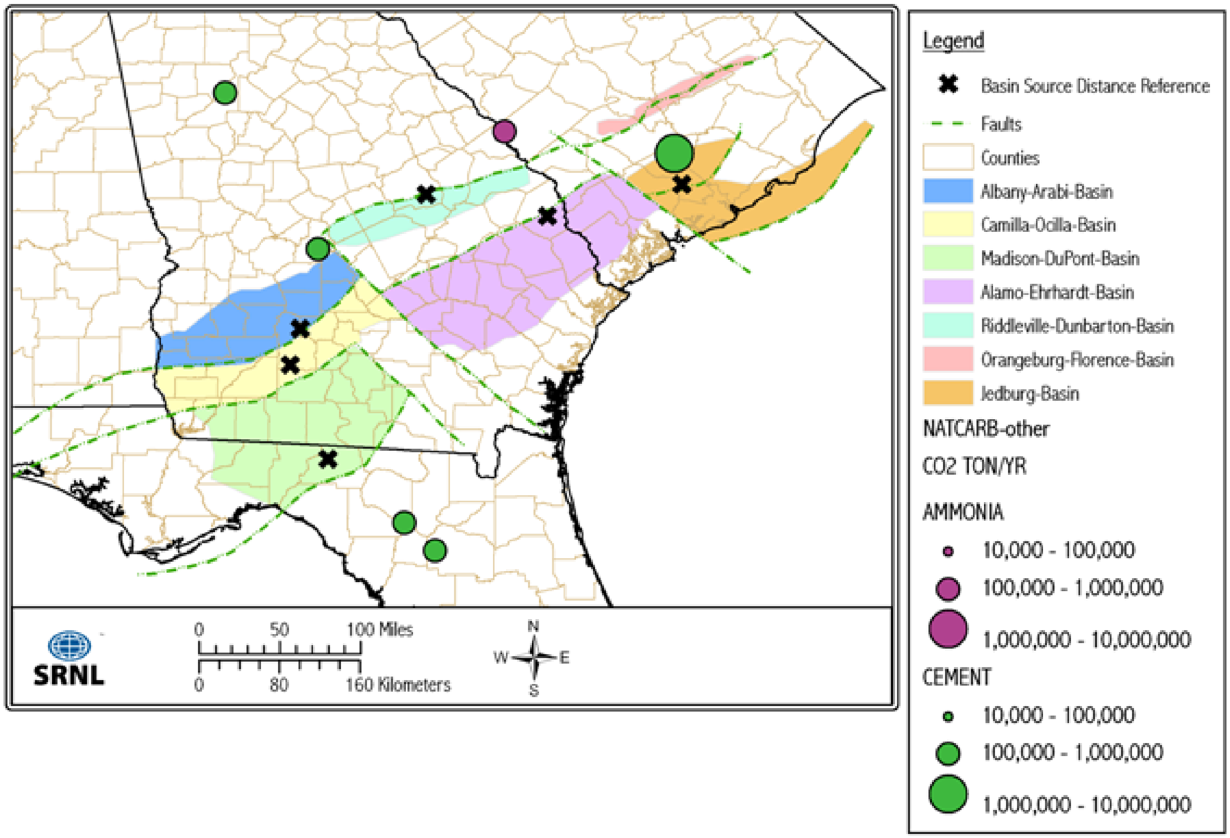

Figure 15. Cement And Ammonia Plants Relative To The SGFAR Trend Basins. Source Data Per NATCARB, 2011 Database

Table 7. Itemized List Of Power Plants With Distances To The Deepest Portions Of The Larger Basins (Basin Reference Source). Source Information From NATCARB, 2011 Database

State	County	CO_2 Ton/Yr	Latitude	Longitude	Miles to Basin Reference Point	Basin	Operator
AL	Mobile	1.05E+05	30.73849	-88.04890	250	Camilla-Ocilla	DTE NUGS
FL	Duval	1.76E+06	30.41764	-81.59802	116	Madison-DuPont	COGENTRIX
FL	Escambia	5.84E+06	30.56629	-87.22887	204	Camilla-Ocilla	GULF POWER CO
FL	Citrus	1.59E+07	28.95965	-82.70013	120	Madison-DuPont	PROGRESS ENERGY FLORIDA
FL	Alachua	1.52E+06	29.75884	-82.38813	87	Madison-DuPont	GAINESVILLE REGIONAL UTILITIES
FL	Escambia	4.87E+04	30.59799	-87.32108	212	Camilla-Ocilla	INTERNATIONAL PAPER CO
FL	Nassau	1.97E+05	30.68164	-81.45701	125	Madison-DuPont	SMURFIT-STONE CORP

Table 7. Itemized List Of Power Plants With Distances To The Deepest Portions Of The Larger Basins (Basin Reference Source). Source Information From NATCARB, 2011 Database *(Continued)*

State	County	CO_2 Ton/Yr	Latitude	Longitude	Miles to Basin Reference Point	Basin	Operator
FL	Bay	3.92E+06	30.26910	-85.70023	129	Madison-DuPont	GULF POWER CO
AL	Mobile	1.32E+07	31.00708	-88.01030	245	Camilla-Ocilla	ALABAMA POWER CO
GA	Bartow	2.10E+07	34.12570	-84.91914	154	Riddleville-Dunbarton	GEORGIA POWER CO
GA	Bibb	1.09E+04	32.80124	-83.69290	60	Riddleville-Dunbarton	R J REYNOLDS TOBACCO CO
GA	Early	8.71E+04	31.32628	-84.89782	60	Camilla-Ocilla	GEORGIA PACIFIC
GA	Putnam	7.71E+06	33.19434	-83.29928	41	Riddleville-Dunbarton	GEORGIA POWER CO
GA	Richmond	8.20E+04	33.32904	-81.95294	48	Alamo-Ehrhardt	INTERNATIONAL PAPER CO
GA	Chatham	2.77E+05	32.10490	-81.12043	49	Alamo-Ehrhardt	INTERNATIONAL PAPER CO
GA	Cobb	3.29E+06	33.82451	-84.47493	123	Riddleville-Dunbarton	GEORGIA POWER CO
GA	Chatham	1.38E+06	32.14880	-81.14563	46	Alamo-Ehrhardt	GEORGIA POWER CO
GA	Effingham	1.18E+06	32.35599	-81.16813	34	Alamo-Ehrhardt	GEORGIA POWER CO
GA	Dougherty	4.57E+05	31.44458	-84.13211	15	Camilla-Ocilla	GEORGIA POWER CO
GA	Bibb	2.46E+04	32.79454	-83.64320	57	Riddleville-Dunbarton	RIVERWOOD INTL USA INC
GA	Effingham	5.89E+05	32.36879	-81.33983	27	Alamo-Ehrhardt	GEORGIA PACIFIC
GA	Chatham	3.27E+04	32.15530	-81.17133	45	Alamo-Ehrhardt	SAVANNAH FOODS&INDUSTRIAL INC
GA	Monroe	2.56E+07	33.05843	-83.80710	92	Albany-Arabi	GEORGIA POWER CO
GA	Laurens	1.05E+05	32.49187	-82.87066	31	Riddleville-Dunbarton	SP NEWSPRINT CO
GA	Heard	1.21E+07	33.41681	-85.03324	138	Albany-Arabi	GEORGIA POWER CO
GA	Coweta	6.23E+06	33.46231	-84.89854	135	Riddleville-Dunbarton	GEORGIA POWER CO
FL	Jackson	5.44E+05	30.66909	-84.88682	78	Camilla-Ocilla	GULF POWER CO
FL	Putnam	8.71E+06	29.73354	-81.63371	127	Madison-DuPont	SEMINOLE ELECTRIC COOP INC
FL	Duval	1.00E+07	30.43134	-81.55061	119	Madison-DuPont	JEA
FL	Bay	3.97E+04	30.14190	-85.62073	127	Madison-DuPont	SMURFIT-STONE CORP
SC	Kershaw	1.72E+04	34.23795	-80.65420	87	Jedburg	KOCH INDUSTRIES INC
SC	Colleton	3.00E+06	33.06046	-80.62122	15	Jedburg	SOUTH CAROLINA ELECTRIC&GAS CO
SC	Charleston	4.26E+05	32.89957	-79.96921	24	Jedburg	SOUTH CAROLINA ELECTRIC&GAS CO

Table 7. Itemized List Of Power Plants With Distances To The Deepest Portions Of The Larger Basins (Basin Reference Source). Source Information From NATCARB, 2011 Database *(Continued/End)*

State	County	CO_2 Ton/Yr	Latitude	Longitude	Miles to Basin Reference Point	Basin	Operator
SC	Orangeburg	3.62E+06	33.36436	-81.02982	46	Jedburg	SOUTH CAROLINA ELECTRIC&GAS CO
SC	Berkeley	9.48E+06	33.36937	-80.11171	30	Jedburg	SOUTH CAROLINA PUB SERV AUTH
SC	Horry	1.26E+06	33.82547	-79.05256	95	Jedburg	SOUTH CAROLINA PUB SERV AUTH
SC	Darlington	1.32E+06	34.40185	-80.15869	97	Jedburg	PROGRESS ENERGY CAROLINAS
SC	Richland	7.54E+04	33.88315	-80.66051	64	Jedburg	INTERNATIONAL PAPER CO
SC	Georgetown	3.51E+04	33.36347	-79.29897	67	Jedburg	INTERNATIONAL PAPER CO
SC	Berkeley	2.25E+06	33.24237	-79.98730	28	Jedburg	SOUTH CAROLINA PUB SERV AUTH
SC	Lexington	1.51E+06	34.05345	-81.21762	88	Jedburg	SOUTH CAROLINA ELECTRIC&GAS CO
SC	Florence	1.85E+05	34.19546	-79.76258	90	Jedburg	SMURFIT-STONE CORP
SC	Aiken	8.18E+05	33.43514	-81.91094	54	Alamo-Ehrhardt	SOUTH CAROLINA ELECTRIC&GAS CO
SC	Barnwell	4.50E+05	33.20205	-81.74264	35	Alamo-Ehrhardt	SOUTH CAROLINA ELECTRIC&GAS CO
SC	Richland	4.72E+06	33.81515	-80.63791	58	Jedburg	SOUTH CAROLINA ELECTRIC&GAS CO
SC	Berkeley	3.61E+06	32.96657	-79.94291	25	Jedburg	SOUTH CAROLINA GENERTG CO INC

CONCLUSIONS AND RECOMMENDATIONS

The basins within the SGFAR trend have sufficient sedimentary fill to have a large potential storage capacity for CO_2. The deeper basins appear to have sedimentary fill of over 15,000 feet. Much of this fill is likely to be alluvial and fluvial sedimentary rock with higher porosity and permeability. This report estimates an order of magnitude potential capacity of approximately 137 billion metric tons for supercritical CO_2. The pore space within the basins represent hundreds of years of potential storage for supercritical CO_2 and CO_2 stored in aqueous form.

Thirty one coal fired power plants are located within 100 miles of the deepest portions of these basins. Sixteen coal fired power plants are present on or adjacent to the basins which could support a low pipeline transportation cost.

The current geological information is not sufficient to quantify specific storage reservoirs, seals, or traps. There is insufficient hydrogeologic information to quantify the saline nature of the water present within all of the basins. Water data from Marine (1974) in the Dunbarton Basin of the Savannah River Site indicates dissolved solids concentrations of greater than 10,000 parts per million (not potential drinking water).

Additional reservoir characterization is needed to take advantage of the SGFAR trend for anthropogenic CO_2 storage. The authors of this report believe it would be appropriate to study the reservoir potential in the deeper basins that are in close proximity to the current larger coal fired power plants (Albany-Arabi, Camilla-Ocilla, Alamo-Ehrhardt, and Jedburg basins).

Proprietary seismic information from hydrocarbon exploration is available for some areas of the rift basin trend. This information can be purchased from the acquirer to support a better understanding of the gross potential reservoir capacities and identify possible drilling locations and targets. It may also be appropriate to perform seismic surveys adjacent to the larger power plants that overly the deeper basins to identify exploratory drilling targets. If exploratory drilling is performed a full suite of geophysical logs, sidewall cores, and drill stem tests should be acquired from the well(s).

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