



SOUTHERN PETROLEUM LABORATORIES, INC.

LABORATORY SERVICES LIST

Version 1.0

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WWW.SPL-INC.COM


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 SOUTHERN PETROLEUM LABORATORIES, INC. ENVIRONMENTAL SERVICES		
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ORGANIC CHEMISTRY -GC VOLATILES		
1	BTEX (Gasoline Components)	EPA 602/SW 846 8021
2	BTEX + MTBE	EPA 602/SW 846 8021
3	BTEX + MTBE + IPE	EPA 602/SW 846 8021
4	BTEX + MTBE + Naphthalene	EPA 602/SW 846 8021
5	BTEX + MTBE + IPE + Naphthalene	EPA 602/SW 846 8021
6	BTEX & TPH/GRO	EPA 602/SW 846 8021/8015
7	BTEX /THC	SW 846 8021/8015
8	Fuels	SW-846 8015
9	Nonhalogenated Volatile Organics	SW-846 8015
10	Organics Gasoline Range (GRO)	SW-846 8015
11	Chlorinated Herbicides	EPA 615/SW-846 8151
12	PCB Wipes	SW-846 8082
13	PCBs	EPA 608/SW-846 8082
14	PPL Pesticides/PCBs	EPA 608/SW-846 8081
15	TCL Pesticides/PCBs	EPA 608/SW-846 8081
16	Organochlorine Pesticides	608/8081
17	Acrylamide	8316
18	Ethylene Dibromide (EDB)	504/8011/8260
19	Purgeable Aromatics	602/8021
20	Formaldehydes	8315


ORGANIC CHEMISTRY -GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS) / HPLC		
Organic Volatiles		
21	GCMS Full scan/SPL default analyte list	624/8260
22	GCMS - Less than six components reported	624/8260
23	Tentatively Identified Compounds(TICS) 10 compounds or less	624/8260
24	Tentatively Identified Compounds(TICS) Greater than 10 compounds	624/8260
25	PPL Volatiles	EPA 624/SW-846 8260
26	PPL Volatiles	SW-846 5030/8260
27	PPL Volatiles	SW-846 5035/8260
28	Skinner's List Volatiles	SW-846 8260
29	TCL Volatiles	EPA 624/SW-846 8260
30	TCL Volatiles	SW-846 5030/8260
31	TCL Volatiles	SW-846 5035/8260
32	BTEX and/or MTBE only	SW-846 8260
33	MTBE Confirmation only	SW-846 8260
34	BTEX/MTBE/Gasoline Range Organics	SW-846 8260
35	BTEX/MTBE/Naphthalene	SW-846 8260
36	BTEX / 5 Oxygenates pkg.	SW-846 8260
37	5 Oxygenates pkg. only	SW-846 8260
38	7 Oxygenates pkg. only	SW-846 8260
39	BTEX / GRO / 5 Oxygenates pkg.	SW-846 8260

 SOUTHERN PETROLEUM LABORATORIES, INC. ENVIRONMENTAL SERVICES		
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40	Methanol or Ethanol	SW-846 8015
41	Ethanol	SW-846 8260
42	BTEX / 7 Oxygenates	SW-846 8260
43	BTEX / 7 Oxygenates / GRO	SW-846 8260
44	5 Oxygenates / Full List 8260	SW-846 8260
45	5 Oxygenates / GRO / Full List 8260	SW-846 8260
46	7 Oxygenates / Full List 8260	SW-846 8260
47	7 Oxygenates / GRO / Full list 8260	SW-846 8260
48	GRO / Full List 8260	SW-846 8260
49	Lead Scavengers (EDB and EDC) only	SW-846 8260
50	BTEX / EDB and EDC	SW-846 8260
51	BTEX / 5 Oxygenates / EDB and EDC	SW-846 8260
52	BTEX / 7 Oxygenates / EDB and EDC	SW-846 8260
53	BTEX / 7 Oxy / GRO / EDB and EDC	SW-846 8260


Organic Semivolatiles		
54	Polynuclear Aromatic Hydrocarbons -(PNAs or PAHs)	8310 (HPLC)
55	Polynuclear Aromatic Hydrocarbons - (PNAs or PAHs)	SW-846-8270
56	Polynuclear Aromatic Hydrocarbons -(PNAs or PAHs)- Low Level Detection Proc.	SW-846-8270
57	Polynuclear Aromatic Hydrocarbons -(PNAs or PAHs)-Selective Ion Monitoring (SIM)	SW-846-8270 SIM
58	Tentatively Identified Compounds (TICS) 10 compounds or less	625/8270
59	Tentatively Identified Compounds(TICS) Greater than 10 compounds	625/8270
60	PPL Semivolatile (Acid Extractables)	EPA 625/SW-846 8270
61	PPL Semivolatiles (Base/Neutral and Acid Extractables)	EPA 625/SW-846 8270
62	PPL Semivolatiles (Base/Neutral Extractables)	EPA 625/SW-846 8270
63	Skinner List Base/Neutral Extractables	SW846 8270
64	Skinner List Acid Extractables	SW846 8270
65	TCL Semivolatile (Acid Extractables)	EPA 625/SW-846 8270
66	TCL Semivolatiles (Base/Neutral and Acid Extractables)	EPA 625/SW-846 8270
67	TCL Semivolatiles (Base/Neutral Extractables)	EPA 625/SW-846 8270
68	Extraction for Semivolatiles (Only)	625/8270

- 5 Oxygenate Package includes: MTBE, TBA, DIPE, ETBE, TAME
- 7 Oxygenate Package includes: 5 Oxygenates plus Methanol & Ethanol. (Methanol & Ethanol will be determined using Method 8015B Modified)
- Lead Scavenger Package includes: Ethylene Dibromide (EDB) and Ethylene Dichloride (EDC)

ORGANIC CHEMISTRY -TOTAL PETROLEUM HYDROCARBONS		
69	Total Petroleum Hydrocarbons (GC/FID) Gasoline-Purgeables (GRO)	SW-846 8015
70	Total Petroleum Hydrocarbons (GC/FID) Diesel-Extractables (DRO)	SW-846 8015
71	Total Petroleum Hydrocarbons Sonication/IR	413.2/418.1 - 3550/9073
72	Total Petroleum Hydrocarbons Soxhlet Extraction/IR	3540/SM503/9071
73	BTEX/TVPH Gasoline	8021/8015M

 SOUTHERN PETROLEUM LABORATORIES, INC. ENVIRONMENTAL SERVICES		
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ORGANIC CHEMISTRY -STATE SPECIFIC METHODS		
74	Arizona 418.1	418.1AZ
75	Arizona 8015-DRO	8015AZ
76	California Title 22 (17) TTLC -Metals	7470/7471/6010/6020
77	California Title 22 (17) w/STLC (WET) extraction -Metals	7470/6010/6020
78	Connecticut EPH	SW-846 8015
79	Florida -FLPRO	FLPRO
80	Iowa OA1	OA-1
81	Iowa OA2	OA-2
82	Massachusetts EPH (Extractable Petroleum Hydrocarbons)	MA EPH
83	Massachusetts VPH (Volatile Petroleum Hydrocarbons)	MA VPH
84	Missouri GRO 8260	MO MOD 8260
85	Missouri DRO 8270	MO MOD 8270
86	New Jersey DRO	NJ DRO
87	North Carolina EPH (Extractable Petroleum Hydrocarbons)	MA EPH
88	North Carolina VPH (Volatile Petroleum Hydrocarbons)	MA VPH
89	Oklahoma DRO	MOD 8015
90	Oklahoma GRO	MOD 8015
91	Oregon & Washington NWTPH-GRO	Northwest TPH Method
92	Oregon & Washington NWTPH-DRO	Northwest TPH Method
93	Oregon Hydrocarbon ID (HICD)	Northwest TPH Method
94	Tennessee EPH (Extractable Petroleum Hydrocarbons)	TN EPH
95	Texas TX 1005	TNRCC TX 1005
96	Texas TX 1006	TNRCC TX 1006
97	Washington GRO TVPH Gasoline	Northwest TPH Method
98	Washington DRO TEPH Diesel	Northwest TPH Method
99	Washington Hydrocarbon ID (HICD)	Northwest TPH Method
100	Wisconsin DRO	WI PUBL-SW 141
101	Wisconsin DRO TEPH Diesel	WI PUBL-SW 141
102	Wisconsin GRO & PVOC	WI PUBL-SW 140
103	Wisconsin GRO TVPH Gasoline	WI PUBL-SW 140
104	Utah TPH-GRO/DRO	MA EPH/MA VPH
105	Washington Hydrocarbon ID (HICD)	Northwest TPH Method
106	Wisconsin DRO	WI PUBL-SW 141
107	Wisconsin DRO TEPH Diesel	WI PUBL-SW 141
108	Wisconsin GRO & PVOC	WI PUBL-SW 140
109	Wisconsin GRO TVPH Gasoline	WI PUBL-SW 140
110	Utah TPH-GRO/DRO	MA EPH/MA VPH

RCRA / WASTE CHARACTERIZATION ANALYSES		
111	8 RCRA Metals	SW-846 6020/7061/7421/7471/7740/7470
112	Appendix IX Direct Aqueous Injection Volatiles	SW-846 8015
113	Appendix IX Volatiles	SW-846 5030/8015
114	Appendix IX Volatiles	SW-846 5035/8015
115	Appendix IX Volatiles	SW-846 5030/8260

 SOUTHERN PETROLEUM LABORATORIES, INC. ENVIRONMENTAL SERVICES		
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116	Appendix IX Volatiles	SW-846 5035/8260
117	Appendix IX Herbicides	SW-846 8151
118	Appendix IX Metals	SW-846 6020/7470/7060/7421/7740/7471/7841
119	Appendix IX Organochlorine Pesticides/PCBs	SW-846 8081
120	Appendix IX PCBs	SW-846 8082
121	Appendix IX Semivolatiles	SW-846 8270
122	Appendix IX Volatiles	SW-846 8260
123	Corrosivity	SW-846 Chapter 7
124	Flashpoint	ASTM D 93/40 CFR 261.21
125	Percent Halogens (Total)	9020/9023
126	Ignitability	SW-846 Chapter 7
127	Reactivity	SW-846 Chapter 7
128	TCLP/SPLP Volatile or Non-Volatile Extraction	SW-846 1311/1312
129	TCLP/SPLP (complete) (organic and inorganic)	SW-846 1311/1312
130	TCLP/SPLP Herbicides (requires extraction)	SW-846 8151
131	TCLP/SPLP Metals	SW-846 6010/7470/7060/7421/7740
132	TCLP/SPLP Pesticides	SW-846 8081
133	TCLP/SPLP Semivolatiles (requires extraction)	SW-846 8270
134	TCLP/SPLP Volatiles	SW-846 8260
135	TCLP Mercury	SW-846 7470
136	TCLP Lead	SW-846 7421/6010/6020

INORGANIC CHEMISTRY -CONVENTIONAL ANALYSES		
137	Acidity	2310 B
138	Alkalinity	2320 B
139	Ash Content	ASTM – D 482
140	Biochemical Oxygen Demand (BOD) -5 Day, 20°C	5210 B
141	Biochemical Oxygen Demand (BOD) -Carbonaceous	5210 B
142	Biochemical Oxygen Demand (BOD) -Ultimate	5210 B
143	Boron, Colorimetric Method	4500-B B
144	Bromide	300
145	Carbon, Total Organic (TOC)	5310 B/9060
146	Chemical Oxygen Demand (COD)	5220 C/ 410.4
147	Chloride, Inorganic	4500-CL C/4500-CL E
148	Chlorine, Residual	4500-CL G
149	Coliform, Total	9222B
150	Coliform, Fecal	9222D
151	Color, APHA	2120 B
152	Conductance, Resistivity	2510 B/ 120.1/9050
153	Cyanide, Amenable	4500-CN G
154	Cyanide, Total	4500-CN C/4500-CN E/9010/9014
155	Dissolved Oxygen	4500-O G
156	Fluoride (includes prep)	300.0/ 4500-F C/ 4500-F B

 SOUTHERN PETROLEUM LABORATORIES, INC. ENVIRONMENTAL SERVICES		
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157	Hardness, Total	2340 B/2340 C
158	Hydrogen Sulfide	4500-S-2 H
159	Ignitability on Soil	SW-846 /1030
160	Methylene Blue Active Substances (surfactants) (MBAS)	5540 C
161	Moisture, Karl Fischer Titration	ASTM D4377/D4928
162	Gravimetric (LOD)	2540 B
163	Nitrite	4500-NO2 B/ 300.0
164	Nitrate/Nitrite	4500-NO3 E/ 4500-NO3 F/300.0
165	Nitrogen Ammonia	4500-NH3 C /4500-NH3 D/ 300.0
166	Total Kjeldahl Nitrogen	4500-NH3 B/4500-NH3 E
167	Nitrate	4500-NO3 E/4500-NO3 F/ 300.0
168	Organic Matter (includes ash content, moisture)	ASTM – D 2974
169	Organic Nitrogen	4500-NH3 C/ 4500-NH3 E
170	Oil & Grease, Liquid/Liquid (Gravimetric)	5520 B/ 413.2/9071
171	HEM (Hexane Extractable Material)	EPA 1664
172	Silica Gel Treatment HEM	EPA 1664
173	pH	4500-H B
174	Phenols, with distillation	420.1/9065
175	Ion Chromatography (Nitrate, Chloride, Fluoride, Bromide, Nitrite)	300.0/9056
176	Phosphorus -Soluble (ortho)	4500-P B/ 4500-P E
177	Phosphorus -Meta (poly)	4500-P B/ 4500-P E
178	Phosphorus -Total	4500-P B/ 4500-P E
179	Residue, Total	2540 B
180	Solids -Settleable (SS)	2540 F
181	Solids -Total Dissolved (TDS)	2540 C
182	Solids -Total Suspended (TSS)	2540 D
183	Solids -Volatile Suspended (VSS)	160.4
184	Solids -Total (TS)	2540 B
185	Specific Gravity	ASTM D1429/2710F
186	Specific Conductance	2510 B/ 120.1/9050
187	Sulfate	300.0/ ASTM D516-90, 02/9038
188	Sulfide	4500-S-2 D/9030
189	Sulfite	4500-SO3-2 B
190	Total Organic Halogens (TOX/TOH)	9020 Duplicate/5320 B
191	Total Organic Halogens (TOX/TOH)	9020 Quadruplicate
192	Turbidity	180.1
193	Iodide	ASTM D3869-04/4500 I B


NOTE: The U.S. EPA recently issued a final ruling which establishes new test procedure guidelines for the analysis of pollutants under the Clean Water Act (CA, 40 CFR part 136). The ruling resulted in major changes related to the test methods allowed under both the Clean Water Act and the Safe Drinking Water Act. Effective April 11, 2007, the changes included approval of new methods, updated versions of currently approved methods, revised method modifications and analytical requirements, removal of certain outdated methods, and modifications to sample collection, preservation and holding time requirements. SPL has implemented the new methods to comply with the effective date of April 11, 2007. Unless otherwise specified by the client, SPL will employ the most recent methods on all new projects. Customers with NPDES permits not specifying a particular analytical method should not be affected by this ruling. For those permits that do specify outdated methods, SPL will be maintaining older methods in order to continue fulfilling your permit requirements; however, we suggest that you contact your local regulatory agency to obtain clarification concerning this matter.

 SOUTHERN PETROLEUM LABORATORIES, INC. ENVIRONMENTAL SERVICES		
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INORGANIC CHEMISTRY -METALS ANALYSES		
194	Digestion Fee (Single Digestion)	200.7/200.8/3010/3020/3050
195	Ferric Iron	3550 Fe-D
196	Filtration for Dissolved Metals	SW-846 3005
197	Hexavalent Chromium (Colorimetric)	3500 Cr-D/SW-846 7196
198	Alkaline Digestion for Hexavalent Chromium	SW-846 3060
199	Trivalent Chromium	200.7/3500 CR D (calculation)
200	ICP by Metal	EPA 200.7/SW-846 6010
201	ICP/MS by Metal	EPA 200.8/SW-846 6020
202	Individual Metals	EPA 200/SW-846 7000
203	Mercury	EPA 245/SW-846 7470/7471
204	Phosphorus (P)	4500-P E
205	PPL ICP Metals	EPA 200.7/ SW-846 6010
206	PPL Metals	EPA 200.7/245/279.2/SW-846 6010/7471/7060/7421/7740/7841
207	TAL Metals	EPA 200.7/245/279.2/SW-846 6010/7471/7060/7421/7740/7841
208	TAL Metals by ICP	EPA 200.7/SW-846 6010
209	TAL Metals by ICP/MS	EPA 200.8/SW-846 6020

SAMPLE PREP CHARGES (ACID DIGESTIONS)		
210	High Concentration Organics and Liquid Hydrocarbon Sample Preparation	SW-846-3050
211	Multiphase Sample Preparation	SW-846-3010/3020/3050
212	TCLP Sample Preparation	Method 1311
213	Water/Soil Sample Preparation	SW-846 3010/3020/3050

AIR		
214	BTEX + MTBE	TO-15
215	TPHG TO-3	TO-3
216	Tentatively Identified Compounds (10 TIC's)	TO-15/TO-14A
217	Non-polar VOC's by GCMS	TO-14A
218	≤ 12 VOC's by GCMS	TO-15/TO-14A
219	Polar and non-polar VOC's by GCMS	TO-15

ADDITIONAL ANALYSES		
220	Amine Analysis	SW-846-MOD 8015
221	Breathing Air (Coast Guard required test)	
222	Bulk Density	ASTM D-2854
223	Ferrous Iron	Hach 8146
224	Glycol Analysis -Mono, Di, Tri, and Tetra, with Percent Water	Proprietary
225	Glycol Analysis -Purgeable Aromatics (BTEX)	SW-846-MOD 8015
226	Glycol Analysis -Product Speciation by Glycol Product (EG, DEG, TEG, etc. as required)	

 SOUTHERN PETROLEUM LABORATORIES, INC. ENVIRONMENTAL SERVICES		
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227	Glycol Analysis -Total Petroleum Hydrocarbon (TPH)	EPA 418.1
228	Methane	RSK147
229	Heat Stable Salts	Proprietary
230	Produced Water -Mineral Pattern Analysis (MAP / Stiff - Davis chart)	API RP 45
231	Produced Water -Scaling/Corrosion Tendency Calculation (MAP required)	Calculation
232	Soluble Oil in Water (with Oil and Grease Test)	Proprietary
233	Total Plate Count of Bacteria	Standard Methods 907A
234	FOC in Soils	Walkley Black Method
235	MI DEQ 10 Metal Package	6010/6020

LOUISIANA STATEWIDE ORDER 29-B REQUIREMENTS		
236	Total 29-B Soils Package (includes the following): <ul style="list-style-type: none"> • Barium, True Total (includes sample preparation) • Electrical Conductivity (EC) (requires sample prep #299) • Cation Exchange Capacity (CEC) (requires SAR #300 and ESP #295) • Exchangeable Sodium Percentage (ESP) • Metals (As, Ba, Cd, Cr, Pb, Hg, Se, Ag, Zn) • Oil and Grease • pH • Sample Preparation • Sodium Absorption Ratio (SAR) 	LA 29 B
237	Barium, True Total (includes sample preparation)	SW-846 7080
238	Electrical Conductivity (EC) (requires sample prep #299)	LA 29 B
239	Cation Exchange Capacity (CEC) (requires SAR #300 and ESP #295)	SW-846 9081
240	Exchangeable Sodium Percentage (ESP)	Calculation
241	Metals (As, Ba, Cd, Cr, Pb, Hg, Se, Ag, Zn)	SW846-7000's
242	Oil and Grease	SW-846 3540
243	pH	SW-846 9040/9045
244	Sample Preparation	LA 29 B
245	Sodium Absorption Ratio (SAR)	LA 29 B
246	Production/Reserve Pit Water Analysis (required for DEQ Permit): <ul style="list-style-type: none"> • Oil & Gas, Metals, Chlorides, Specific Condctance, PH, TSS 	LA 29 B



SPL ENVIRONMENTAL LABS STATEMENT OF WORK/TERMS & CONDITIONS REVISION 9.0

SPL is a corporation founded in 1944 to provide quality services to clients in the oil and gas industry. As environmental concerns and analytical technology continue to expand, SPL continually develops the capabilities and resources to provide the same quality services to clients in the environmental field. SPL environmental laboratories are fully-equipped and staffed to provide analyses of environmental samples according to the appropriate methodologies and protocols. Results of these analyses are used to meet the investigatory, regulatory, and legal requirements of clients. As an independent commercial testing laboratory corporation, SPL provides services to a wide spectrum of clients. Our clients include those of various industrial concerns, consultants, regulatory, and governmental agencies. In addition to the routine services provided by most commercial environmental laboratories, SPL can also provide technical expertise to the petroleum and petrochemical industries. For more information on SPL's services, capabilities, and credentials, please visit our website at www.spl-inc.com.

The statement of work shall consist of any analytical work performed at any of SPL's three (3) environmental laboratories. The geographical area serviced under this agreement will consist of any analytical work sent from the client.

ANALYSIS REPORTS & DELIVERABLE PACKAGES

SPL provides a Standard Level II QA Report Deliverable Package, which includes a case narrative, spiked sample and spiked duplicate results, surrogate recoveries, laboratory control, blank results, sample receipt checklists, and sample chain of custody. Fax copies of reports are available; SPL reserves the right to fax or email summary report pages whenever possible. Standard analysis turn-around times for Level II Reports is fourteen (14) calendar days unless otherwise agreed upon. Hard copy reports will be mailed within 48 hours after the reports are faxed to the client. Original analytical reports, invoices and original chain of custodies will be sent to the client. Surcharges will apply for any Level III or Level IV Report Packages (contact your SPL Project Manager).

Level III Report:

Includes all data provided with a Level II Report plus sample chromatograms, and quantitation reports. Inorganic reports include instrument printouts and bench worksheets. Project or site specific MS / MSD may be included. Standard turn-around time for Level III Reports is twenty-one (21) calendar days.

Level IV Report:

Includes all data delivered with a Level III Report plus all analytical summary reports, CLP data qualifiers, and raw data (all calibrations, GC/MS spectra and preparation and analysis run logs). Standard turn-around time for Level IV Reports is twenty-one (21) calendar days.

SPL requests that all clients complete a Sample Delivery Request Form before submitting Level III or Level IV projects. If a Level III or Level IV deliverable request is received after the project is reported, additional charges may be necessary. Standard report turn-around times may be amended depending on the scope of the project.

◆	LEVEL 3 DELIVERABLES	20%
◆	LEVEL 4/CLP LIKE DELIVERABLES	40%
◆	LA: RECAP DELIVERABLES	15%
◆	TX: TRRP DELIVERABLES	15%
◆	TX: TRRP LVL4 (Includes Raw Data)	30%
◆	NEW JERSEY REDUCED DELIVERABLES	20%

ELECTRONIC DELIVERABLE PACKAGES (EDD's)

SPL can provide client specific EDD's to meet specifications. Surcharges for such packages may apply. Contact your SPL Project Manager for more information.

RUSH ANALYSIS TURN AROUND TIMES

To guarantee Rush TAT's, all rush requests must be confirmed with the lab prior to shipment of samples. The following surcharges will apply for Rush Turnaround Times:

SAME DAY	150%
1 Business Day	100%
2 Business Days	75%
3 Business Days	50%
4 Business Days	40%
7 Calendar Days	25%

Some parameters may not be able to be performed within a 24 or 48 hour period. The Lab may limit the number of Rush samples accepted in one day. Twenty-four (24) hour Rush samples will be reported by 3:00 PM (local time for the area in which the lab is located) the day after the samples are received at the lab. Twenty-four hour Rush samples may only be able to be analyzed once within the first 24-hour timeframe. If dilutions are required or if matrix interferences are present, a 24-Hour Rush TAT may not be possible. In this case, estimated values may be given to the client within 24 hours after receipt of the sample, surcharges applicable.

INVOICING

SPL will invoice the client with a copy of analytical reports and original chain of custody. Invoices will reflect prices listed in this agreement and any parameters analyzed which are not included on the pricing agreement will be billed at SPL's list price (Environmental Schedule of Charges, Revision 9.0). The client is responsible for supplying any required Purchase Order Numbers, Project Code Numbers, etc. Payment Terms are Net 30 Days. For international projects, payment arrangements must be made in advance. SPL reserves the right to charge a minimum of \$75 per invoice.

SUBCONTRACT LABORATORIES

Any work subcontracted from SPL to another lab will be invoiced at our cost plus a forty percent (40%) surcharge. Any freight or other associated charges will be invoiced to client at SPL's cost.

SAMPLE KITS

SPL will provide routine sample kits at no additional charge. These routine kits include the proper bottles, preservatives, labels, chain of custody forms, and FedEx return shipment forms with SPL's I.D. number.

SPL will pay for the outgoing kit shipment costs provided that the kit order is received before noon with a minimum 5 day advance notice, which will allow SPL to use the most cost-efficient means of shipping. For International shipping, the client is responsible for both outbound and inbound shipping costs. Expedited shipments (Priority, Standard Overnight, 2-Day, etc.) will be invoiced to the client. Charges for expedited shipments will depend on the weight of the shipment and the applicable zone charges. Surcharges for certain states and specific regions may apply.

Notes:

SPL agrees to provide the client with sample bottles for samples to be analyzed by SPL only. SPL will not provide sample bottles for sample analyses at another lab, for field screening use by the Consultant, or for any other purposes.

To avoid priority shipment charges, client should provide SPL sufficient notice (before noon with a minimum 5 business days) for routine ground shipping of sample kits.

Sample kits should not be kept in the field for more than 24 hours before being shipped back to the lab. Consultants and field samplers should be aware that samples are to be kept at the EPA required temperature of 4°C or cooler from the time of sampling to the time at which the kit is received at the lab. Sample kits returned to SPL should be properly packed and iced to ensure that they will maintain a temperature of 4°C during shipment. "Blue Ice" is not recommended as a preservative. Some Soil Samples may require special handling –contact your SPL Project Manager for more information. When returning a kit for Saturday delivery, please contact SPL as special procedures are required for completion of the FedEx airbill. SPL will not be held responsible for breakage of sample bottles during return shipment to the lab.

RETURN SHIPMENT of SAMPLE KITS from the field to SPL

Any shipments incoming from the site to the lab, whether by FedEx, UPS, or another carrier, will be invoiced to the client unless otherwise agreed upon. Client is responsible for the proper labeling of all kits. Please note that FedEx requires special procedures for shipments to be delivered to the lab on Saturdays. SPL reserves the right to reject samples for any of the following reasons:

- Chain of Custody documentation not included
- Discrepancies between the Chain of Custody and sample labels
- Incomplete sample information provided
- Clients failure to provide required P.O., AFE, and or pertinent billing codes
- Inappropriate sample containers for the analysis requested
- Inappropriate preservation for the analysis requested
- Sample received exceeding hold time for analysis requested
- Inappropriate sample labeling (not using water resistant labels and indelible ink)
- Samples with signs of damage or contamination
- Samples containing high levels of potentially dangerous substances or vapors that may cause health or safety problems during sample preparation or analysis
- Samples with levels of radiation

These or any other discrepancies are discussed with the client and agreed upon action taken. The laboratory will retain any records concerning the final disposition of the sample rejected.

SAMPLE PICK-UP

Sample pick-up/courier service is available in select areas. Please contact your SPL Project Manager to discuss this service and options.

CHARGES FOR SAMPLE COMPOSITING

If SPL is required to composite a client's samples before analysis, a charge of \$5.00 per container, \$25.00 minimum will be added to the analytical costs.

ANALYSIS OF TRIP & FIELD BLANK SAMPLES

SPL will provide Trip and Field Blank Sample bottles, when requested, on a project by project basis. Normal charges will apply according to the method required.

METHOD 5035 / ANALYSIS OF VOLATILE COMPOUNDS (SOIL SAMPLES ONLY)

The following pricing is only for states that require soil samples to be analyzed using Method 5035 Preservation Techniques.

- A. Sample Processing Fee: \$10 per soil sample submitted for analysis in EnCore® or equivalent samplers. The fee will apply to each soil sample submitted in an EnCore® or equivalent sampler regardless of whether or not the sample is actually submitted for final analysis.
- B. Pricing for EnCore® Samplers:
EnCore® Samplers are sold in case lots of 50 samplers each for both 5-Gram and 25-Gram sizes.
- 1-4 Cases: \$375.00 / case
> 4 Cases: \$337.50 / case
Single Sampler(s) or Partial Cases: \$8.00 each
Shipping charges and applicable sales taxes are added to each shipment.
- C. Preserved Sample Bottle Option for Method 5035
Methanol Preserved Vials: \$10.00 each
Acid (Sodium Bisulfate) Preserved Vials: \$10.00 each
- D. Terra Core™ Sample Kits
Kit comprised of 3 Vials & Sampling Tool: \$15.00 per kit*

* Prices on Sample Kits are subject to change without prior written or oral notice.

REPLACEMENT SAMPLES

If SPL fails to meet regulatory hold times or has specific errors which are the sole fault of the laboratory, SPL will either retest the sample(s) or a replacement sample(s) at no additional charge. SPL will not be held responsible for any re-sampling costs as a normal procedure. SPL will not be held responsible for any charges incurred as a result of delays including, but not limited to, those resulting from any courier used for shipment of the samples, weather, equipment failure, acts of God, etc.

PROJECT MANAGEMENT

SPL will provide an experienced project management team to coordinate all project activities, to insure proper analytical methodology for the data end-use, meet turnaround schedules, and assure proper reporting of deliverables for regulatory compliance.

LABOR RATES

In the event of a consulting engagement, SPL's standard labor rates are as follows:

POSITION	RATES
Mileage (portal to portal)	\$1.25/mile
Field Technician (labor)	\$75.00/hour
Lab Analyst	\$75.00/hour
Senior Chemist	\$100.00/hour
Project Manager	\$125.00/hour
QA Officer	\$135.00/hour
Computer Programmer	\$140.00/hour
Lab Director	\$170.00/hour
Expert Witness in Court	\$275.00/hour
Senior Executive	\$225.00/hour

SAMPLE DISPOSAL

SPL will agree to hold all sample remainders for thirty (30) days after the final report is issued. Requests to hold samples by SPL beyond this date will be charged at a daily rate of \$5 per sample. SPL reserves the right to charge a sample disposal fee of \$5 per sample. Disposal of samples is controlled and specified by SPL SOP SPL/HE/SM-P10.03 (Revised 03/30/93). Samples determined (whether by analysis or other characteristics) to be hazardous materials will be disposed of as follows:

- a. The samples shall be composited as waste material. The waste shall be stored in drums that meet or exceed both RCRA and DOT specifications.
- b. All drums will prominently display the appropriate DOT and RCRA labels identifying the general contents of the drum while on-site. The drum identifications will meet the requirements of the contracted RCRA waste disposal service prior to off-site shipments.
- c. All disposals of both wastes shall be fully compliant with applicable Federal and State regulations. SPL uses an EPA and Texas Natural Resources Conservation Commission approved TSD facility for handling all hazardous wastes.

TRRP NOTES/DISCLAIMER:

1. In order to be in full compliance with TRRP 13, SPL requests that the following items be provided to the lab during your selection process:
 - a. Project Specific COCs (Chemicals of Concern)
 - b. Level of Required Performance (LORP) - TRRP Protective Concentration Levels (PCLs)
2. As required by §350.54(e)(4), the laboratory must routinely check the Method Detection Limit (MDL) for reasonableness. As a result of this requirement, MDL and/or Detectability Check Standard (DCS) values provided at the time of project quotation may be subject to change due to new MDL/DCS studies being performed. It is highly recommended that PCL evaluation be re-examined prior to sampling.
3. TRRP 13 requires that Quality Control (QC) samples are spiked with all analytes of concern, however if the chemicals of concern are not specified in advance, SPL may not have the analyte available in the QC spiking solution.
4. If non-routine tests are requested, SPL may need additional project lead to time to evaluate compliance with TRRP 13 guidelines, to complete MDL and DCS studies and to order second source standards.

AIR SAMPLING EQUIPMENT RENTAL POLICY

Equipment rental fees are included in the equipment price for the initial rental period of fourteen (14) days, unless the duration of the initial rental period is otherwise agreed to by SPL in writing. After the initial rental period, SPL charges weekly rental fees, listed in the table below, for the use of SPL's canisters, flow controllers, and other equipment. If air sampling equipment supplied by SPL is not returned within forty-five (45) days, unless otherwise agreed to by SPL in writing, the full replacement value, as listed below in the "Equipment Values Table", is then due to SPL in lieu of any accrued extended rental charges.

EXTENDED AIR SAMPLING EQUIPMENT RENTAL FEES

Rental fee charged per week for equipment not returned within the agreed time period.	
Type of Equipment	Weekly Rental Fee Charged for Late Equipment
6 liter Canister Rental	\$50.00
1.4 liter Canister Rental	\$40.00
400ml Canister Rental	\$40.00
Flow Controller Rental	\$50.00
Soil Sampling Restricted Filter Assembly	\$30.00
Pressure/Vacuum Micro Quick Connect (MQT) Gauge	\$15.00
Filter (also referred to as a grab sampler)	\$15.00
MQT (Micro Quick Connect)	\$6.00

EQUIPMENT VALUES TABLE

If equipment is damaged or not returned to SPL within 45 days, client will be charged the replacement cost listed below.	
Type of Equipment	Replacement Cost
6 Liter Silonite Lined Canister	\$816.00
1.4 Liter Silonite Lined Canister	\$396.00
400ml Silonite Lined Canister	\$360.00
Flow Controller	\$936.00
Soil Sampling Restricted Filter Assembly	\$312.00
Pressure/Vacuum Gauge with Microvalve Quick Connect (MQT)	\$180.00
Microvalve Quick Connect (MQT)	\$72.00
Grab Sampler Filter	\$72.00

SHIPPING POLICY FOR AIR SAMPLING EQUIPMENT

SPL will ship canisters at no charge when a sampling media order is placed at least five (5) business days before the requested delivery date. SPL's ability to deliver sampling equipment on or before the date requested by client will be confirmed when air sampling equipment is ordered. Larger orders may require greater lead time. Expedited shipping will be charged to the Client. Client shall return ship the air sampling equipment by a nationally recognized carrier and shall insure the air sampling equipment in the amount specified in "Equipment Values Table" above. Client shall bear the risk of loss of and damage to all air sampling equipment until it is delivered to, inspected by, and accepted by SPL, INC. in Houston, Texas.

INDEMNIFICATION

Unless otherwise agreed to in writing, if any suit, proceeding, claim or action, except one arising from the sole negligence of SPL, whether civil, criminal, administrative or investigative of any nature whatsoever, is threatened or brought against SPL, or any parent of SPL or any of its subsidiaries or affiliated companies ("SPL's Affiliates") by any third party including, without limitation, any insurer asserting subrogation rights of Client, any governmental or administrative body, or any private person or entity, arising out of or relating to the performance of services by SPL, any parent of SPL, or any of SPL's subsidiaries, or affiliated companies, and their officers, directors, agents, employees, and subcontractors, Client will hold SPL and SPL's Affiliates harmless from and against any expenses (including attorney's fees), damages, judgments, fines or amounts paid in settlement.

FORCE MAJEURE

SPL shall not be responsible for damages or delays in performance caused by but not limited to, unusual weather conditions, fires, floods, epidemics, war, riots, strikes, lockouts, governmental action or failure to act, industrial disturbances, unanticipated site conditions, inability with reasonable diligence to supply personnel, equipment, or material to the project, delays or damage during shipment or any other condition beyond SPL's control. Any such delays shall in no event excuse Client from paying monies owed for services performed prior to the occurrence of the delay.

WARRANTY AND LIMITATION OF LIABILITY

Any service or work performed by SPL Laboratory Services is expressly subject to the provisions of the following General Warranty and SPL does not agree to any provision that is in conflict.

GENERAL WARRANTY

SPL warrants that all work will be performed in accordance with sound laboratory practice and accepted analytical procedures, but makes no other warranty, express or implied. SPL is solely responsible for performance of this contract, and no affiliated company, director, officer, employee, agent or subcontractor of SPL shall have any legal responsibility hereunder, whether in contract or tort, or otherwise. Liability for injury or damage to persons or property arising out of this work (other than for professional errors, omissions, or other professional negligence, which are covered by the next sentence) shall be limited to the amount covered by the general comprehensive insurance carried by SPL. In the event of error, omission, or other professional negligence or any breach of the above warranty, the sole and exclusive responsibility of SPL shall be to reperform the deficient work at its own expense, and SPL shall have no other liability whatsoever. In no event shall SPL be liable, whether in contract or tort, or otherwise for any incidental consequential or special damages including but not limited to, damages in any way connected with the use or interpretation of information or analysis provided by SPL or with action related to such use or interpretation.



CONTACT INFORMATION SPL ENVIRONMENTAL DIVISION

SPL – HOUSTON

Corporate Office
8880 Interchange Drive
Houston, TX 77054
Toll Free: 800-969-6775
Ph.: 713-660-0901
Fax: 713-660-8975

SPL – LAFAYETTE


500 Ambassador Caffery Pkwy.
Scott, LA 70583
Toll Free: 800-304-5227
Ph.: 337-237-4775
Fax: 337-237-7838

SPL – MICHIGAN

459 Hughes Drive
Traverse City, MI 49686
Toll Free: 888-775-6424
Ph.: 231-947-5777
Fax: 231-947-1072

SERVICE CENTER

4251 Abbeyville Road
Medina, OH 44256
Ph.: 330-241-3734


 SOUTHERN PETROLEUM LABORATORIES, INC. HYDROCARBON SERVICES		
#		
GAS & LIQUID ANALYSES BY CHROMATOGRAPHY –NATURAL GAS ANALYSIS		
1	N ₂ , CO ₂ , C ₁ – C ₆₊ , Btu, Relative Density	GPA 2261
2	N ₂ , CO ₂ , C ₁ – C ₇₊ , Btu, Relative Density	ASTM-D1945
3	N ₂ , CO ₂ , C ₁ – C ₁₄₊ , Extended Analysis (C10+ or C14+), Btu, Relative Density	GPA 2286
4	Dew Point (On Site, by chilled mirror)	ASTM-D1142(M)
5	Plus Man Hours –Per Hour	
6	Plus Mileage –Per Mile (a separate indexed fuel surcharge may be added)	
7	Dew Point Event Video Recording (On Site)	
8	Calculated Dew Point, Equation of State (EOS, ProSim)	Proprietary
9	Calculation Higher & Lower Heating Value	ASTM-D3588
10	Gas Flash, EOS	Proprietary

GAS & LIQUID ANALYSES BY CHROMATOGRAPHY –REFINERY GAS ANALYSIS		
11	Refinery Analysis (TCD/FID) HHV, LHV Specific Gravity H ₂ -CO & C ₁ -C ₆₊	ASTM-D1946
12	Light Hydrocarbons (TCD) H ₂ , CO ₂ , O ₂ , N ₂ , CO, C ₁ , C ₂ (Ethane), C ₂ [≡] (Ethylene), C ₂ [≡] (Acetylene)	ASTM-D1946
13	Hydrocarbons (FID) -Alkanes: C ₆₊ , C ₁ , C ₂ , C ₃ , IC ₄ , NC ₄ , IC ₅ , NC ₅	ASTM-D1946M; Proprietary
14	Hydrocarbons (FID) -Olefins: C ₂ [≡] , C ₃ [≡] , C ₄ [≡] 1, IC ₄ [≡] , TC ₄ [≡] , CC [≡] 2	ASTM-D1946M; Proprietary
15	Hydrocarbons (FID) -Diolefins: Propadiene, 1,3-Butadiene	ASTM-D1946M; Proprietary
16	TCD –Single Component H ₂ , He ₂ , or O ₂ /Ar ₂	ASTM-D1946M
17	Extended Refinery Analysis H ₂ – CO & C ₁ – C ₁₀	ASTM-D1946M; GPA 2286M

GAS & LIQUID ANALYSES BY CHROMATOGRAPHY – SULFUR/NATURAL GAS & LIQUID PETROLEUM GAS (LPG)		
18	Sulfur, Single Component Determination H ₂ S, COS	Proprietary
19	Sulfur, Component Speciation -LPG and Light Liquid (NGL)	ASTM-D5623
20	Sulfur, Component Speciation -Natural Gas	ASTM-D5504
21	Sulfur, Component Speciation -LPG and Natural Gas	GPA 2199

GAS & LIQUID ANALYSES BY CHROMATOGRAPHY – NATURAL GAS LIQUIDS (NGL) & LIQUEFIED PETROLEUM GAS (LPG)		
22	N ₂ , CO ₂ , C ₁ – C ₆₊	GPA 2177
23	N ₂ , CO ₂ , C ₁ – C ₇₊	GPA 2177
24	N ₂ , CO ₂ , C ₁ -C ₁₀₊	GPA 2186
25	Extended Liquid C ₁ -C ₃₀₊ (PIANO)	Proprietary

GAS & LIQUID ANALYSES BY CHROMATOGRAPHY – REFINERY LIQUID		
26	Liquid FID Olefins, Diolefins	Proprietary
27	PIANO (No Discounts)	Proprietary

 SOUTHERN PETROLEUM LABORATORIES, INC. HYDROCARBON SERVICES		
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GAS & LIQUID ANALYSES BY CHROMATOGRAPHY – NAPHTHA, GASOLINE, KEROSENE, DIESEL, GLYCOL		
28	PIANO / BTEX-No Discounts	Proprietary
29	Fingerprint ¹ -PIANO, EDB/EDC, Oxygenates & Lead (No Discounts)	Proprietary
30	Glycol breakdown of Ethylene Glycol	ORYX
31	Glycol breakdown of Ethylene Glycol, with % water (BTEX, n-Hexane, Total VOC, C ₃ - C ₁₀)	ORYX

GAS & LIQUID ANALYSES BY CHROMATOGRAPHY – CONDENSATES & CRUDES		
32	PIANO C ₁ – C ₃₀ (No Discount)	Proprietary
33	Podbielniak C ₁ – C ₆ + (No Discount) ²	
34	Podbielniak C ₁ -C ₇ + (No Discount)	
35	Podbielniak N ₂ , CO ₂ , C ₁ -C ₁₀ + (No Discount)	
36	Back Flush to Vent N ₂ , CO ₂ , C ₁ -C ₆ + (No Discount)	GPA 2103
37	Back Flush to Vent N ₂ , CO ₂ , C ₁ – C ₇ + (No Discount)	GPA 2103
38	Back Flush to Vent N ₂ , CO ₂ , C ₁ – C ₁₀ + (No Discount)	GPA 2103
39	Flash to Atmospheric – Initial stage	Proprietary
40	Stage Flash – Per additional stage	Proprietary


GAS & LIQUID ANALYSES BY CHROMATOGRAPHY – PVT SIMULATIONS		
41	Flash, Single Stage	Proprietary
42	Flash, Additional Stages	Proprietary
43	Phase Envelope (Bubble Point, Dew Point, Critical Point)	Proprietary
44	Recombination	Proprietary
45	Surcharge for non-SPL data	Proprietary
46	Constant Mass Expansion (Reservoir Phase, Saturation Point, Relative Volume, Viscosity Compressibility)	Proprietary
47	Railroad Commission C ₇ + (C ₇ +Composition, Recombination, Flash, Phase Envelope, C.M.E. ³)	Proprietary
48	Railroad Commission C ₁₀ + (C ₁₀ +Composition, Recombination, Flash, Phase Envelope, C.M.E.)	Proprietary
49	Per Hour Charge for Special Requests (in addition to other testing)	Proprietary
50	Per Hour Charge for PE Services/Consulting	Proprietary

GAS & LIQUID ANALYSES BY CHROMATOGRAPHY – NO.6 OIL, BUNKER C & HEAVY OIL, CRUDES		
51	Tar, Pitch, Asphalt	
52	SARA – Saturates, Aromatics, Resins & Asphaltenes	Proprietary
53	HTSD-CN – High Temperature Simulated Distillat High Temperature Simulated Distillation with Initial Boiling Point >100°F and Final Boiling Point of 1400°F. Results reported as IBP, FBP, and 1% wt increments, and %	HTSD-CN

¹ Fingerprint analysis for Gasoline range only. Heavier materials are analyzed by PIANO method.

² If sample proves to be too viscous for GPA 2103 analysis, then a Podbielniak (Pod) analysis will have to be run. Pricing will be based on the applicable Pod list prices. Discounts are not available.


³ C.M.E. = Constant Mass Expansion

 SOUTHERN PETROLEUM LABORATORIES, INC. HYDROCARBON SERVICES	
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	recovery; with special Carbon Number report.

ANALYTICAL PACKAGES – AMINE ANALYSES		
54	Amine Analysis (Lean) <ul style="list-style-type: none"> • Density • Viscosity • Karl Fischer • Kjeldahl Nitrogen • Alkalinity of Amines • H₂S • CO₂ in Amines • Heat Stable Salts • Foaming Tendency 	ASTM-D4052 ASTM-D445 ASTM-D4377 ASTM-D3228 Proprietary UOP-163 UIC Proprietary Proprietary
55	Amine Analysis (Rich) <ul style="list-style-type: none"> • Density • Viscosity • Karl Fischer • Kjeldahl Nitrogen • Alkalinity of Amines • H₂S • CO₂ in Amines 	ASTM-D4052 ASTM-D445 ASTM-D4377 ASTM-D3228 Proprietary UOP-163 UIC

ANALYTICAL PACKAGES – GLYCOL ANALYSIS (RICH OR LEAN)		
56	Total Ethylene Glycol (TEG) <ul style="list-style-type: none"> • Karl Fischer • Total Petroleum Hydrocarbons (TPH) • Chlorides Inorganic • Iron (Fe) including Prep Charge • pH • Suspended Solids • Foaming Tendency 	ASTM-D4377 EPA 418.1 ASTM-D512 ICP Proprietary Proprietary Proprietary

ANALYTICAL PACKAGES – LUBE OIL ANALYSIS		
57	Lube Oil Analysis -Extended <i>Performed as baseline and when excessive metals and water are present.</i> <ul style="list-style-type: none"> • Viscosity Kinematic/Oil Bath • Determination of Wear Metals and Contaminants in Used Lubricating Oils or Used Hydraulic Fluids by Rotating Disc Electrode Atomic Emission Spectrometry • Condition Monitoring of Used Lubricants by Trend Analysis Using Fourier Transform Infrared Spectrometry • Acid Number, Potentiometric • Direct Reading Ferrography • Particle Count • Water Content - Karl Fischer Titration • Microscopic Examination • Water Source Determination 	LOA-ERTP ASTM-D445/446 ASTM-D6595 ASTM-E2412 ASTM-D664 DRF ISO-4406 ASTM-D6304 ME WSD
58	Lube Oil Analysis -Standard <i>Recommended Test Package.</i> <ul style="list-style-type: none"> • Viscosity Kinematic/Oil Bath • Determination of Wear Metals and Contaminants in Used Lubricating Oils or 	LOA-RTP ASTM-D445/446 ASTM-D6595

 SOUTHERN PETROLEUM LABORATORIES, INC. HYDROCARBON SERVICES		
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	Used Hydraulic Fluids by Rotating Disc Electrode Atomic Emission Spectrometry <ul style="list-style-type: none"> Standard Practice for Condition Monitoring of Used Lubricants by Trend Analysis Using Fourier Transform Infrared Spectrometry Acid Number, Potentiometric Particle Count Water Content - Karl Fischer Titration 	ASTM-E2412 ASTM-D664 ISO-4406 ASTM-D6304
59	Lube Oil Analysis –Standard –Wear Metals Only <ul style="list-style-type: none"> Determination of Wear Metals and Contaminants in Used Lubricating Oils or Used Hydraulic Fluids by Rotating Disc Electrode Atomic Emission Spectrometry 	LOA-MO ASTM-D6595

ANALYTICAL PACKAGES – PIPELINE CONDENSATE QUALITY TEST		
60	Ten Oil Test (includes the following): <ul style="list-style-type: none"> Acid Produced Bacteria API Gravity Paraffin Wax Sediment in Water Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-ray Fluorescence Spectrometry Sulfur Reducing Bacteria Corrosion (copper strip) PCB in Oil (LEPCBO) 	Proprietary ASTM-D4052 UOP-46 ASTM-D4007 ASTM-D4294 Proprietary ASTM-D130 EPA-8082

ANALYTICAL PACKAGES – PIPELINE QUALITY CRUDES		
61	Basic 8 (Group of Analytics for Pipeline Quality Crude) (includes the following): <ul style="list-style-type: none"> Distillation of Petroleum Products at Atmospheric Pressure* Flash Points - Pensky-Martens (Closed Cup) Pour Point Vapor Pressure of Petroleum Products (Reid Method) Acid Number of Petroleum Products by Potentiometric Titration, Total Acid Number Sediment and Water in Crude by Centrifuge (Part of PCQT) Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-ray Fluorescence Spectrometry Density & Relative Density of Crude 	ASTM-D93 ASTM-D97 ASTM-D323 ASTM-D664 ASTM-D4007 ASTM-D4294 ASTM-D5002
	<i>Other analyses available upon request.</i>	

GENERAL ANALYSES & TESTS		
62	Acid Number, Potentiometric	ASTM-D664
63	Acid Producing Bacteria (Part of PQCT ⁴)	Proprietary
64	Alkali or Mineral Acidity	Proprietary
65	Alkalinity of Amines	Proprietary
66	Aniline Point	ASTM-D611
67	Aromatics, Olefins and Saturates (FIA)	ASTM-D1319
68	Ash Content	ASTM-D482
69	Asphaltenes (nHeptane Insolubles)	ASTM-D3279
70	Auto Ignition	ASTM-E659

⁴ Pipeline Condensate Quality Test (PCQT) or sometimes referred to as *Ten Oil Test*. This item is normally included in PCQT.

 SOUTHERN PETROLEUM LABORATORIES, INC. HYDROCARBON SERVICES		
#		
71	Bacteria In Petroleum Products (Culture Test)	Proprietary
72	Base Number, Potentiometric	ASTM-D4739
73	Boiling Point	ASTM-D86
74	B.T.U. of Gasoline, Fuel Oil & Jet Fuel	ASTM-D240
75	Bulk Density	ASTM-D2854
76	Burning Quality	ASTM-D187
77	Carbon, Hydrogen, Nitrogen (C, H, N)	ASTM-D5291
78	Carbon, Hydrogen, Nitrogen, Oxygen (C, H, N, O, by difference)	ASTM-D5291
79	Carbon Hydrogen Ratio	
80	Carbon Residue (Conradson)	ASTM-D189
81	Carbon Residue Ramsbottom (Calculated from ASTM-D189)	ASTM-D524
82	Cetane Index (Calculated D 86 50% B.P./API Gravity)	ASTM-D976
83	Cetane Number	ASTM-D613
84	Chloride, Inorganic	ASTM-D512
85	Chloride, Total (Bomb Method)	ASTM-D808
86	Cloud Point	ASTM-D2500
87	CO ₂ in Gas Treating Amines (UIC Method)	UIC
88	Color (ASTM)	ASTM-D1500
89	Color (Saybolt)	ASTM-D156
90	Compatibility of Fuel Oils	ASTM-D4740
91	Corrosion (Copper Strip) (part of PCQT ⁵)	ASTM-D130
92	Corrosion, LPG (Copper Strip)	ASTM-D1838
93	Density -API Gravity/Relative Density (Density Meter) (part of PQCT 3)	ASTM-D4052
94	Density -Density & Relative Density of Crude	ASTM-D5002
95	Density -Gravity, API Hydrometer	ASTM-D287
96	Density -Density/Specific Gravity by Hydrometer	ASTM-D1298
97	Dielectric Strength (KV)	ASTM-D877
98	Distillation –Atmospheric *	ASTM-D86
99	Distillation –Industrial Aromatics *	ASTM-D850
100	Distillation –Reduced Pressure *	ASTM-D1160
101	Distillation –Simulated *	ASTM-D2887
102	Distillation –True Boiling Point -Atmospheric Pressure, Room Temperature up to 650°F *	ASTM-D2892
103	Distillation – True Boiling Point -Reduced Pressure, 650°F. to 1050°F *	ASTM-D2892
104	Distillation –True Boiling Point -Crude Oil, Full Range to 1050°F *	ASTM-D2892
	<i>* 50% Surcharge for High Water or High Sulfur Content</i>	
105	Doctor Test	UOP-41
106	Drop Melting Point	ASTM-D127
107	Emulsion Characteristics	ASTM-D1401
108	Evaporation Rate	Proprietary
109	Flash (physical determination)	Proprietary
110	Flash Points –Cleveland Open Cup	ASTM-D92
111	Flash Points –Pensky-Martens	ASTM-D93

⁵ Pipeline Condensate Quality Test (PCQT) or sometimes referred to as *Ten Oil Test*. This item is normally included in PCQT.

 SOUTHERN PETROLEUM LABORATORIES, INC. HYDROCARBON SERVICES		
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112	Flash Points –Tag Closed Cup	ASTM-D56
113	Flash Points –Tag Open Cup	ASTM-D1310
114	Freezing Point of Aviation Fuels	ASTM-D2386
115	Glycol in Motor Oil by GLYSTICK	Proprietary
116	H ₂ S (Stained Tube)	ASTM-D4810
117	H ₂ S and Mercaptans in Liquids	UOP-163
118	Hydrocarbon in Glycol by TPH	EPA 418.1
119	Infrared Analysis – Scan Only	FTIR
200	Infrared Analysis – Interpretation, Per Hour	
201	Interfacial Tension (Ring Method)	ASTM-D971
202	Kauri-Butanol Value	ASTM-D1133
203	Lead in Gasoline	ASTM-D3237
204	Lube Oil Analysis (Includes Metals, TAN, Viscosity) – Light	LUBEKF-L
205	Lube Oil Analysis (Includes Metals, TAN, Viscosity) – Dark	LUBEKF-D
206	Lube Oil - Wear Metals (ICP) (Metals Only)	LUBEKF-MO
207	Melting Point of Petroleum Wax	ASTM-D87
208	Metals Analysis (ICP, AA)	EPA 6010 CVAA
209	Moisture, Ash and Organic Matter	ASTM-D2974
210	Molecular Weight (Cryoscopic Cryette)	Proprietary
211	Nitrogen, Chemiluminescence	ASTM-D4629
212	Nitrogen, Kjeldahl	ASTM-D3228
213	Octane Determination, Research/Motor	ASTM-D2699; ASTM-D2700
214	Oxidation Stability of Fuel Oils	ASTM D525 or ASTM D2274
215	Paraffin Wax Content in Oil (Part of PCQT ⁶)	UOP-46
216	Particle Size Distribution Analysis	
217	PCB's Crude Oil, LEPCBO (Part of PCQT ¹)	EPA-8082
218	PCB in Transformer Oil	ASTM D4059
219	Pentane and Benzene Insoluble in Used Lube Oil	ASTM-D893
220	PH Value – Hydrocarbons, pH Meter	
221	Pour Point	ASTM-D97
222	Refractive Index (4 Places)	ASTM D1218
223	Residue on Evaporation (Weathering Test on LPG)	ASTM-D2158
224	Salt Content, Crude Oil – Lbs./1000 Bbls.	ASTM-D3230
225	Sediment and Water in Crude by Centrifuge (Part of PCQT ⁷)	ASTM-D4007
226	Sediment and Water in Fuel Oils by Centrifuge	ASTM D1796
227	Sediment by Extraction in Crude/Fuel Oils	ASTM-D473
228	Sediment by Filtration (Millipore)	ASTM-D4807
229	Shrinkage Factor (Physical Determination)	Proprietary
230	Smoke Point – Kerosene or Aviation Fuel	ASTM-D1322
231	Solubility in Water	Proprietary
232	Soxhlet Extraction	

⁶ Pipeline Condensate Quality Test (PCQT) or sometimes referred to as *Ten Oil Test*. This item is normally included in PCQT.

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 SOUTHERN PETROLEUM LABORATORIES, INC. HYDROCARBON SERVICES		
#		
233	Sugar in Oil or Gasoline (Qualitative)	Proprietary
234	Sulfur –Bomb Method	ASTM-D129
235	Sulfur –H ₂ S and Mercaptans, Liquid	UOP-163
236	Sulfur –Weight % in Solids and Liquids (X-Ray Fluorescence 5)	ASTM-D4294
237	Sulfur –In LPG & Natural Gas by UVF	ASTM-D6667
238	Sulfur –Light Hydrocarbon Liquids by UVF	ASTM-D5453
239	Sulfur Reducing Bacteria	Proprietary
240	Surface Tension (Ring Method)	ASTM-D1331
241	Vapor Pressure –Grabner	ASTM-D5191
242	Vapor Pressure –Reid Method	ASTM-D323
243	Vapor Pressure –Gasoline (Reid Dry Method)	ASTM-D4953
244	Vapor Pressure –LPG	ASTM-D1267
245	Viscosity –Brookfield - Per Temperature	ASTM-D2983
246	Viscosity –Kinematic - 104°F or 212°F	ASTM-D445
247	Viscosity –Kinematic - At Any Other Temperature	ASTM-D445
248	Viscosity –Saybolt Furol (Calculated from D 445)	
249	Viscosity –Index (Calculated from Test)	
250	Volatility of LPG	ASTM-D1837
251	Water Analysis - Oil Field Mineral Pattern (Stiff/Davis Plot)	MINPAT
252	Water Content –By Distillation in Crude	ASTM-D4006
253	Water Content –By Distillation in Petroleum Product	ASTM-D95
254	Water Content –Karl Fisher (Coulometric)	ASTM-D4928
255	Water Content –Karl Fisher (Volumetric)	ASTM-D4377
	<i>Other analyses available upon request.</i>	



SPL HYDROCARBON LABS STATEMENT OF WORK/TERMS & CONDITIONS REVISION 6.7.4

SAMPLING SERVICES

SPL can supply trained sampling personnel to procure samples for analysis at our laboratory or customer specified facility. Please see "Legal" section for additional sampling charges.

Normal Charges:	Experienced Chemist/Technician (includes travel time) 8:00 a.m. - 5:00 p.m. \$85.00 per hour Monday - Friday (4 hour minimum)
Special Charges:	Off Hours, Weekends \$127.50 per hour (4 hour minimum) Holidays \$170.00 per hour (8 hour minimum)
Mileage Charge:	\$1.25/mile Note: a separate indexed fuel surcharge may be added.

MOBILE LABORATORY SERVICES (Plant Performance, Start-Up Tests, Sulfur Studies, etc.)

SPL offers customers the option of supporting on-site analysis using a mobile laboratory. The mobile lab is moved from our location to customer site, set up, sample lines are run, and analysis is conducted continuously for customer determined durations. Data is collected and a detailed report is supplied as per agreed upon specifications. A trained chemist accompanies the mobile site during setup and usually visits the site for performance and operational verifications, and for daily data collections. Daily real-time data feeds can be supplied to customers (requires engineering and specifications determination, and customer specific data receipt requirements).

SPL can configure our mobile laboratory to fit customer requirements. Some analyses can be automated to run continuously while other analyses require continuous operations. Costs vary based on analytical requirements, equipment usage, number of personnel, etc. SPL performs the same levels of QA/QC on mobile lab analysis as per SPL corporate QA/QC procedures and applicable industry standards.

Service	Price
Equipment fee per day	By Quote
Mileage to location and back, per man per day	By Quote
Labor: per chemist (hourly rate/8 hour minimum)	By Quote
Analytical Fees, per analysis	By Quote
Onsite meals and lodging, per man per day	Actual Cost
Natural Gas Analysis by Portable Gas Chromatograph, per test	\$70.00
Plus Travel Time, per hour	\$85.00
Plus Mileage, per mile	\$1.25

* Note: a separate indexed fuel surcharge may be added.

CONSULTING SERVICES

SPL offers analysis consulting services that include but are not limited to: process design, process problems, analytical method development, laboratory design, on-line chromatograph installations, sampling system design, system modeling, equation of state, calculation methodology, chemistry, analytical consultation, third party analysis results reviews, legal related consulting, etc.

Service	Price
Process design, per day (plus expenses)	By Quote
Method development, 1 day minimum (plus time and material)	By Quote
Laboratory design, 1 day minimum (plus time and material)	By Quote

LEGAL SERVICES

SPL provides legal representation in the following areas: expert witness, depositions, counseling, retaining of legal samples, and overall expert analytical consulting (see Consulting Services section above).

Service	Price
Expert witness –court appearance, (per hour, plus expenses, 8-hour minimum)	\$500.00
Deposition time, (per hour, 8-hour minimum, plus expenses)	\$500.00
Counseling time, (per hour, plus expenses)	\$250.00
Laboratory/Field legal sampling support, (per hour, 8 hour minimum, excludes expenses, consultation and materials)	\$127.50
**Retaining legal samples (per sample/per day)	\$9.00
**Not responsible for leaking valves and/or cylinders	

Legal Special Charges	Off Hours, Weekends \$450.00 per hour (4 hour minimum) Holidays \$600.00 per hour (8 hour minimum)
Mileage Charge:	\$1.25/mile Note: a separate indexed fuel surcharge may be added.
Legal Expenses	At actual cost.

OTHER SERVICES

Faxed & E-Mailed Reports: SPL offers delivery of reports in several formats including; paper, fax, e-mail, (e-mail, computer uploads, web delivery, etc.).

Faxed & E-Mailed Reports	Price
Fax/e-mail charge per report, per page	N/C
International faxing of reports/quotes or international phone calls (outgoing), each	At Cost

Sample Disposal: SPL can supply sample disposal for customer or SPL supplied samples.

Sample Disposal	Price
Sample Disposal Fee	\$10.00
Sample Disposal Fee for PCB's	By Quote

Cylinder Cleaning: Cylinder cleaning is supplied on request as a part of our supplied analytical services (Constant Volume, Constant Pressure, etc.). SPL utilizes current industry recognized best practices for sample container cleaning.

Cylinder Cleaning	Price
Cylinder Cleaning, CV (Constant Volume)	\$10.00
Cylinder Cleaning, CP (Constant Pressure), minimum, plus parts	\$37.50

Parts: SPL can supply analytical parts as required. Please contact your local sales person for details.

Parts	Price
Cylinder, CV (Constant Volume)	By Quote
Cylinder, CP (Constant Pressure)	By Quote
Tedlar bag	By Quote

Please call your local SPL representative for any quotes, proposals or other special analytical needs you may have. SPL supplies a broad range of measurement and analytical, as well as special services to our clients and we are available to discuss your project at any time.

SURCHARGES

Please note there are areas where our price list does not reflect total service fees. These areas are as follows:

Set-Up Charges: On Occasion samples submitted to SPL for analysis are insufficient for analytical parameters required for accurate results. This could be due to lack of sample volume, improper sample matrix or any number of reasons, pertaining to the sample submitted. If in the analysis of your sample SPL lab technicians deem accurate results cannot be determined due to sample conditions, a charge for analytical services will be charged. This charge will be from 50%-100% of the analytical test requested, based on the amount of time involved.

Rush Charges: When a client requests a rush analysis that interrupts the routine flow of work, a surcharge may be applied. This will be done on a quote basis only. Regular prices are charged on a seven (7) day turnaround. "Fingerprint" analysis requires a ten (10) day turnaround. The following rush charges may be applied for results required in less than seven (7) days:

Surcharge	Price
Same day service (sample in before 12:00 noon)	100%
24 hour service	75%
48 hour service	50%
72 hour service	25%
Overtime for lab personnel, Per Hour	\$127.50
Weekend charges (4hour minimum) Per Hour	\$127.50
Holiday charges (8 hour minimum) Per Hour	\$170.00

Special Sample Handling Charges	Price
Low gravity (15 API or lower)	100%
High water in hydrocarbons	50%
High H ₂ S (1% or more)	50%
Pressure above 1800 PSIG (liquids or gases)	50%
Sample temperature above 150° F	50%
Samples requiring extraction – Per Sample	\$50.00



**CONTACT INFORMATION
SPL HYDROCARBON DIVISION**

Houston, Texas

8820 Interchange Drive
Houston, TX 77054
Toll Free: 800-969-6775
Ph.: 713-660-0901
Fax: 713-660-6035 Fax

Traverse City, Michigan

459 Hughes Drive
Traverse City, MI 49686
Toll Free: 888-775-6424
Ph.: 231-947-5777
Fax: 231-947-7455

Lafayette, Louisiana

500 Ambassador Caffery Parkway
Scott, LA 70583
Toll Free: 800-304-5227
Ph.: 337-237-4775
Fax: 337-237-7838

Carthage, Texas

1595 US 79 South
Carthage, TX 75633
Ph.: 903-693-6242
Fax: 903-693-8606

New Orleans, Louisiana

9221 Highway 23
Belle Chasse, LA 70037
Ph.: 504-391-1337
Fax: 504-391-0013

Dallas, Texas

2440 Chambers Street
Venus, TX 76084
Ph.: 972-224-5111
Fax: 972-224-5115