

Appendix IX-1-A

SoCalGas Transmission

Cost Estimates for Pipeline Replacements and Pressure Tests

CHAPTER IX PIPELINE WORKPAPER
APPENDIX IX-1-A

SoCalGas Transmission

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169	WP-IX-1-A95	1015	WP-IX-1-A49	1172BP2ST4	WP-IX-1-A95
235 East	WP-IX-1-A1	1017BP1	WP-IX-1-A95	1172BP3	WP-IX-1-A95
235 West	WP-IX-1-A4	1017BP2	WP-IX-1-A95	1230-A	WP-IX-1-A95
247	WP-IX-1-A95	1017BP3	WP-IX-1-A95	1230-B	WP-IX-1-A95
317	WP-IX-1-A10	1017BR4	WP-IX-1-A95	2000	WP-IX-1-A60
404	WP-IX-1-A13	1017BR5	WP-IX-1-A95	2000-0.18-BO	WP-IX-1-A95
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765-8.24-BR	WP-IX-1-A95	1020	WP-IX-1-A54	2002 ID465-T 2	WP-IX-1-A95
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765ST2	WP-IX-1-A95	1025	WP-IX-1-A95	2003	WP-IX-1-A78
775	WP-IX-1-A95	1170 ID502-T 1	WP-IX-1-A95	2007 ID629-T2	WP-IX-1-A95
775BO1	WP-IX-1-A95	1171 ID567-P 13	WP-IX-1-A95	3000 East	WP-IX-1-A82
1003	WP-IX-1-A28	1171LT1BP2	WP-IX-1-A95	3000-261.73-BO	WP-IX-1-A95
1003LT2	WP-IX-1-A95	1171LT2	WP-IX-1-A95	3000-261.73-BR	WP-IX-1-A95
1004	WP-IX-1-A31	1172 ID 2313 1	WP-IX-1-A95	4000	WP-IX-1-A85
1005	WP-IX-1-A37	1172 ID 2313 2	WP-IX-1-A95	5009	WP-IX-1-A95
1005 ID805-T	WP-IX-1-A95	1172 ID 2313 3	WP-IX-1-A95	6100	WP-IX-1-A95
1011	WP-IX-1-A42	1172BP2ST1	WP-IX-1-A95	6914 Extension	WP-IX-1-A89
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Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG
Plant Category	Trans
Line Number	235 East
Diameter (in.)	34

Hydrotest Mileage		
Category 4 Criteria	Accelerated	Total
0.620	0.280	0.900

Cost Detail

O&M

Hydrotest

Direct Labor	\$ 7,700
Direct Non Labor	\$ 1,027,100
Total Hydrotest	\$ 1,034,800

Hydrotest Repairs

Direct Labor	\$ 5,000
Direct Non Labor	\$ 45,000
Total Repairs	\$ 50,000

In Line Inspection

Direct Labor	\$ 30,000
Direct Non Labor	\$ 270,000
Total ILI	\$ 300,000

In Line Inspection Repairs

Direct Labor	\$ 483,075
Direct Non Labor	\$ 4,347,675
Total Repairs	\$ 4,830,750



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Existing Segments

Category	Station		Station Stop	Criteria Miles	Diameter	Action	Decision	
	Start	Stop					Tree Box	Comments
Cat 4	0	477.83		-	34			
Cat 4	477.83	3049	3049	0.2945	34	Hydrotest	5	open earth
Cat 4	3049	3063.85	3063.85	0.0028	34	Hydrotest	5	open earth/road crossing
Cat 4	3063.85	3127	3127	0.0120	34	Hydrotest	5	north needles station
Cat 4	3127	3137	3137	0.0019	34	Hydrotest	5	north needles station
Cat 4	3137	5280	5280	0.3093	34	Hydrotest	5	open desert/road crossing

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Company	SCG	Hydrotest Mileage		
Plant Category	Trans	Category 4		
		Criteria	Accelerated	Total
Line Number	235 West	2.744	0.356	3.100
Diameter (in.)	30			

Cost Detail

O&M

Hydrotest

Direct Labor	\$	71,800
Direct Non Labor	\$	1,980,000
Total Hydrotest	\$	2,051,800

Hydrotest Repairs

Direct Labor	\$	5,000
Direct Non Labor	\$	45,000
Total Repairs	\$	50,000

In Line Inspection

Direct Labor	\$	60,000
Direct Non Labor	\$	540,000
Total ILI	\$	600,000

In Line Inspection Repairs

Direct Labor	\$	809,775
Direct Non Labor	\$	7,287,975
Total Repairs	\$	8,097,750



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Existing Segments

Category	Station Start	Station Stop	Criteria Miles	Diameter	Action	Decision	
						Tree Box	Comments
Cat 4	893826.13	894452.2	0.1100	30	Hydrotest	5	river crossing
Cat 1	894452.2	898348.93	0.5009	30			
Cat 4	898348.93	898373.93	-	30			
Cat 4	898373.93	900462	0.2665	30	Hydrotest	5	open desert/wash/victorville base
Cat 1	900462	900483	0.0040	30	Hydrotest		victorville base
Cat 4	900483	900504	0.0040	30	Hydrotest	5	victorville base
Cat 2	900504	900610	0.0201	30			
Cat 1	900610	900633	0.0044	30			
Cat 2	900633	904170.73	0.5600	30			
Cat 2	904170.73	904250.73	0.0152	30			
Cat 2	904250.73	910958	0.4097	30			
Cat 1	910958	91175	-	30			
Cat 1	91175	925584	1.8127	30			
Cat 1	925584	925636.8	0.0100	30			
Cat 1	925636.2	926107.7	0.0893	30			
Cat 1	926107.7	929845	0.4078	30			
Cat 1	929845	929948	0.0195	30			
Cat 1	929948	930113.55	0.0314	30			
Cat 1	930113.55	937264.42	1.3543	30			
Cat 1	937264.42	937196	0.0130	30			
Cat 1	937196	937214	0.0034	30			
Cat 1	937214	937637.2	0.0802	30			
Cat 4	937637.2	937655.2	0.0034	30			
Cat 1	937655.2	937679.8	0.0047	30			
Cat 1	937679.8	937728	0.0091	30			
Cat 1	937728	937750	0.0042	30			
Cat 1	937750	937558.68	0.0016	30			
Cat 1	937558.68	939543	0.3758	30			
Cat 1	939543	958620.43	0.0150	30			

Cat 4	958620.43	954530.13	-	30			
Cat 4	954530.13	954556.85	-	30			
Cat 4	954556.85	958620.43	-	30			
Cat 4	958620.43	958670.13	-	30			
Cat 4	958670.13	958687.13	-	30			
Cat 4	958687.13	958695.73	-	30			
Cat 4	958695.73	1018798.53	-	30			
Cat 4	1018798.53	1018845.73	-	30			
Cat 4	1018845.73	1018850.73	-	30			
Cat 4	1018850.73	1018862.72	-	30			
Cat 4	1018862.72	1018911.03	-	30			
Cat 4	1018911.03	1053669.13	0.5400	30			
Cat 4	1053669.13	1053749.13	-	30			
Cat 4	1053749.13	1077360.13	-	30			
Cat 4	1077360.13	1077440.13	-	30			
Cat 4	1077440.13	1080023.83	0.0316	30	Hydrotest	5	open earth parallel to road
Cat 4	1080023.83	1080465.46	0.0836	30	Hydrotest	5	open earth parallel to road
Cat 4	1080465.46	1080468.37	0.0006	30	Hydrotest	5	open earth parallel to road
Cat 1	1080468.37	1080473.87	0.0010	30	Hydrotest		open earth parallel to road
Cat 1	1080473.87	1080479.37	0.0010	30	Hydrotest		open earth parallel to road
Cat 4	1080479.37	1080482.23	0.0006	30	Hydrotest	5	open earth in station
Cat 2	1080482.23	1090623.33	1.9207	30			
Cat 2	1090623.33	1090699.33	0.0144	30			
Cat 2	1090699.33	1094023.13	0.6295	30			
Cat 2	1094023.13	1094102.93	0.0151	30			
Cat 2	1094102.93	1095677.63	0.2982	30			
Cat 2	1095677.63	1096178.03	0.0948	30			
Cat 1	1096178.03	10975784	0.0043	30			
Cat 2	10975784	1112201.83	1.0316	30			
Cat 2	1112201.83	1120901.33	1.6476	30			
Cat 2	1120901.33	1120980.73	0.0150	30			
Cat 2	1120980.73	1123301.73	0.4396	30			
Cat 2	1123301.73	1126670.96	0.6381	30			
Cat 2	1126670.96	1136369.63	1.8369	30			
Cat 4	1136369.63	1136379.83	0.0019	30	Hydrotest	5	inside reg station
Cat 4	1136379.83	1136390.13	0.0019	30	Hydrotest	5	inside reg station

Cat 2	1136390.15	1137287.13	0.1699	30		
Cat 2	1137287.13	1138101.13	0.1542	30		
Cat 2	1138101.13	1138526.4	0.0805	30		
Cat 4	1138526.4	1147747.39	1.7464	30	Hydrotest	5 open earth parallel to road -2 major road/hwy crossings
Cat 1	1147747.39	1147766.4	0.0036	30		
Cat 1	1147766.4	1147936.07	0.0321	30		
Cat 4	1147936.07	1149034	0.2079	30	Hydrotest	5 open earth parallel to road - major road crossing
Cat 1	1149034	1149558	0.0992	30		
Cat 1	1149558	1149564.6	0.0002	30		
Cat 1	1149564.6	1149573.6	-	30		
Cat 1	1149573.6	1149583.5	-	30		
Cat 4	1149583.5	1151175.5	-	30		
Cat 1	1151175.5	1151592	-	30		
Cat 4	1151592	1151612.6	-	30		
Cat 4	1151612.6	1157099.63	-	30		
Cat 4	1157099.63	1157307.63	-	30		
Cat 4	1157307.63	1173165.13	-	30		
Cat 4	1173165.13	1173170.13	-	30		
Cat 1	1173170.13	1173182.13	-	30		
Cat 1	1173182.13	1173190.88	-	30		
Cat 2	1173190.88	1173228.73	-	30		
Cat 2	1173228.73	1178148.13	-	30		
Cat 2	1178148.13	1185773.39	-	30		
Cat 2	1185773.39	1204709.73	0.9564	30		
Cat 1	1204709.73	1209040.53	0.8202	30		
Cat 1	1209040.53	1209120.53	0.0152	30		
Cat 1	1209120.53	1213002.03	0.7351	30		
Cat 1	1213002.03	1213078.03	0.0144	30		
Cat 1	1213078.03	1213811.03	0.1388	30		
Cat 2	1213811.03	1227300	0.7710	30		
Cat 1	1227300	227314.166	-	30		
Cat 1	227314.166	227316.832	-	30		
Cat 1	227316.832	1233165	-	30		
Cat 1	1233165	1233195.25	-	30		
Cat 1	1233195.25	233198.58	-	30		
Cat 1	233198.58	1235027.5	0.2643	30		
Cat 1	1235027.5	1235041.7	0.0027	30		

ACTIVITY AND LOCATION:		SPECIFICATION NO.		REFERENCE		SHEET	
Line 235 West				Sheet 1 of 1			
PROJECT TITLE AND CLIENT:		OWNED BY:		DATE		DATE	
SOUTHERN CALIFORNIA GAS COMPANY		SPEC SERVICES, INC.		JULY 28, 2011		JULY 28, 2011	
PIPE HYDROTEST COST ESTIMATE		STATUS OF DESIGN		SPEC Project Number		5057	
		CONCEPT					
DESCRIPTION		QUANTITY		MATERIAL COST		LABOR COST	
		NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL
1. MATERIALS							
INPUT IN ALL BLUE CELLS							
Pipe	30 Actual OD (in)	13,247	bbl / OD				
	0.625 Wall Thickness (in)	13,247	bbl / Segment				
	16499 Length (ft)						
Hydrotest Test Segment							
Pipe	n/a Actual OD (in)	0	bbl / OD				
	0.000 Wall Thickness (in)	0	bbl / Segment				
	0 Length (ft)						
Hydrotest Test Segment							
Pipe	n/a Actual OD (in)	0	bbl / OD				
	0.000 Wall Thickness (in)	0	bbl / Segment				
	0 Length (ft)						
Hydrotest Test Segment							
Total Hydrotest Length	3.1 Miles						
Total Hydrotest Segment(s)	1 QTY						
Purging Volume of Nitrogen [to obtain 3 atm (44 psig) on line], minimum 4 miles per test segment		285,639	SCF	\$ 0.19	\$ 54,272		\$ 54,272
Temporary Pig Launcher/Receiver (one/ OD change)		1	LS	\$ 25,000	\$ 25,000		\$ 25,000
Water Injection Pump & Filter (capacity 1200 gpm)		1	day(s)	\$ 486	\$ 486		\$ 486
On-Site Vacuum Truck(s) (minimum one per test segment)		10	each	\$ 5,000	\$ 5,000		\$ 5,000
Baker Tank(s) =X		80	day(s)	\$ 1,600	\$ 128,000		\$ 128,000
Total Baker Tank(s) Rental days (8/day per tank) =X*Z		13,247	bbl	\$ 19.00	\$ 251,690		\$ 251,690
Total Hydrotest Water (\$190/bbl)		111	loads				
Water Disposal Vacuum Truck(s) =A		2	day(s)	\$ 5,000	\$ 100,000		\$ 100,000
Vacuum Truck Water Disposal loads (capacity 120 bbl) =B		20	day(s)	\$ 55	\$ 728,577		\$ 728,577
Disposal Time =C=B/(A*10)		5	%	\$	\$ 64,652		\$ 64,652
Total Vacuum Truck(s) Rental days (8/day per truck) =D=C*A							
Treated Water Disposal (\$55/bbl)							
Miscellaneous Materials							
SCG Post Estimate Changes							
Additional Baker Tanks:		0 QTY					
Additional Test Segments:		0 QTY					
(due to elevation changes)							
Total Material Cost							\$ 1,357,700
2. CONSTRUCTION							
Construction Labor (25K/ test segment)		1	LS	\$ 25,000	\$ 25,000		\$ 25,000
Hydrotest Labor (10K/ test segment)		1	day(s)	\$ 10,000	\$ 10,000		\$ 10,000
Dewater/ Dry Pipeline (\$15,000/ test segment)		1	LS	\$ 15,000	\$ 15,000		\$ 15,000
Tie-ins Crew Rates (\$25,000/ test segment)		1	Each	\$ 25,000	\$ 25,000		\$ 25,000
3rd Party Witness (\$2,000/ test segment)		1	Each	\$ 2,000	\$ 2,000		\$ 2,000
Test/Construction period (6 days per test segment+ Hydrotest Labor+ Disposal Time) =Z		8	day(s)				
Total Construction Cost							\$ 77,000
3. SCG LABOR / INSPECTION							
Projects < \$1 million - company labor is 10%		10	%	\$ -	\$ -		\$ -
\$1million < Projects < \$10 million - company labor is 5%		5	%	\$ 71,735	\$ 71,735		\$ 71,735
Projects >\$10 million - company labor is 2.5%		2.5	%	\$ -	\$ -		\$ -
Total SCG Labor / Inspection Cost							\$ 71,800
4 DESIGN / ENG. / CONST. / ENVIRON.							
Planning / Design / Eng / Coord / Procurement		5	%		\$ 71,735		\$ 71,735
ROW Acquisition		0	LS	\$ -	\$ -		\$ -
Construction Permits		0	LS	\$ -	\$ -		\$ -
Environmental Permits		0	LS	\$ -	\$ -		\$ -
Environmental Monitoring		0	LS	\$ -	\$ -		\$ -
Total Design / Engineering / Construction Cost							\$ 71,800
5 CONTINGENCY							
Projects < \$2 million - Contingency is 30%		30	%	\$	\$ 473,490		\$ 473,490
Projects >\$2 million - Contingency is 20%		20	%	\$	\$ -		\$ -
TOTAL PROJECT COST (See Appendix for assumptions/certifications)							\$ 2,051,800

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Company	SCG
Plant Category	Trans
Line Number	317
Diameter (in.)	12.75

Hydrotest Mileage		
Category 4 Criteria	Accelerated	Total
1.571	0.529	2.100

Cost Detail

O&M

Hydrotest

Direct Labor	\$	7,700
Direct Non Labor	\$	433,200
Total Hydrotest	\$	440,900

Hydrotest Repairs

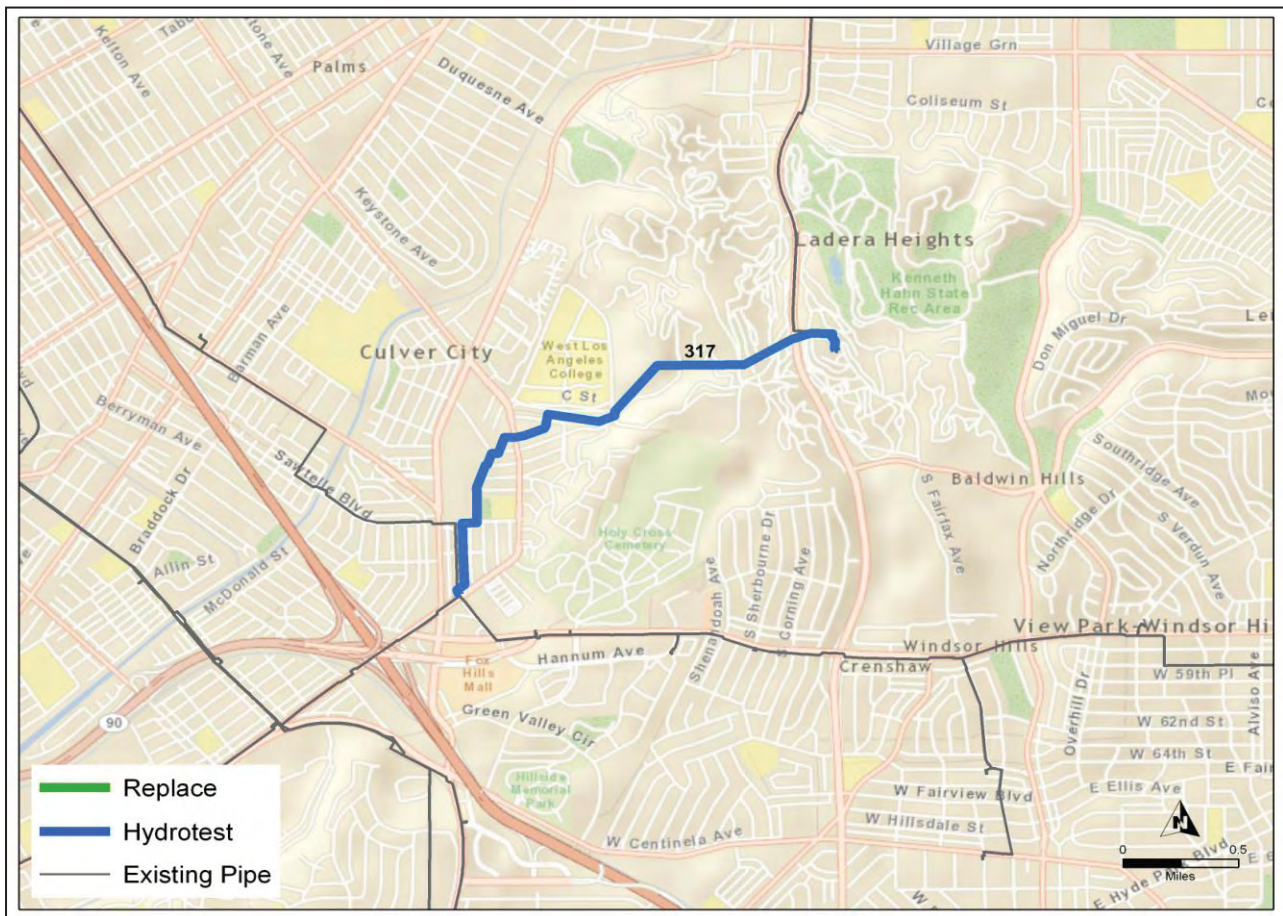
Direct Labor	\$	5,000
Direct Non Labor	\$	45,000
Total Repairs	\$	50,000

In Line Inspection

Direct Labor	\$	30,000
Direct Non Labor	\$	270,000
Total ILI	\$	300,000

In Line Inspection Repairs

Direct Labor	\$	15,000
Direct Non Labor	\$	135,000
Total Repairs	\$	150,000



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Existing Segments

Category	Station		Station Stop	Criteria		Diameter	Action	Decision	
	Start	Stop		Miles	Tree Box			Comments	
Cat 4	0	5010.5	5010.5	0.3808	12.75	Hydrotest	5	Mostly open land.	One road crossing
Cat 4	5010.5	5013.5	5013.5	0.0006	12.75	Hydrotest	5	Mostly open land.	One road crossing
Cat 4	5013.5	11292.4	11292.4	1.1892	12.75	Hydrotest	5	Mostly open land.	One road crossing
Cat 1	11292.4	11315.17	11315.17	0.0043	12.75	Hydrotest		Mostly open land.	One road crossing

ACTIVITY AND LOCATION:		SPECIFICATION NO.		SHEET		LINE ITEM NAME		SHEET 1 of 1	
PROJECT TITLE AND CLIENT:		ESTIMATED BY:		DATE		July 26, 2011			
SOUTHERN CALIFORNIA GAS COMPANY		SPEC SERVICES, INC.		SPEC Project Number		5057			
PIPE HYDROTEST COST ESTIMATE		STATUS OF DESIGN		Conceptual					
DESCRIPTION		QUANTITY		MATERIAL COST		LABOR COST		TOTAL COST	
		NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
1 MATERIALS									
INPUT IN ALL BLUE CELLS									
Pipe	12.75 Actual OD (in)	1,649	bbf / OD						
	0.250 Wall Thickness (in)	1,649	bbf / Segment						
Hydrotest Test Segment	1,1315 Length (ft)	1	QTY						
Pipe	n/a Actual OD (in)	0	bbf / OD						
	0.000 Wall Thickness (in)	0	bbf / Segment						
Hydrotest Test Segment	0 Length (ft)	0	QTY						
Pipe	n/a Actual OD (in)	0	bbf / OD						
	0.000 Wall Thickness (in)	0	bbf / Segment						
Hydrotest Test Segment	0 Length (ft)	0	QTY						
Total Hydrotest Length	2.1 Miles								
Total Hydrotest Segment(s)	1	QTY							
Purging	Volume of Nitrogen [to obtain 3 atm (44 psig) on line], minimum 4 miles per test segment	51,858	SCF	\$ 0.19	\$ 9,853				\$ 9,853
Temporary Pig Launcher/Receiver (one/ OD change)		1	LS	\$ 25,000	\$ 25,000				\$ 25,000
Water Injection Pump & Filter (capacity 1200 gpm)		1	day(s)	\$ 486	\$ 486				\$ 486
On-Site Vacuum Truck(s) (minimum one per / test segment)		1	each	\$ 5,000	\$ 5,000				\$ 5,000
Baker Tank(s) =X		4	each						
Total Baker Tank(s) Rental days (\$/day per tank) =X*Y		28	day(s)	\$ 1,600	\$ 44,800				\$ 44,800
Total Hydrotest Water (\$190/bbl)		1,649	bbl	\$ 19.00	\$ 31,337				\$ 31,337
Water Disposal Vacuum Truck(s) =A		4	bbls						
Vacuum Truck Water Disposal loads (capacity 120 bbl) =B		14	loads						
Disposal Time =C*B/(A*10)		1	day(s)						
Total Vacuum Truck(s) Rental days (\$/day per truck) =D=C*A		4	day(s)	\$ 5,000	\$ 20,000				\$ 20,000
Treated Water Disposal (\$55/bbl)		1,649	bbl	\$ 55	\$ 90,713				\$ 90,713
Miscellaneous Materials		5	%		\$ 11,360				\$ 11,360
SCG Post Estimate Changes									
Additional Baker Tanks:	0 QTY								
Additional Test Segments:	0 QTY								
(due to elevation changes)									
Total Material Cost									\$ 238,600
2 CONSTRUCTION									
Construction Labor (25K/ test segment)		1	LS			\$ 25,000	\$ 25,000		\$ 25,000
Hydrotest Labor (10K/ test segment)		1	day(s)			\$ 10,000	\$ 10,000		\$ 10,000
Dewater/ Dry Pipeline (\$15,000/ test segment)		1	LS			\$ 15,000	\$ 15,000		\$ 15,000
Tie-ins Crew Rates (\$25,000/ test segment)		1	Each			\$ 25,000	\$ 25,000		\$ 25,000
3rd Party Witness (\$2,000/ test segment)		1	Each			\$ 2,000	\$ 2,000		\$ 2,000
Test/Construction period (6 days per test segment+ Hydrotest Labor+ Disposal Time) =Z		7	day(s)						
Total Construction Cost									\$ 77,000
Projects < \$1 million - company labor is 10%		10	%			\$ 7,700	\$ 7,700		\$ 7,700
\$1million < Projects < \$10 million - company labor is 5%		5	%			\$ -	\$ -		\$ -
Projects >\$10 million - company labor is 2.5%		2.5	%			\$ -	\$ -		\$ -
Total SCG Labor / Inspection Cost									\$ 7,700
4 DESIGN / ENG. / CONST. / ENVIRON.									
Planning / Design / Eng / Coord / Procurement		5	%						
ROW Acquisition		0	LS			\$ 15,760	\$ 15,760		\$ 15,760
Construction Permits		0	LS			\$ -	\$ -		\$ -
Environmental Permits		0	LS			\$ -	\$ -		\$ -
Environmental Monitoring		0	LS			\$ -	\$ -		\$ -
Total Design / Engineering / Construction Cost									\$ 15,800
5 CONTINGENCY									
Projects < \$2 million - Contingency is 30%		30	%			\$ 101,730	\$ 101,730		\$ 101,730
Projects >\$2 million - Contingency is 20%		20	%			\$ -	\$ -		\$ -
TOTAL PROJECT COST (See Appendix for assumptions/certifications)									\$ 440,900

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Company	SCG	Hydrotest Mileage		
Plant Category	Trans	Category 4		
		Criteria	Accelerated	Total
Line Number	404	24.450	13.350	37.800
Diameter (in.)	18, 20, 22			

Cost Detail

O&M

Hydrotest

Direct Labor	\$ 380,200
Direct Non Labor	\$ 9,655,100
Total Hydrotest	\$ 10,035,300

Hydrotest Repairs

Direct Labor	\$ 65,000
Direct Non Labor	\$ 585,000
Total Repairs	\$ 650,000

In Line Inspection

Direct Labor	\$ 60,000
Direct Non Labor	\$ 540,000
Total ILI	\$ 600,000

In Line Inspection Repairs

Direct Labor	\$ 272,625
Direct Non Labor	\$ 2,453,625
Total Repairs	\$ 2,726,250



Southern California Gas Company
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Existing Segments

Category	Station		Criteria	Diameter	Action	Decision	
	Start	Stop	Miles			Tree Box	Comments
Cat 1	0	48	0.0091	18			
Cat 4	48	9714.5	0.9490	18	Hydrotest	5	street work, terrain
Cat 1	9714.5	9733.83	-	18			
Cat 4	9733.83	10976.8	-	18			
Cat 2	10976.8	12642.3	-	18			
Cat 4	12387.8	17679.8	-	18			
Cat 1	17679.8	17694.13	-	18			
Cat 4	17694.13	19460	0.2053	18	Hydrotest	5	terrain
Cat 1	19460	19474	0.0027	18	Hydrotest		road crossing
Cat 4	19474	19650.5	0.0334	18	Hydrotest	5	terrain
Cat 1	19650.5	19664.88	0.0027	18	Hydrotest		terrain
Cat 4	19664.88	23088.80	0.6483	18	Hydrotest	5	street work around residential homes
Cat 4	23088.80	23331.8	0.0460	18	Hydrotest	5	near parking lot
Cat 4	23331.8	25672	0.4432	18	Hydrotest	5	street work; major street crossings
Cat 1	25672	25690.13	0.0034	18	Hydrotest		street work
Cat 4	25690.13	25747.03	0.0108	18	Hydrotest	5	street work
Cat 1	25747.03	25754.78	0.0015	18	Hydrotest		street work
Cat 4	25754.78	27421	0.3156	18	Hydrotest	5	street work
Cat 1	27421	27489	0.0129	18	Hydrotest		street work
Cat 4	27479.72	42781.75	2.8581	18	Hydrotest	5	street work with major street crossing
Cat 1	42781.75	42807	0.0048	18	Hydrotest		street work with major street crossing
Cat 4	42807	48048	0.9926	18	Hydrotest	5	street work with major street crossing. section next to Hwy 128
Cat 1	48048	49652	0.3038	20			
Cat 4	49513.3	51022	0.2857	18	Hydrotest	5	street work
Cat 1	51022	51058.12	0.0089	18	Hydrotest		street work
Cat 4	51069	51155.4	0.0133	18	Hydrotest	5	street work
Cat 2	51155.4	51181.3	0.0049	18	Hydrotest		street work
Cat 4	51178.7	53955	0.5258	18	Hydrotest	5	street work
Cat 1	53955	54527.5	0.1084	18			

Cat 4	54527.5	59608	0.9622	18	Hydrotest	5	street work
Cat 1	59608	59648	0.0076	18	Hydrotest		street work
Cat 4	59648	60919.3	0.2408	18	Hydrotest	5	street work
Cat 1	60919.3	60971.3	0.0098	18	Hydrotest		street work
Cat 4	60971.3	61934	0.0678	18	Hydrotest	5	street work
Cat 1	61934	61987	-	18	Hydrotest		street work
Cat 4	61987	65978.5	0.4400	18	Hydrotest	5	street work & agricultural land
Cat 1	65978.5	65996.75	-	18			
Cat 4	65996.75	67229.22	-	14			
Cat 4	67229.22	69321.22	-	22			
Cat 4	68227.22	71777.9	-	18			
Cat 2	71777.9	73153.6	-	18			
Cat 4	73077.8	77313.00	0.1330	18	Hydrotest	5	agricultural land, golf course crossing and residential area
Cat 4	77313.00	77326.00	0.0025	18	Hydrotest	5	road crossing
Cat 4	77326.00	109824	0.0860	18	Hydrotest	5	street work
Cat 4	109824	115350.2	0.0860	18	Hydrotest	5	street work, residential and agricultural land
Cat 1	115350.2	115837.92	2.0615	18			
Cat 4	115836.3	123045	0.7653	18	Hydrotest	5	railroad and creek crossing, agricultural land
Cat 2	123045	125283	0.4239	18			
Cat 2	125283	126536	0.2373	18			
Cat 2	126336	127199	0.1634	18			
Cat 4	127199	129446.5	0.2117	18	Hydrotest	5	none identified
Cat 1	129446.5	133202.1	0.3600	20			
Cat 4	133202.1	133373.5	-	20			
Cat 1	133373.5	133470.1	-	18			
Cat 4	133458.8	142085	1.6338	18	Hydrotest	5	street work
Cat 4	142085	142117	0.0061	18	Hydrotest	5	street work
Cat 1	142066	142098.34	0.0061	18	Hydrotest		street work
Cat 4	142094.25	152001	1.2563	18	Hydrotest	5	street work, culvert crossing, agricultural land
Cat 1	152001	160948	1.6945	18			
Cat 4	160948	160978	0.0057	18			
Cat 1	160978	166839	1.1100	18	Hydrotest	5	street work
Cat 1	166839	168490.6	0.3128	18			
Cat 1	168215.7	168659.8	0.0841	18			
Cat 1	168659.8	168698	0.0072	18			
Cat 4	168692.7	168747.7	0.0104	18	Hydrotest	5	parking lot
Cat 1	168747.7	169111.6	0.0689	18			

Cat 1	169110.70	171172.00	0.3904	18			
Cat 1	171172.00	183163.00	2.2110	18			
Cat 1	183163.00	183210.1	0.0127	18			
Cat 1	183210.1	183232.75	0.0043	18			
Cat 1	188232.00	194568.00	1.2000	18			
Cat 1	194568.00	196736	0.4578	20			
Cat 1	196736	197766	0.1951	18			
Cat 1	197766.00	200835.00	0.5813	18			
Cat 4	197336.00	202179.5	0.7820	18	Hydrotest	5	residential street work
Cat 1	202179.5	202240.92	-	18			
Cat 4	202240.92	207459	-	18			
Cat 4	207459	207469	-	18			
Cat 4	207469	214267.29	-	18			
Cat 1	214267.29	214304.71	-	18			
Cat 4	214304.71	227270.65	0.3410	18	Hydrotest	5	residential crossings
Cat 1	227270.65	233124	1.1086	18			
Cat 1	233124	232939.00	0.1142	18			
Cat 4	232939.00	233006.92	0.0129	18	Hydrotest	5	residential area
Cat 1	233006.92	233243.21	0.0374	18			
Cat 4	233242.00	236241.00	0.5680	18	Hydrotest	5	residential crossings, street work
Cat 1	236241.00	238101.00	0.3523	18			
Cat 4	238101.00	239210.00	0.2100	18	Hydrotest	5	street work, bridge crossing
Cat 1	239210.00	239336.5	0.0240	18			
Cat 4	239336.5	244969	1.0668	18	Hydrotest	5	street work
Cat 1	244969	245319	0.0663	18			
Cat 4	245319	248895.5	0.6774	18	Hydrotest	5	street work, major street crossing, residential crossings
Cat 1	248895.5	248904.5	0.0017	18	Hydrotest		street work
Cat 4	248904.5	248971	0.0126	18	Hydrotest	5	street work
Cat 1	248971	248983	0.0023	18	Hydrotest		parking lot
Cat 4	248983	250563	0.2992	18	Hydrotest	5	parking lot, commercial buildings
Cat 1	250563	250618	0.0104	18	Hydrotest		parking lot
Cat 4	250618	250842	0.0424	18	Hydrotest	5	parking lot
Cat 1	250842	252365	0.2884	20			
Cat 1	251413.00	251528.00	0.0218	18			
Cat 4	251528.00	257558	1.1420	20	Hydrotest	5	parking lot, street work, residential crossings
Cat 1	257558	257630	0.0136	18	Hydrotest		street work
Cat 4	257630	269394	2.2280	18	Hydrotest	5	freeway crossing, street work, residential crossings

Cat 1	269394	270464	0.2027	18			
Cat 4	270464	271713.05	0.2366	18	Hydrotest	5	street work
Cat 1	271713.05	271733.80	0.0039	18	Hydrotest		street work
Cat 4	271733.80	271895.58	0.0306	18	Hydrotest	5	street work
Cat 1	271895.58	271903.83	0.0016	18	Hydrotest		street work
Cat 4	271903.83	272413.88	0.0966	18	Hydrotest	5	street work
Cat 4	272413.88	272658.88	0.0464	18	Hydrotest	5	street work
Cat 4	272658.88	277150.00	0.8506	18	Hydrotest	5	street work, major road crossings,
Cat 4	277150.00	277790.00	0.1212	18	Hydrotest	5	street work
Cat 4	277790.00	278693.35	0.1711	18	Hydrotest	5	street work
Cat 4	278693.35	278951.35	0.0489	18	Hydrotest	5	101 Freeway crossing, street work
Cat 4	278951.35	285240.53	1.1911	18	Hydrotest	5	101 Freeway crossing, street work
Cat 1	285240.53	285318.88	0.0148	18	Hydrotest		near rec baseball fields
Cat 4	285310.72	292532.29	1.3677	18	Hydrotest	5	rec baseball fields crossing, street work with high traffic
Cat 1	292532.29	292563.62	0.0059	18	Hydrotest		station work
Cat 4	292563.62	292633.33	0.0132	18	Hydrotest	5	station work

Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG
Plant Category	Trans
Line Number	406
Diameter (in.)	20, 22

Hydrotest Mileage		
Category 4 Criteria	Accelerated	Total
7.8625	12.8375	20.7000

Cost Detail

O&M

Hydrotest

Direct Labor	\$ 285,600
Direct Non Labor	\$ 7,253,000
Total Hydrotest	\$ 7,538,600

Hydrotest Repairs

Direct Labor	\$ 45,000
Direct Non Labor	\$ 405,000
Total Repairs	\$ 450,000

In Line Inspection

Direct Labor	\$ 30,000
Direct Non Labor	\$ 270,000
Total ILI	\$ 300,000

In Line Inspection Repairs

Direct Labor	\$ 385,950
Direct Non Labor	\$ 3,473,550
Total Repairs	\$ 3,859,500



Southern California Gas Company
Pipeline Safety Enhancement Program - Workshop Supporting Chapter IX

Existing Segments

Category	Station		Criteria Miles	Diameter	Action	Decision	
	Start	Stop				Tree Box	Comments
Cat 4	0	6	0.0011	22	Hydrotest	5	in olive street station
Cat 1	6	1795	0.3388	22	Keep As Is		
Cat 4	1795.00	1848.00	0.0100	22	Hydrotest	5	street work
Cat 4	1848	2059	0.0400	22	Hydrotest	5	street work
Cat 4	2059.00	2112.00	0.0100	22	Hydrotest	5	street work
Cat 4	2112	24650	0.5286	22	Hydrotest	5	mountain terrain
Cat 1	24649.8	26881.4	0.4227	22	Keep As Is		
Cat 1	26881.4	27998.6	-	22	Keep As Is		
Cat 1	27763.4	29181.9	0.1887	22	Keep As Is		
Cat 4	29182	29198.35	0.0031	22	Hydrotest	5	residential street/backyard
Cat 1	29198.35	29236.35	0.0072	22	Hydrotest		residential street
Cat 1	29235.7	29249.2	0.0026	22	Hydrotest		residential street
Cat 1	29249	29298.92	0.0095	22	Hydrotest		residential street
Cat 1	29298.92	30598.32	0.2461	22	Hydrotest		residential street
Cat 1	30374.92	30596.56	0.0420	22	Hydrotest		residential street
Cat 1	30596.56	31781.00	0.2243	22	Keep As Is		
Cat 1	31781.00	32077.13	0.0561	22	Keep As Is		
Cat 2	32077.13	32079.21	0.0004	22	Keep As Is		
Cat 4	32079	32639	0.1061	22	Hydrotest	5	residential street
Cat 2	32639	32644.7	0.0011	22	Hydrotest		residential street /small creek crossing
Cat 4	32645	32910	0.0502	22	Hydrotest	5	residential street
Cat 1	32909.5	33234	0.0615	22	Keep As Is		
Cat 1	33234	35108	0.3549	22	Keep As Is		
Cat 1	35108	35126.2	-	22	Keep As Is		
Cat 4	35126	40625	-	22	Keep As Is		
Cat 1	40624.5	56630.8	2.2700	22	Keep As Is		
Cat 4	56631	60677.94	0.5000	22	Hydrotest	5	open earth
Cat 4	60667.00	61723	-	22	Keep As Is		
Cat 4	61723.00	65930.00	-	22	Keep As Is		

Cat 4	65930.00	66603	-	22	Keep As Is	
Cat 2	66603.3	67900.8	-	22	Keep As Is	
Cat 4	67980.8	70721	-	22	Keep As Is	
Cat 1	70721.3	74051.3	0.4000	22	Keep As Is	
Cat 4	74051.3	98171	-	22	Keep As Is	
Cat 1	98171.4	102229.3	0.7685	22	Keep As Is	
Cat 4	102229	102468	0.0453	22	Hydrotest	5 tank farm/station
Cat 1	102468.3	109261.8	1.2866	22	Keep As Is	
Cat 4	109262	124046.8	0.3002	22	Hydrotest	5 open earth/mountain terrain
Cat 1	124046.80	124543	0.0940	22	Keep As Is	
Cat 1	124543.2	125392.2	0.1608	22	Keep As Is	
Cat 4	125333	130252	0.4316	22	Hydrotest	5 open earth -crosses Edison ROW
Cat 1	130252.1	130431.2	0.0339	22	Keep As Is	
Cat 4	130376.4	136825	0.0554	22	Hydrotest	5 open earth with creek crossing
Cat 1	136824.7	138142	-	22	Keep As Is	
Cat 1	138142	162304.8	3.9691	22	Keep As Is	
Cat 4	162305	162319.6	0.0028	22	Hydrotest	5 open earth
Cat 1	162319.6	174412	2.2202	22	Keep As Is	
Cat 4	174412.00	174428.00	0.0030	22	Hydrotest	5 open earth
Cat 1	174428.00	174463.00	0.0066	22	Hydrotest	open earth
Cat 1	174463.00	180470.00	1.1377	22	Keep As Is	
Cat 1	180470.00	186053.5	1.0575	20	Keep As Is	
Cat 2	186053.5	188216	0.4096	20	Keep As Is	
Cat 4	187974	189640	0.3155	20	Hydrotest	5 residential street
Cat 1	189640	192693	0.5782	20	Keep As Is	
Cat 4	192237	214262.4	0.4477	20	Hydrotest	5 rolling hills -1 street crossing
Cat 1	214262.4	235329.6	2.7970	20	Keep As Is	
Cat 4	235329.6	236542	0.2296	20	Hydrotest	5 westside station -residential street & major street crossing
Cat 1	236542	238140	0.3027	20	Keep As Is	
Cat 4	238140	239043.23	0.1711	20	Hydrotest	5 arterial street
Cat 1	239043.23	239195.23	0.0288	20	Hydrotest	arterial street
Cat 4	239179.23	244969	1.0965	20	Hydrotest	5 arterial street/wash crossing/major street crossing
Cat 1	244969	245749	0.1477	20	Keep As Is	
Cat 4	245749	250583	0.9155	20	Hydrotest	5 major street crossings
Cat 2	250583	250613	0.0057	20	Hydrotest	major street crossings
Cat 4	250613	250840	0.0430	20	Hydrotest	5 mall parking lot and buildings
Cat 1	250840	252358	0.2875	20	Keep As Is	

Cat 1	251407	252561	0.2186	20	Keep As Is	
Cat 4	252561	257543	0.9436	20	Hydrotest	arterial street/major street crossing
Cat 2	257543	257636	0.0176	20	Hydrotest	arterial street/major street crossing
Cat 4	257631	269389	2.2269	20	Hydrotest	arterial street/major street crossing
Cat 1	269389	270529	0.2159	20	Keep As Is	

ACTIVITY AND LOCATION:		Line 406		SHEET		SHEET 1 of 1	
PROJECT TITLE AND CLIENT:		SOUTHERN CALIFORNIA GAS COMPANY		ESTIMATED BY:		SPEC SERVICES, INC.	
PIPE HYDROTEST COST ESTIMATE		DATE:		July 26, 2011		SPEC Project Number	
		STATE OF DESIGN		5057			
		CONCRETE					
DESCRIPTION		QUANTITY		MATERIAL COST		LABOR COST	
		NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL
1 MATERIALS							
INPUT IN ALL BLUE CELLS							
Pipe	22 Actual OD (in)	25,070	bbf / OD				
	0.250 Wall Thickness (in)		bbf / Segment				
56834	Length (ft)	5,014					
Hydrotest Test Segment		5	QTY				
Pipe	20 Actual OD (in)	19,573	bbf / OD				
	0.312 Wall Thickness (in)		bbf / Segment				
53673	Length (ft)	4,893					
Hydrotest Test Segment		4	QTY				
Pipe	n/a Actual OD (in)	0	bbf / OD				
	0.000 Wall Thickness (in)		bbf / Segment				
0	Length (ft)	0					
Hydrotest Test Segment		0	QTY				
Total Hydrotest Length		20.7	Miles				
Total Hydrotest Segment(s)		9	QTY				
Purging Volume of Nitrogen [to obtain 3 atm (44 psig) on line], minimum 4 miles per test segment		1,317,667	SCF	\$ 0.19	\$ 250,357		\$ 250,357
Temporary Pig Launcher/Receiver (one/ OD change)		2	LS	\$ 25,000	\$ 50,000		\$ 50,000
Water Injection Pump & Filter (capacity 1200 gpm)		4	day(s)	\$ 486	\$ 1,944		\$ 1,944
On-Site Vacuum Truck(s) (minimum one per test segment)		9	each	\$ 5,000	\$ 45,000		\$ 45,000
Baker Tank(s) =X		10	each				
Total Baker Tank(s) Rental days (\$/day per tank) =X*Y		580	day(s)	\$ 1,600	\$ 928,000		\$ 928,000
Total Hydrotest Water (\$190/bbl)		44,643	bbl	\$ 19.00	\$ 848,224		\$ 848,224
Water Disposal Vacuum Truck(s) =A		10	each				
Vacuum Truck Water Disposal loads (capacity 120 bbl) =B		373	loads				
Disposal Time =C*B/(A*10)		4	day(s)				
Total Vacuum Truck(s) Rental days (\$/day per truck) =D=C*A		40	day(s)	\$ 5,000	\$ 200,000		\$ 200,000
Treated Water Disposal (\$55/bbl)		44,643	bbl	\$ 55	\$ 2,455,384		\$ 2,455,384
Miscellaneous Materials		5	%		\$ 238,946		\$ 238,946
SCG Post Estimate Changes							
Additional Baker Tanks:		0	QTY				
Additional Test Segments:		0	QTY				
(due to elevation changes)							
Total Material Cost							\$ 5,017,900
2 CONSTRUCTION							
Construction Labor (25K/ test segment)		9	LS			\$ 25,000	\$ 225,000
Hydrotest Labor (10K/ test segment)		9	day(s)			\$ 10,000	\$ 90,000
Dewater/ Dry Pipeline (\$15,000/ test segment)		9	LS			\$ 15,000	\$ 135,000
Tie-ins Crew Rates (\$25,000/ test segment)		9	Each			\$ 25,000	\$ 225,000
3rd Party Witness (\$2,000/ test segment)		9	Each			\$ 2,000	\$ 18,000
Test/Construction period (6 days per test segment+ Hydrotest Labor+ Disposal Time) =Z		58	day(s)				
Total Construction Cost							\$ 683,000
3 SCG LABOR / INSPECTION							
Projects < \$1 million - company labor is 10%		10	%			\$ -	\$ -
\$1million < Projects < \$10 million - company labor is 5%		5	%			\$ 285,545	\$ 285,545
Projects >\$10 million - company labor is 2.5%		2.5	%			\$ -	\$ -
Total SCG Labor / Inspection Cost							\$ 285,545
4 DESIGN / ENG. / CONST. / ENVIRON.							
Planning / Design / Eng / Coord / Procurement		5	%				
ROW Acquisition		0	LS			\$ 285,545	\$ 285,545
Construction Permits		0	LS			\$ -	\$ -
Environmental Permits		0	LS			\$ -	\$ -
Environmental Monitoring		0	LS			\$ -	\$ -
Total Design / Engineering / Construction Cost							\$ 285,545
5 CONTINGENCY							
Projects < \$2 million - Contingency is 30%		30	%			\$ -	\$ -
Projects >\$2 million - Contingency is 20%		20	%			\$ 1,256,420	\$ 1,256,420
TOTAL PROJECT COST (See Appendix for assumptions/certifications)							\$ 7,536,600

WP-IX-1-A23

Southern California Gas Company

Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG
Plant Category	Trans
Line Number	407
Diameter (in.)	30

Hydrotest Mileage		
Category 4 Criteria	Accelerated	Total
6.251	0.049	6.300

Cost Detail

O&M

Hydrotest

Direct Labor	\$ 143,500
Direct Non Labor	\$ 3,644,100
Total Hydrotest	\$ 3,787,600

Hydrotest Repairs

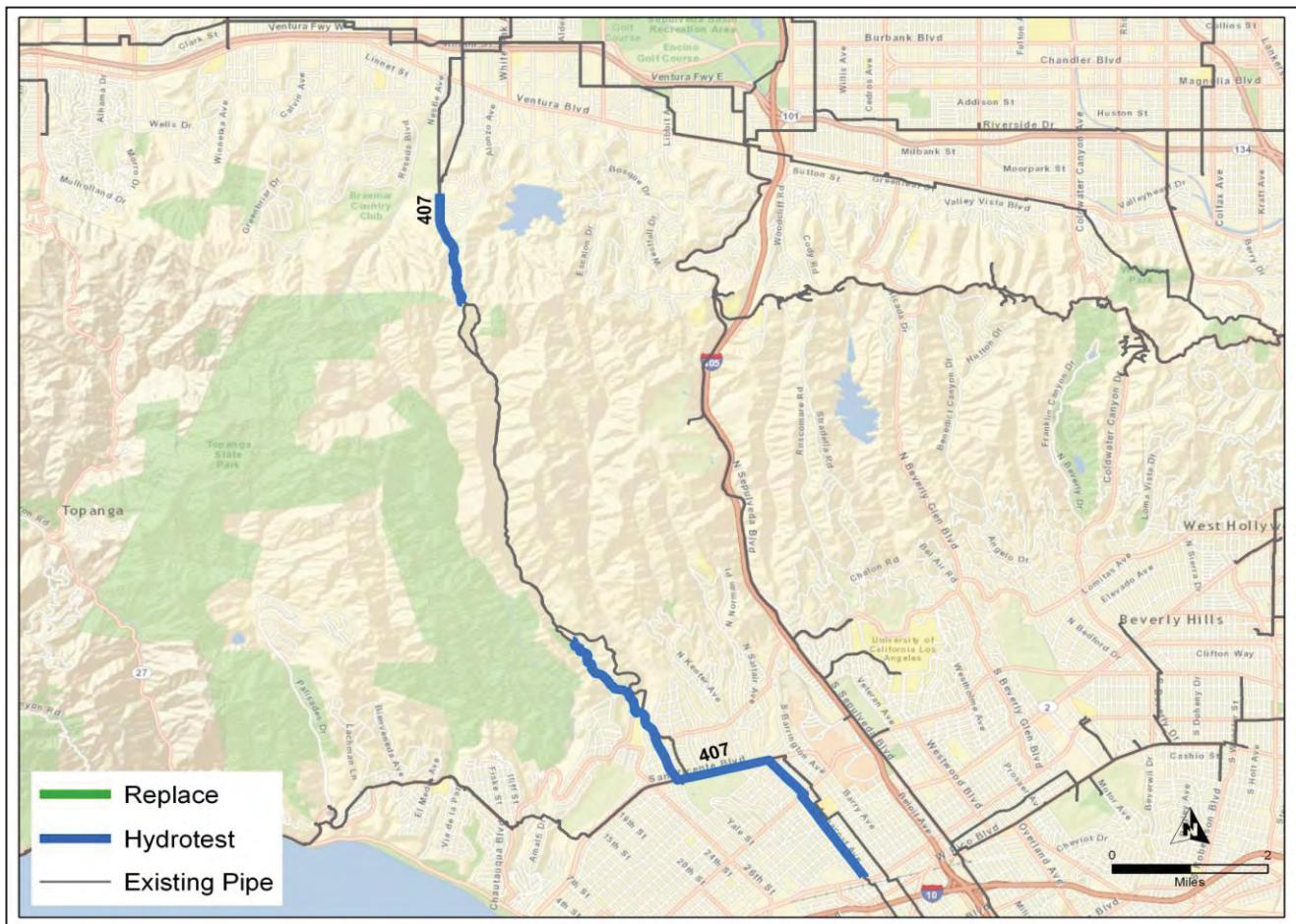
Direct Labor	\$ 10,000
Direct Non Labor	\$ 90,000
Total Repairs	\$ 100,000

In Line Inspection

Direct Labor	\$ 30,000
Direct Non Labor	\$ 270,000
Total ILI	\$ 300,000

In Line Inspection Repairs

Direct Labor	\$ 93,825
Direct Non Labor	\$ 844,425
Total Repairs	\$ 938,250



Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Existing Segments

Category	Station Start	Station Stop	Criteria Miles	Diameter	Action	Decision	
						Tree Box	Comments
Cat 1	-134.22	83.2	0.0412	30			
Cat 1	83.2	97.5	0.0027	30			
Cat 1	97.5	162.97	0.0124	30			
Cat 1	162.97	171.63	0.0016	30			
Cat 1	171.63	1046.87	0.1658	30			
Cat 4	1046.87	1057.56	0.0020	30	Hydrotest	5	none determined
Cat 1	1057.56	7394.5	1.2002	30			
Cat 1	7394.5	8212.76	0.1550	30			
Cat 1	8212.76	9110.18	0.1700	30			
Cat 4	9029.85	9635.2	0.1146	30	Hydrotest	5	Between golf course and backyards of upscale homes, relocation
Cat 1	9635.2	9789.2	0.0292	30	Hydrotest		Inbetween residential homes
Cat 4	9785.7	16674.42	1.3047	30	Hydrotest	5	none determined
Cat 1	16674.42	16696.59	-	30			
Cat 4	16696.59	37847.45	-	30			
Cat 1	37667.2	37720.2	-	30			
Cat 4	37720.2	37847.45	-	30			
Cat 1	37847.45	37867.75	-	30			
Cat 4	37867.75	39223.03	-	30			
Cat 4	39223.03	39230.03	-	30			
Cat 4	39230.03	39300.03	-	30			
Cat 1	39300.03	39320.33	-	30			
Cat 1	39320.33	39332.425	-	30			
Cat 1	39332.425	40439.8	-	30			
Cat 4	40439.8	40687.45	0.0506	30	Hydrotest	5	terrain
Cat 1	40687.45	40925.92	0.0452	30			
Cat 4	40925.92	42970.45	0.3949	30	Hydrotest	5	upscale homes, terrain
Cat 1	42970.45	43055.15	0.0160	30	Hydrotest		upscale homes
Cat 4	43055.15	44410	0.2607	30	Hydrotest	5	upscale homes

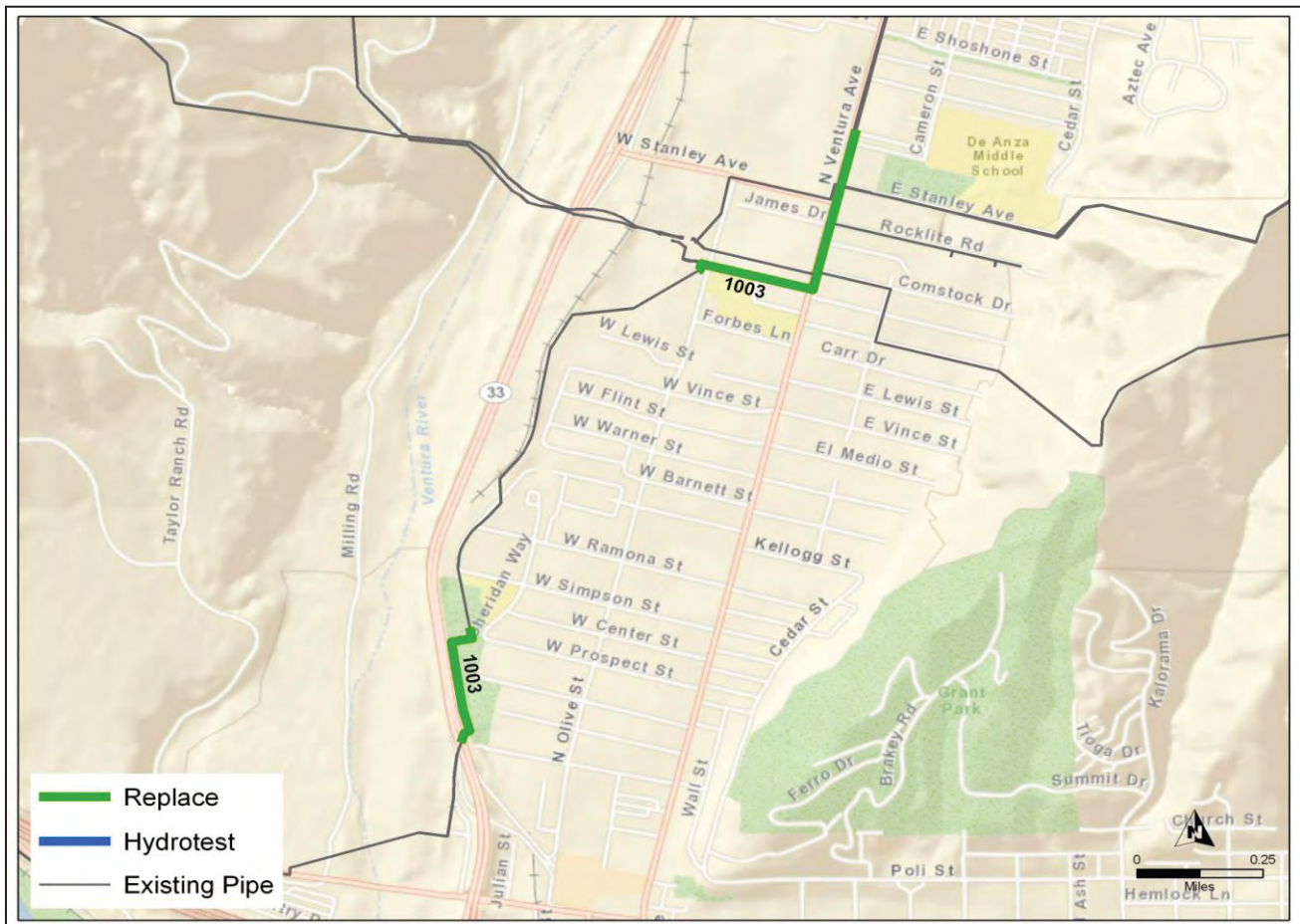
Cat 1	44410	44503	0.0176	30	Hydrotest	upscale homes
Cat 4	44503	52305.2	1.4821	30	Hydrotest	upscale homes
Cat 1	52305.2	52337.4	0.0061	30	Hydrotest	upscale homes
Cat 4	52337.4	62231.09	1.8738	30	Hydrotest	Major street crossings
Cat 1	62231.09	62245.09	0.0027	30	Hydrotest	Major street crossings
Cat 4	62245.09	66307.65	0.7694	30	Hydrotest	Major street crossings
Cat 1	66307.65	66327.17	0.0037	30		
Cat 1	66327.17	66379.17	0.0098	30		

Southern California Gas Company
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Company	SCG	Replacement Mileage		
Plant Category	Trans	Category 4		
		Criteria	Accelerated	Total
Line Number	1003	1.291	0.117	1.408
Diameter (in.)	12.75, 16, 20			

Cost Detail

Capital		O&M	
Direct Labor	\$ 105,100	Direct Labor	\$ -
Direct Non Labor	\$ 2,818,500	Direct Non Labor	\$ -
Total Direct Capital	\$ 2,923,600	Total Direct O&M	\$ -



Southern California Gas Company
Pipeline Safety Enhancement Program - Workshop Supporting Chapter IX

Existing Segments

Category	Station		Criteria Miles	Diameter	Action	Decision	
	Start	Stop				Tree Box	Comments
Cat 1	193229	193587	0.0678	12.75			
Cat 4	193587	193596	0.0017	12.75	Replace	2	none
Cat 4	193596	194005	0.0775	16	Replace	2	parallels 33 fwy off ramp
Cat 1	194005	194010.42	0.0010	16			
Cat 1	194010.42	198787	0.9047	12.75			
Cat 1	198787	198790	0.0006	12.75			
Cat 4	198790	198989	0.0377	12.75	Replace	2	Olive compressor station
Cat 1	198989	199469	0.0909	12.75			
Cat 2	199469	200462	0.1881	12.75			
Cat 4	200462	204647.67	0.7928	16	Replace	2	none
Cat 4	204647.67	204667.67	0.0038	12.75	Replace	2	none
Cat 4	204668	207277	0.4941	20	Replace	2	none

New Segments

Station Start	Station		Wall Thickness	Grade	Comments
	Stop	Diameter			
193587	193596	12.75	0.375	X-52	
193596	194005	12.75	0.375	X-52	
198790	198989	12.75	0.375	X-52	
200462	204647.67	12.75	0.375	X-52	
204647.67	204667.67	12.75	0.375	X-52	
204668	207277	12.75	0.375	X-52	

Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG	Hydrotest Mileage		
Plant Category	Trans	Category 4		
		Criteria	Accelerated	Total
Line Number	1004	12.718	6.983	19.700
Diameter (in.)	16			

Cost Detail

O&M

Hydrotest

Direct Labor	\$	159,200
Direct Non Labor	\$	4,043,200
Total Hydrotest	\$	4,202,400

Hydrotest Repairs

Direct Labor	\$	35,000
Direct Non Labor	\$	315,000
Total Repairs	\$	350,000

In Line Inspection

Direct Labor	\$	60,000
Direct Non Labor	\$	540,000
Total ILI	\$	600,000

In Line Inspection Repairs

Direct Labor	\$	193,500
Direct Non Labor	\$	1,741,500
Total Repairs	\$	1,935,000



Southern California Gas Company
Pipeline Safety Enhancement Program - Workshop Supporting Chapter IX

Existing Segments

Category	Station		Station Stop	Criteria Miles	Diameter	Action	Decision	
	Start	Stop					Tree Box	Comments
Cat 4	0	1671.6	1671.6	0.3166	16	Hydrotest	5	residential street
Cat 1	1671.6	1731.8	1731.8	0.0114	16	Hydrotest		residential street
Cat 4	1731.8	2877	2877	0.2169	16	Hydrotest	5	residential street
Cat 1	2877	2883	2883	0.0011	16	Hydrotest		residential street
Cat 4	2883	2958	2958	0.0142	16	Hydrotest	5	residential street
Cat 1	2958	2964	2964	0.0011	16	Hydrotest		residential street
Cat 4	2964	4322	4322	0.2572	16	Hydrotest	5	residential street
Cat 2	4322	5600	5600	0.2420	16			
Cat 4	5600	15476	15476	1.8705	16	Hydrotest	5	residential street
Cat 1	15476	15778	15778	0.0572	16			
Cat 4	15778	17804	17804	0.3837	16	Hydrotest	5	residential street
Cat 4	17804	18006	18006	0.0383	16	Hydrotest	5	residential street
Cat 4	18006	18063	18063	0.0108	16	Hydrotest	5	residential street -major hwy
Cat 1	18063	18077	18077	0.0027	16			
Cat 1	18077.00	18091	18091	0.0027	16			
Cat 1	18091.00	19652.7	19652.7	0.2958	16			
Cat 1	19652.7	20949.8	20949.8	0.2457	16			
Cat 1	20913.70	21962	21962	0.1985	16			
Cat 4	21295.00	25773.5	25773.5	0.8482	16	Hydrotest	5	arterial street w/ major hwy crossing
Cat 1	25773.5	26515	26515	0.1404	16			
Cat 2	26515	32209	32209	1.0784	16			
Cat 4	32209	32222	32222	0.0025	16	Hydrotest	5	arterial street -possible night work
Cat 4	32222	37994	37994	1.0932	16	Hydrotest	5	arterial street -possible night work
Cat 1	37994	37987.9	37987.9	0.0083	16	Hydrotest		arterial street -possible night work
Cat 4	37984.60	38291.4	38291.4	0.0581	16	Hydrotest	5	arterial street -possible night work
Cat 1	38291.4	38406.26	38406.26	0.0218	16			
Cat 2	38400.40	44032	44032	1.0666	16			
Cat 1	44032	44141.7	44141.7	0.0208	16			
Cat 4	44135.00	45123.9	45123.9	0.1873	16	Hydrotest	5	arterial street -possible night work

Cat 1	45123.9	45175.5	0.0098	16	Hydrotest	arterial street -possible night work
Cat 4	45175.5	49281	0.7776	16	Hydrotest	HWY 101 crossing
Cat 4	49281	49702	0.0797	16	Hydrotest	arterial street -possible night work
Cat 4	49702	50604.5	0.1709	16	Hydrotest	arterial street -possible night work
Cat 1	50604.5	50814.5	0.0398	16		
Cat 4	50814.5	51941.5	0.2134	16	Hydrotest	arterial street parallel to hwy
Cat 1	51941.5	52263.5	0.0610	16		
Cat 4	52263.5	54868	0.4933	16	Hydrotest	arterial street -hwy 101 crossing
Cat 2	54868	55726	0.1625	16		
Cat 4	55726	55968	0.0458	16	Hydrotest	arterial street -night work with off ramps
Cat 2	55968	56084	0.0220	16	Hydrotest	arterial street -night work with off ramps
Cat 4	56084	56119	0.0066	16	Hydrotest	street work with road crossings
Cat 1	56119	56129	0.0019	16	Hydrotest	street work with road crossings
Cat 4	56129	56392	0.0498	16	Hydrotest	street work with road crossings
Cat 1	56392	56423	0.0059	16	Hydrotest	street work with road crossings
Cat 4	56423	56690	0.0506	16	Hydrotest	street work with road crossings
Cat 1	56690	56700	0.0019	16	Hydrotest	street work with road crossings
Cat 4	56700	58296	0.3023	16	Hydrotest	street work with road crossings
Cat 1	58296	58327.5	0.0060	16	Hydrotest	street work with road crossings
Cat 4	58327.5	58973	0.1223	16	Hydrotest	street work with road crossings
Cat 1	58973	58984	0.0021	16	Hydrotest	street work with road crossings
Cat 4	58984	60510.5	0.2891	16	Hydrotest	street work with road crossings
Cat 1	60510.5	60679.5	0.0320	16	Hydrotest	street work with road crossings
Cat 4	60679.5	64658	0.7535	16	Hydrotest	street work -1 road crossing
Cat 1	64658	64674	0.0030	16		
Cat 1	64674	64687	0.0025	16		
Cat 1	64687	64699	0.0023	16		
Cat 1	64699	66415	0.3250	16		
Cat 1	66415	69090	0.5066	16		
Cat 4	69090	69653	0.1066	16	Hydrotest	frontage road parallel to freeway
Cat 4	69653	70303.5	0.1232	16	Hydrotest	frontage road parallel to freeway
Cat 1	70303.5	70380.5	0.0146	16	Hydrotest	frontage road parallel to freeway
Cat 4	70380.5	71976.5	0.3023	16	Hydrotest	frontage road parallel to freeway
Cat 1	71976.5	72657.5	0.1290	16	Hydrotest	
Cat 4	72657.5	75126.5	0.4676	16	Hydrotest	night work freeway crossing
Cat 1	75226.5	75243	0.0031	16	Hydrotest	pig launcher/receiver
Cat 4	75243	80598.25	1.0143	16	Hydrotest	frontage road parallel to freeway

Cat 1	80598.25	80630.42	0.0061	16			
Cat 2	80630.42	88541	1.4955	16			
Cat 1	88541	88715.06	0.0330	16			
Cat 1	88704.00	91219.8	0.4765	16			
Cat 1	91219.8	91315.4	0.0181	16			
Cat 1	91306.30	92323.9	0.1927	16			
Cat 4	92323.9	92332.1	0.0016	16	Hydrotest	5	arterial street
Cat 1	92332.1	92427.5	0.0181	16			
Cat 1	92427.5	92476.7	0.0093	16			
Cat 1	92471.50	92950.7	0.0908	16			
Cat 1	92950.7	93105.4	0.0293	16			
Cat 1	93062.10	96955.5	0.7563	16			
Cat 1	96955.5	97127.5	0.0326	16			
Cat 1	97127.5	97334.5	0.0392	16			
Cat 1	97334.5	97888.5	0.1049	16			
Cat 1	97839.5	98838.6	0.1892	16			
Cat 1	98838.6	98844.6	0.0011	16			
Cat 4	98844.6	99165.5	0.0608	16	Hydrotest	5	residential st
Cat 1	99165.5	104890.5	1.0843	16			
Cat 1	104890.5	108641.5	0.7104	16			
Cat 4	108641.5	109983.68	0.2542	16	Hydrotest	5	road crossing
Cat 1	109983.68	110001.08	0.0033	16	Hydrotest	5	pig launcher/receiver
Cat 4	110001.08	110048	0.0089	16	Hydrotest	5	open country
Cat 1	110048	110114.12	0.0125	16	Hydrotest	5	open country
Cat 4	110114.12	111025.5	0.1726	16	Hydrotest	5	open country w/ road crossing
Cat 1	111025.5	111208.5	-	14			river
Cat 4	111208.5	113058	-	16	Hydrotest	5	open country w/ 2 road crossings
Cat 1	113058	116907	-	16			
Cat 4	115660.00	129316	-	16	Hydrotest	5	mountain terrain w/ canyon crossing.
Cat 1	129316.00	131102	-	16			
Cat 1	131102.00	133230.5	-	16			
Cat 1	133230.5	133850.5	0.0798	16			
Cat 4	133850.5	136441.5	0.4907	16	Hydrotest	5	open country w/ hwy 101 crossing
Cat 1	136441.5	137342.5	0.1706	16			
Cat 4	137342.5	148520.5	2.1170	16	Hydrotest	5	open country parallel to frwy
Cat 1	148520.5	149040.5	0.0967	16			
Cat 4	149040.5	155076.67	1.0702	16	Hydrotest	5	open country parallel to frwy

Cat 1	155076.67	155212	0.0256	16			
Cat 2	155212	158029.5	0.5336	16			
Cat 1	158029.5	161456	0.6490	16			
Cat 4	161456	161865	0.0775	16	Hydrotest	5	open country parallel to frwy
Cat 1	161865	165455	0.6799	16			
Cat 4	165455	165641.4	0.0353	16	Hydrotest	5	major frwy crossing. 101
Cat 2	165641.4	166930.3	0.1665	16			
Cat 2	166928.00	168411.39	-	16			
Cat 4	168492.70	170796.5	-	16	Hydrotest	5	mountain terrain
Cat 1	170796.5	171624.5	-	16			
Cat 4	171624.5	173495	-	16	Hydrotest	5	mountain terrain
Cat 2	173495	175733.5	-	16			
Cat 4	175733.5	180239	-	16	Hydrotest	5	steep mountain terrain. Frwy crossing and night work
Cat 1	180239	180470	-	16			

ACTIVITY AND LOCATION:		SPECIFICATION NO.		REFERENCE		SHEET			
Line 1004				Sheet 1 of 1					
PROJECT TITLE AND CLIENT:		DRAWN BY:		SPEC SERVICES					
SOUTHERN CALIFORNIA GAS COMPANY		SPEC SERVICES, INC.							
PIPE HYDROTEST COST ESTIMATE		STATUS OF DESIGN		SPEC Project Number		5057			
		CONCEPT							
DESCRIPTION		QUANTITY		MATERIAL COST		LABOR COST		TOTAL COST	
		NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	TOTAL	
1. MATERIALS									
INPUT IN ALL BLUE CELLS									
Pipe	16 Actual OD (in)								
	0.375 Wall Thickness (in)	23,537	bbf / OD						
	104192 Length (ft)	3,362	bbf / Segment						
Hydrotest Test Segment									
	7 QTY								
Pipe	n/a Actual OD (in)	0	bbf / OD						
	0.000 Wall Thickness (in)	0	bbf / Segment						
	0 Length (ft)								
Hydrotest Test Segment									
	0 QTY								
Pipe	n/a Actual OD (in)	0	bbf / OD						
	0.000 Wall Thickness (in)	0	bbf / Segment						
	0 Length (ft)								
Hydrotest Test Segment									
	0 QTY								
Total Hydrotest Length		187	Miles						
Total Hydrotest Segment(s)		7	QTY						
Purging Volume of Nitrogen [to obtain 3 atm (44 psig) on line], minimum 4 miles per test segment									
Temporary Pig Launcher/Receiver (one/ OD change)									
Water Injection Pump & Filter (capacity 1200 gpm)									
On-Site Vacuum Truck(s) (minimum one per test segment)									
Baker Tank(s) =X									
Total Baker Tank(s) Rental days (8/day per tank) =X*Z									
Total Hydrotest Water (\$190/bbl)									
Water Disposal Vacuum Truck(s) =A									
Vacuum Truck Water Disposal loads (capacity 120 bbl) =B									
Disposal Time =C=B/(A*10)									
Total Vacuum Truck(s) Rental days (8/day per truck) =D=C*A									
Treated Water Disposal (\$55/bbl)									
Miscellaneous Materials									
SCG Post Estimate Changes									
Additional Baker Tanks:									
Additional Test Segments:									
(due to elevation changes)									
Total Material Cost									
2. CONSTRUCTION									
Construction Labor (25K/ test segment)									
Hydrotest Labor (10K/ test segment)									
Dewater/ Dry Pipeline (\$15,000/ test segment)									
Tie-ins Crew Rates (\$25,000/ test segment)									
3rd Party Witness (\$2,000/ test segment)									
Test/Construction period (6 days per test segment+ Hydrotest Labor+ Disposal Time) =Z									
Total Construction Cost									
3. SCG LABOR / INSPECTION									
Projects < \$1 million - company labor is 10%									
\$1million < Projects < \$10 million - company labor is 5%									
Projects >\$10 million - company labor is 2.5%									
Total SCG Labor / Inspection Cost									
4 DESIGN / ENG. / CONST. / ENVIRON.									
Planning / Design / Eng / Coord / Procurement									
ROW Acquisition									
Construction Permits									
Environmental Permits									
Environmental Monitoring									
Total Design / Engineering / Construction Cost									
5 CONTINGENCY									
Projects < \$2 million - Contingency is 30%									
Projects >\$2 million - Contingency is 20%									
TOTAL PROJECT COST (See Appendix for assumptions/certifications)									

WP-IX-1-A36

Southern California Gas Company
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Company	SCG	Hydrotest Mileage		
Plant Category	Trans	Category 4		
		Criteria	Accelerated	Total
Line Number	1005	1.307	2.193	3.500
Diameter (in.)	20, 22			

Cost Detail

O&M

Hydrotest

Direct Labor	\$ 63,800
Direct Non Labor	\$ 1,758,700
Total Hydrotest	\$ 1,822,500

Hydrotest Repairs

Direct Labor	\$ 65,000
Direct Non Labor	\$ 585,000
Total Repairs	\$ 650,000

In Line Inspection

Direct Labor	\$ 30,000
Direct Non Labor	\$ 270,000
Total ILI	\$ 300,000

In Line Inspection Repairs

Direct Labor	\$ 75,825
Direct Non Labor	\$ 682,425
Total Repairs	\$ 758,250



Southern California Gas Company
Pipeline Safety Enhancement Program - Workshop Supporting Chapter IX

Existing Segments

Category	Station		Criteria Miles	Diameter	Action	Decision	
	Start	Stop				Tree Box	Comments
Cat 1	0	7884.5	1.4933	22			
Cat 1	7884.5	8547.8	0.1256	22			
Cat 1	8517.5	22607	2.6685	22			
Cat 1	22607	23564.5	0.1813	22			
Cat 1	23564.5	23574.5	0.0019	22			
Cat 1	23574.5	32295	1.6516	22			
Cat 1	32295	38939	1.2583	22			
Cat 1	38939	46042	1.5072	22			
Cat 4	46042	48908	0.5428	22	Hydrotest	5	rollings hills/farmland
Cat 1	48907.75	48915.25	0.0014	22	Hydrotest		rollings hills/farmland
Cat 4	48915	48924	0.0017	22	Hydrotest	5	rollings hills/farmland
Cat 1	48924	59732	2.0470	22			
Cat 1	59732	65155	1.0271	22			
Cat 1	65155	66211	0.2000	22			
Cat 1	66211	69710	0.6627	22			
Cat 1	69710.25	69717.75	0.0014	22			
Cat 4	74924	77093.4	-	22			
Cat 1	77093.4	77246.7	-	22			
Cat 4	77229.4	80663	0.3593	22	Hydrotest	5	rollings hills/farmland -creek crossing
Cat 1	80663	82043.5	0.2615	22			
Cat 1	82010.5	95150	2.4885	22			
Cat 1	95150	95192	0.0080	22			
Cat 4	95192	95250.66	0.0111	22	Hydrotest	5	segment in the frontage parallel to HWY101 and is entering a station
Cat 1	95250.66	95251	0.0013	22	Hydrotest		segment in the frontage parallel to HWY101 and is entering a station
Cat 1	95250.66	95257.34	0.0013	22	Hydrotest		segment in the frontage parallel to HWY101 and is entering a station
Cat 4	95257.34	95263	0.0011	20	Hydrotest	5	segment in the frontage parallel to HWY101 and is entering a station

Cat 4	95263	95276	0.0111	22	Hydrotest	5	station segment in the frontage parallel to HWY101 and is entering a station
Cat 1	95276	95344	0.0129	22			
Cat 1	95344	95918	0.1087	20			
Cat 1	95918	96293.15	0.0428	20			
Cat 1	96246.5	110002	2.6052	20			
Cat 1	110002.4	110066.9	0.0122	20			
Cat 1	110061.5	111238.5	0.2229	20			
Cat 1	111238.5	111275	0.0068	20			
Cat 1	111272.4	117850	1.2223	20			
Cat 1	117850	118053	-	20			
Cat 4	118045.25	130261.23	0.3800	20	Hydrotest	5	creek crossing/rolling hills/farmland. One large segment is parallel to a paved road with road crossings
Cat 1	130261.225	130266.775	-	20			
Cat 4	130266.775	131462.25	-	20			
Cat 4	131462.25	131489.75	-	20			
Cat 4	131489.75	134986.4	-	20			
Cat 1	134986.4	140262.8	-	20			
Cat 4	138659.5	144116	-	20			
Cat 4	144116	149329	-	20			
Cat 4	149329	149347.25	-	20			
Cat 4	149347.25	149727.165	-	20			
Cat 1	149727.165	149733.835	-	20			
Cat 4	149733.835	151490.5	-	20			
Cat 4	151490.5	154090.5	-	20			
Cat 4	154090.5	162701.5	-	20			
Cat 4	162701.5	166715	-	20			
Cat 4	166715	169260.5	-	20			
Cat 4	169236.59	177091	-	20			
Cat 4	177091	177132	-	20			
Cat 4	177132	178072.085	-	20			
Cat 4	178072.085	181479.5	-	20			
Cat 2	181479.5	182599.2	-	20			
Cat 4	182646.8	183081	-	20			
Cat 2	183081	183705	-	20			

Cat 4	183689	187402.5	-	20
Cat 4	187402.5	187427.5	-	20
Cat 4	187427.5	187798	-	20
Cat 4	187798	200716.75	-	20
Cat 1	200716.75	200723.25	-	20
Cat 4	200723.25	200728	-	20
Cat 4	200728	200741	-	22
Cat 1	200741	200762	-	22
Cat 4	200762	201512	-	22
Cat 1	201512	201947	0.0706	22
Cat 1	201947	202252	0.0578	22
Cat 2	202252	202696.66	0.0842	20
Cat 1	202282	202313	0.0059	20
Cat 1	202313.00	202457.00	0.0273	20
Cat 2	202457.00	202697	0.0078	20
Cat 2	202696.662	202698.345	0.0003	20
Cat 1	202698.35	203277.00	0.1097	22
Cat 2	203277	203288	0.0021	22
Cat 1	203288	203461.83	0.0329	22
Cat 1	203461.83	203514.67	0.0100	22

ACTIVITY AND LOCATION:

Line 1005

PROJECT TITLE AND CLIENT:

SOUTHERN CALIFORNIA GAS COMPANY

PIPE HYDROTEST COST ESTIMATE

ALTERNATIVE

SPEC SERVICES

SHEET

Sheet 1 of 1

SITE

July 26, 2011

SPEC Project Number

5057

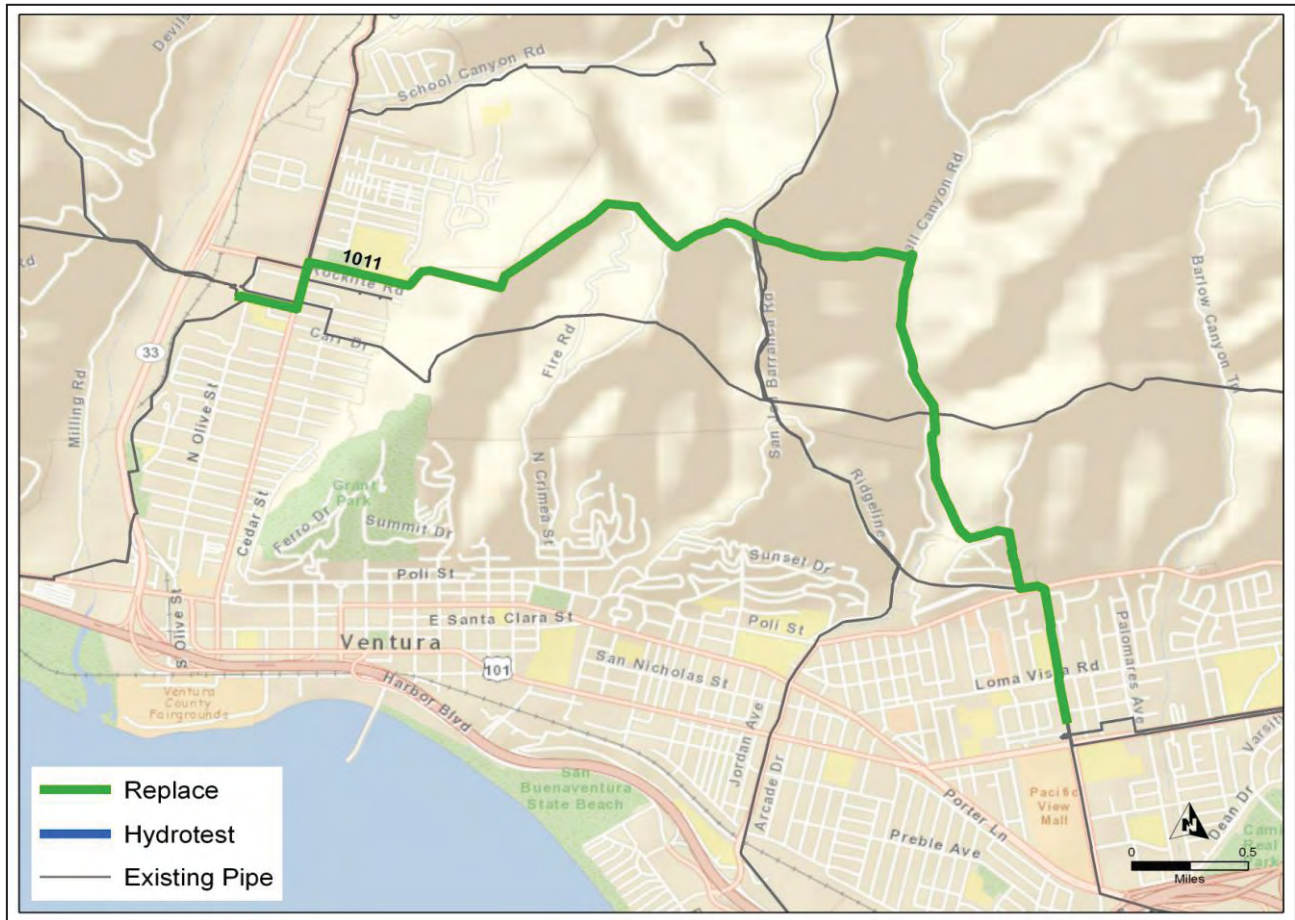
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		TOTAL COST	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
1 MATERIALS								
INPUT IN ALL BLUE CELLS								
Pipe	22	Actual OD (in)						
0.438 Wall Thickness (in)	2,774	bbl / OD						
6400 Length (ft)	1,387	bbl / Segment						
2 QTY								
Hydrotest Test Segment								
Pipe	20	Actual OD (in)						
0.438 Wall Thickness (in)	4,340	bbl / OD						
12216 Length (ft)	4,340	bbl / Segment						
1 QTY								
Hydrotest Test Segment								
Pipe	0	Actual OD (in)						
0.000 Wall Thickness (in)	0	bbl / OD						
0 Length (ft)	0	bbl / Segment						
0 QTY								
Hydrotest Test Segment								
Total Hydrotest Length	3.5	Miles						
Total Hydrotest Segment(s)	3	QTY						
2 CONSTRUCTION								
Total Material Cost								
3 SCG LABOR / INSPECTION								
Total Construction Cost								
4 DESIGN / ENG. / CONST. / ENVIRON.								
Total SCG Labor / Inspection Cost								
5 CONTINGENCY								
TOTAL PROJECT COST (See Appendix for assumptions/certifications)								

Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG	Replacement Mileage		
Plant Category	Trans	Category 4		
		Criteria	Accelerated	Total
Line Number	1011	1.832	3.303	5.135
Diameter (in.)	12.75, 16, 20			

Cost Detail

Capital		O&M	
Direct Labor	\$ 288,800	Direct Labor	\$ -
Direct Non Labor	\$ 15,437,700	Direct Non Labor	\$ -
Total Direct Capital	\$ 15,726,500	Total Direct O&M	\$ -



Southern California Gas Company
Pipeline Safety Enhancement Program - Workshop Supporting Chapter IX

Existing Segments

Category	Station Start	Station Stop	Criteria Miles	Diameter	Action	Decision Tree Box	Comments
Cat 4	0	10373	0.9100	12.75	Replace	2	Mtns approx. start at 38+02 & end at 57+76. 57+76 to 103+73 is at the base of the mtns (almost flat desert)
Cat 2	10373	10607.08	-	12.75	Replace		
Cat 2	10607.08	11182.1	-	12.75	Replace		
Cat 2	11182.1	11242.5	-	12.75	Replace		
Cat 4	11242.5	11832	-	12.75	Replace	2	
Cat 1	11832	12681.1	-	12.75	Replace		
Cat 4	12681.1	13502.8	-	12.75	Replace	2	
Cat 2	13502.8	13530	-	12.75	Replace		
Cat 4	13530	15176.7	-	12.75	Replace	2	
Cat 2	15176.7	15445.38	-	20	Replace		
Cat 2	15445.38	15974.25	-	20	Replace		
Cat 2	15974.25	15981.4	-	20	Replace		
Cat 4	15981.4	16540.5	-	20	Replace	2	
Cat 2	16540.5	16548	-	20	Replace		
Cat 4	16548	17140	-	20	Replace	2	
Cat 4	17140	21436	-	20	Replace	2	
Cat 4	21436	23976	0.4811	20	Replace	2	Mtns from 214+36 to approx. 223+43. 223+43 to 239+76 appears to be relatively flat.
Cat 4	23976	25944	0.4409	20	Replace	2	Relatively flat residential area from 239+76 to 259+44
Cat 1	25944	27115	0.2218	16	Replace		
Cat 4	27115	27115	-	16	Replace	2	

New Segments

Station Start	Station Stop	Diameter	Wall Thickness	Grade	Comments
0	10373	12.75	0.375	X-52	
10373	10607.08	12.75	0.375	X-52	
10607.08	11182.1	12.75	0.375	X-52	
11182.1	11242.5	12.75	0.375	X-52	
11242.5	11832	12.75	0.375	X-52	
11832	12681.1	12.75	0.375	X-52	
12681.1	13502.8	12.75	0.375	X-52	
13502.8	13530	12.75	0.375	X-52	
13530	15176.7	12.75	0.375	X-52	
15176.7	15445.38	20	0.312	X-65	
15445.38	15974.25	20	0.312	X-65	
15974.25	15981.4	20	0.312	X-65	
15981.4	16540.5	20	0.312	X-65	
16540.5	16548	20	0.312	X-65	
16548	17140	20	0.312	X-65	
17140	21436	20	0.312	X-65	
21436	23976	20	0.312	X-65	
23976	25944	20	0.312	X-65	
25944	27115	16	0.312	X-65	
27115	27115	16	0.312	X-65	

Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG
Plant Category	Trans
Line Number	1013
Diameter (in.)	24, 30

Hydrotest Mileage		
Category 4 Criteria	Accelerated	Total
3.456	0.044	3.500

Cost Detail

O&M

Hydrotest

Direct Labor	\$ 68,000
Direct Non Labor	\$ 1,874,600
Total Hydrotest	\$ 1,942,600

Hydrotest Repairs

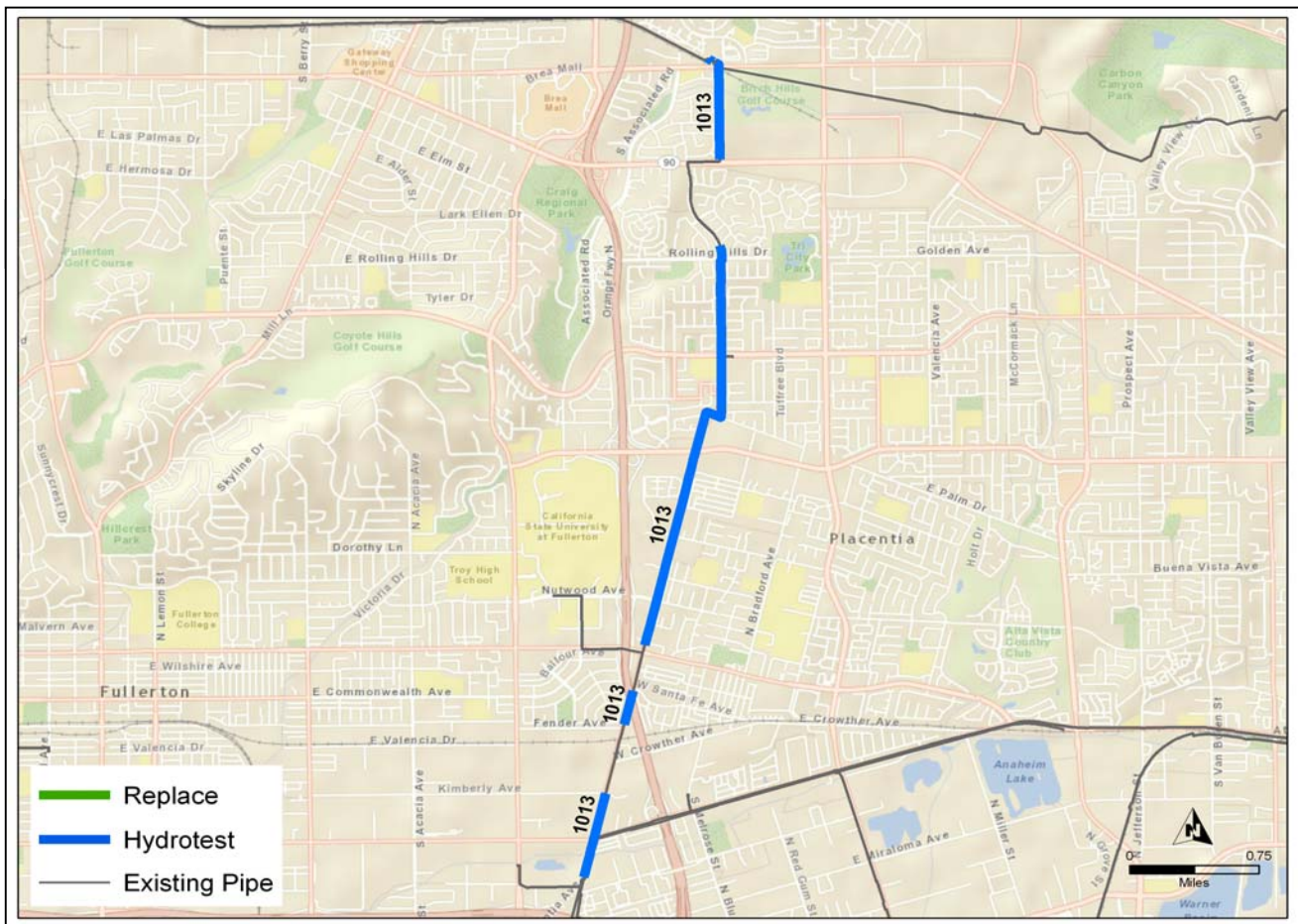
Direct Labor	\$ 10,000
Direct Non Labor	\$ 90,000
Total Repairs	\$ 100,000

In Line Inspection

Direct Labor	\$ 30,000
Direct Non Labor	\$ 270,000
Total ILI	\$ 300,000

In Line Inspection Repairs

Direct Labor	\$ 33,675
Direct Non Labor	\$ 303,075
Total Repairs	\$ 336,750



Southern California Gas Company
Pipeline Safety Enhancement Program - Worksheet Supporting Chapter IX

Existing Segments

Category	Station		Station Stop	Criteria		Diameter	Action	Decision	
	Start	Stop		Miles	Tree box			Tree box	Comments
Cat 4	0	94	94	0.0180	5	30	Hydrotest	5	no issues
Cat 1	94	189.08	189.08	0.0180		24			
Cat 4	189.08	2810	2810	0.4960	5	24	Hydrotest	5	limited access near golf course, channel crossing
Cat 1	2810	6656.58	6656.58	0.7280		24			
Cat 1	5530.6	6257	6257	0.1380		24			
Cat 4	6242.90	11553.9	11553.9	1.0060	5	24	Hydrotest	5	street work; major street crossing
Cat 1	11553.9	11633	11633	0.0150		24	Hydrotest		street work
Cat 4	11633	18004	18004	1.2070	5	24	Hydrotest	5	street work; major street crossing
Cat 1	18004	18131	18131	0.0260		24			
Cat 4	18131	19069.5	19069.5	0.1780	5	24	Hydrotest	5	street work; crossing under Hwy 57
Cat 1	19069.5	21013.45	21013.45	0.3680		24			
Cat 4	20476.27	22876	22876	0.4550	5	24	Hydrotest	5	street work; possible substructures
Cat 1	22876	22937.5	22937.5	0.0120		24	Hydrotest		street work
Cat 4	22937.5	23444	23444	0.0960	5	24	Hydrotest	5	street work
Cat 1	23444	23516	23516	0.0140		24			

ACTIVITY AND LOCATION:		Line 1013		SHEET Sheet 1 of 1	
PROJECT TITLE AND CLIENT:		SOUTHERN CALIFORNIA GAS COMPANY PIPE HYDROTEST COST ESTIMATE		SPEC SERVICES	
ESTIMATED BY:		SPEC SERVICES, INC.		DATE: July 28, 2011	
STATUS OF DESIGN:		CONCEPT		SPEC Project Number: 5057	
DESCRIPTION		QUANTITY		MATERIAL COST	
		NUMBER	UNIT	UNIT COST	TOTAL
1. MATERIALS					
INPUT IN ALL BLUE CELLS					
Pipe	30 Actual OD (in) 0.375 Wall Thickness (in) 94 Length (ft)	78	bbf / OD		
	Water Volume Baker Tank Volume	78	bbf / Segment		
Hydrotest Test Segment	1 QTY				
Pipe	24 Actual OD (in) 0.250 Wall Thickness (in) 18382 Length (ft)	9861	bbf / OD		
	Water Volume Baker Tank Volume	9861	bbf / Segment		
Hydrotest Test Segment	1 QTY				
Pipe	n/a Actual OD (in) 0.000 Wall Thickness (in) 0 Length (ft)	0	bbf / OD		
	Water Volume Baker Tank Volume	0	bbf / Segment		
Hydrotest Test Segment	0 QTY				
Total Hydrotest Length	3.5 Miles				
Total Hydrotest Segment(s)	2 QTY				
Purging	Volume of Nitrogen [to obtain 3 atm (44 psig) on line], minimum 4 miles per test segment	486,505	SCF	\$ 0.19	\$ 92,436
Temporary Pig Launcher/Receiver (one/ OD change)		2	LS	\$ 25,000	\$ 50,000
Water Injection Pump & Filter (capacity 1200 gpm)		2	day(s)	\$ 486	\$ 972
On-Site Vacuum Truck(s) (minimum one per test segment)		2	each	\$ 5,000	\$ 10,000
Baker Tank(s) =X		10	each		
Total Baker Tank(s) Rental days (8/day per tank) =Y=X*Z		130	day(s)	\$ 1,600	\$ 208,000
Total Hydrotest Water (\$190/bbl)		9,939	bbf	\$ 19.00	\$ 188,838
Water Disposal Vacuum Truck(s) =A		10	loads		
Vacuum Truck Water Disposal loads (capacity 120 bbl) =B		83	day(s)		
Disposal Time =C=B/(A*10)		1	day(s)		
Total Vacuum Truck(s) Rental days (8/day per truck) =D=C*A		10	day(s)	\$ 5,000	\$ 50,000
Treated Water Disposal (\$55/bbl)		9,939	bbf	\$ 55	\$ 546,636
Miscellaneous Materials		5	%	\$ 57,345	\$ 57,345
WP-IX-1-A48					
SCG Post Estimate Changes					
Additional Baker Tanks: 0 QTY					
Additional Test Segments: (due to elevation changes) 0 QTY					
Total Material Cost					
2. CONSTRUCTION					
Construction Labor (25K/ test segment)					
Hydrotest Labor (10K/ test segment)					
Dewater/ Dry Pipeline (\$15,000/ test segment)					
Tie-ins Crew Rates (\$25,000/ test segment)					
3rd Party Witness (\$2,000/ test segment)					
Test/Construction period (6 days per test segment+ Hydrotest Labor+ Disposal Time) =Z					
Total Construction Cost					
3. SCG LABOR / INSPECTION					
Projects < \$1 million - company labor is 10%					
\$1million < Projects < \$10 million - company labor is 5%					
Projects >\$10 million - company labor is 2.5%					
Total SCG Labor / Inspection Cost					
4 DESIGN / ENG. / CONST. / ENVIRON.					
Planning / Design / Eng / Coord / Procurement					
ROW Acquisition					
Construction Permits					
Environmental Permits					
Environmental Monitoring					
Total Design / Engineering / Construction Cost					
5 CONTINGENCY					
Projects < \$2 million - Contingency is 30%					
Projects >\$2 million - Contingency is 20%					
TOTAL PROJECT COST (See Appendix for assumptions/certifications)					

WP-IX-1-A48

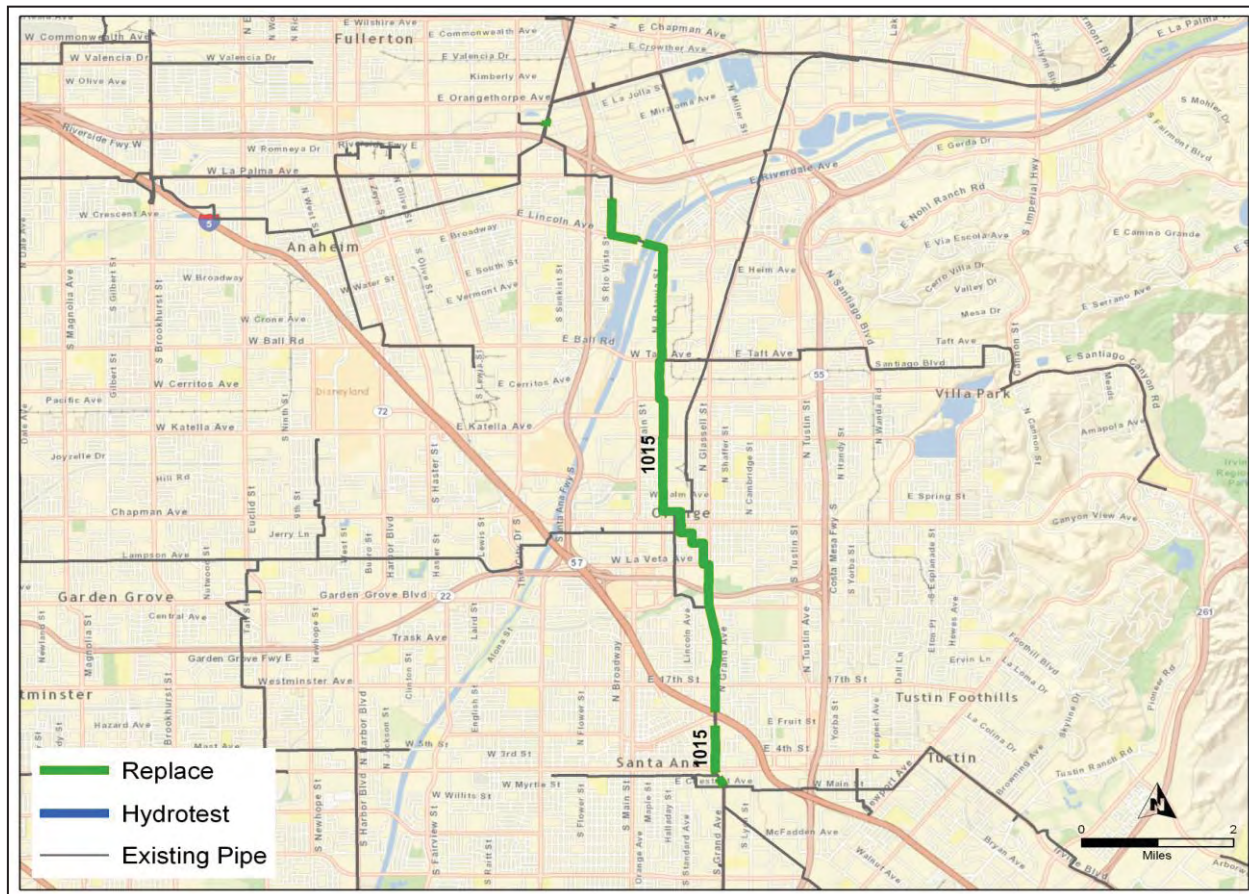
Southern California Gas Company

Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG	Replacement Mileage		
Plant Category	Trans	Category 4		
		Criteria	Accelerated	Total
Line Number	1015	7.821	0.024	7.845
Diameter (in.)	22, 24			

Cost Detail

Capital		O&M	
Direct Labor	\$ 794,500	Direct Labor	\$ -
Direct Non Labor	\$ 42,456,800	Direct Non Labor	\$ -
Total Direct Capital	\$ 43,251,300	Total Direct O&M	\$ -



Southern California Gas Company
Pipeline Safety Enhancement Program - Worksheet Supporting Chapter IX

Existing Segments

Category	Station		Criteria Miles	Diameter	Decision		Comments
	Start	Stop			Action	Tree Box	
Cat 1	-37.5	75.5	0.0214	24			
Cat 4	75.5	409	0.0632	24	Replace	2	Runs along Placentia crosses two intersections Burton and La Jolla
Cat 1	409	1932.5	0.2885	24			
Cat 1	1932.5	3196.58	0.2394	24			
Cat 1	3196.58	3227.29	0.0058	24			
Cat 1	3227.29	6202	0.5634	24			
Cat 1	6202	6259	0.0108	24			
Cat 1	6259	6312	0.0114	24			
Cat 1	6312	6950	0.1208	24			
Cat 1	6950	8314	0.2583	24			
Cat 1	8314	8376	0.0117	24			
Cat 4	8376	11920	0.6712	24	Replace	2	Tap 1015-1.99-0 at ID 2609 Casing at Lincoln and Rio Vista Intersection
Cat 1	11920	12284	0.0689	24			
Cat 1	12284	12287	0.0006	24			
Cat 4	12287	12366	0.0157	24	Replace	2	
Cat 4	12366	12382.5	0.0031	24	Replace	2	
Cat 4	12382.5	13244	0.1632	24	Replace	2	Crossing Santa Ana River
Cat 4	13244	13321.5	0.0147	22	Replace	2	
Cat 4	13321.5	13394	0.0137	22	Replace	2	
Cat 4	13394	16546	0.5970	22	Replace	2	
Cat 1	16546	16627	0.0153	24	Replace		
Cat 4	16627	18939	0.4394	24	Replace	2	
Cat 1	18939	18976.3	0.0071	24	Replace		
Cat 4	18976.3	23045	0.7722	24	Replace	2	RR Crossing Flood Control Crossing
Cat 4	23045	23121	0.0144	24	Replace	2	
Cat 4	23121	25538	0.4587	24	Replace	2	
Cat 1	25538	25585.18	0.0089	24	Keep As Is		

Cat 4	25585.18	28178	0.4928	24	Replace	2	RR Crossing
Cat 1	28178	28228.7	0.0096	24	Replace		
Cat 4	28228.7	30770	0.4824	24	Replace	2	
Cat 4	30770	31186	0.0788	24	Replace	2	
Cat 4	31186	31194	0.0015	24	Replace	2	
Cat 4	31194	32153	0.1816	24	Replace	2	
Cat 4	31863	33460	0.3025	24	Replace	2	RR Crossing
Cat 4	33460	37400	0.7462	24	Replace	2	Bridge over Santiago Creek - Under 22 FWY
Cat 4	37400	37590	0.0360	24	Replace	2	
Cat 4	37590	45134	1.4288	24	Replace	2	5 Fwy
Cat 1	45134	45966	0.1576	24			
Cat 4	45956	49012	0.5788	24	Replace	2	5 Fwy Off Ramps
Cat 4	49012	49024	0.0023	24	Replace	2	
Cat 4	49024	49372	0.0659	24	Replace	2	
Cat 2	49372	49376	0.0008	24			
Cat 2	49376	49386	0.0019	24			
Cat 2	49386	49392	0.0011	24			
Cat 4	49392	50329.38	0.1775	24	Replace	2	
Cat 4	50329.38	50342.63	0.0025	24	Replace	2	Cross over valving 1016, 1017, 1018
Cat 4	50342.63	50430.63	0.0167	24	Replace	2	Cross over valving 1016, 1017, 1018

New Segments

Station Start	Station Stop	Diameter	Wall Thickness	Grade	Comments
75.5	409	24	0.375	X-65	
8376	11920	24	0.375	X-65	
12287	12366	24	0.375	X-65	
12366	12382.5	24	0.375	X-65	
12382.5	13244	24	0.375	X-65	
13244	13321.5	22	0.375	X-65	
13321.5	13394	22	0.375	X-65	
13394	16546	22	0.375	X-65	
16546	16627	24	0.375	X-65	
16627	18939	24	0.375	X-65	

18939	18976.3	24	0.375	X-65
18976.3	23045	24	0.375	X-65
23045	23121	24	0.375	X-65
23121	25538	24	0.375	X-65
25538	25585.18	24	0.375	X-65
25585.18	28178	24	0.375	X-65
28178	28228.7	24	0.375	X-65
28228.7	30770	24	0.375	X-65
30770	31186	24	0.375	X-65
31186	31194	24	0.375	X-65
31194	32153	24	0.375	X-65
31863	33460	24	0.375	X-65
33460	37400	24	0.375	X-65
37400	37590	24	0.375	X-65
37590	45134	24	0.375	X-65
45956	49012	24	0.375	X-65
49392	50329.38	24	0.375	X-65
50329.38	50342.63	24	0.375	X-65
50342.63	50430.63	24	0.375	X-65

Southern California Gas Company
Pipeline Safety Enhancement Program - Worksheet Supporting Chapter IX

Existing Segments

Category	Station		Station Stop	Criteria		Diameter	Action	Decision	
	Start			Miles				Tree Box	Comments
Cat 4	0		30254.4	4.0560		30	Hydrotest	5	Street work. Residential street. Crosses 405 FWY
Cat 1	0000.00		75.5	0.0144		30			
Cat 1	4412.3		4461.3	0.0110		30			
Cat 1	28754.00		28856	0.0193		30			
Cat 2	24103.40		29804.4	1.0797		30			
Cat 2	30254.4		30691.4	0.0828		30			
Cat 1	31191.4		31271.4	0.0152		30			
Cat 1	31271.4		31471.4	0.0379		30			
Cat 1	33064		33264	-		30			

Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG
Plant Category	Trans
Line Number	1024
Diameter (in.)	30

Hydrotest Mileage		
Category 4		
Criteria	Accelerated	Total
1.154	0.046	1.200

Cost Detail

O&M

Hydrotest

Direct Labor	\$	7,700
Direct Non Labor	\$	1,005,200
Total Hydrotest	\$	1,012,900

Hydrotest Repairs

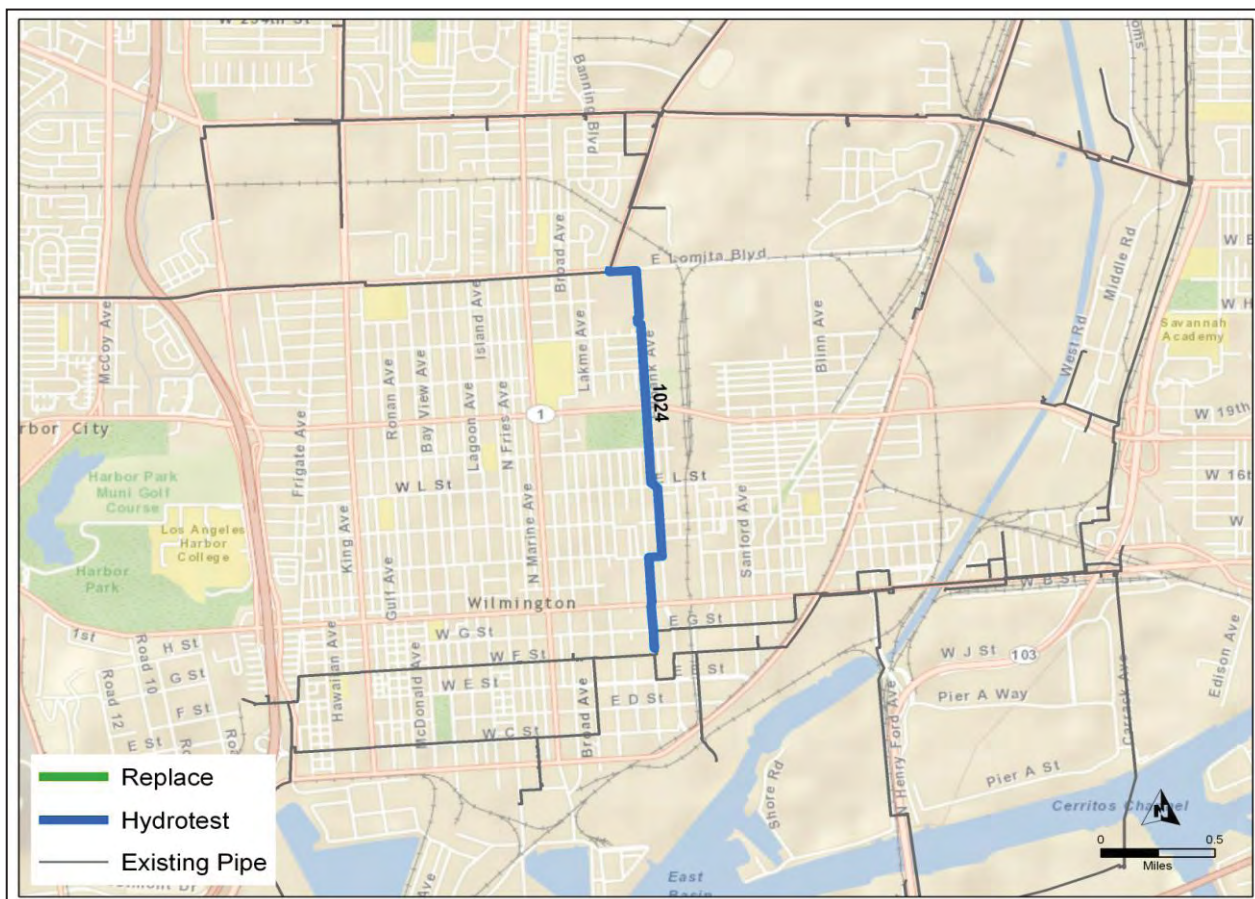
Direct Labor	\$	5,000
Direct Non Labor	\$	45,000
Total Repairs	\$	50,000

In Line Inspection

Direct Labor	\$	30,000
Direct Non Labor	\$	270,000
Total ILI	\$	300,000

In Line Inspection Repairs

Direct Labor	\$	12,375
Direct Non Labor	\$	111,375
Total Repairs	\$	123,750



Southern California Gas Company
Pipeline Safety Enhancement Program - Workbook Supporting Chapter IX

Existing Segments

Category	Station		Station Stop	Criteria Miles	Diameter	Action	Decision	
	Start						Tree Box	Comments
Cat 1	0		1630.00	0.3087	30	Hydrotest		
Cat 4	1630.00		1645.00	-	30	Hydrotest	5	
Cat 1	1645.00		1659	0.0027	30	Hydrotest		
Cat 1	1659		2617	0.1814	30	Hydrotest		
Cat 4	2617		8550.00	1.1237	30	Hydrotest	5	Street work, Under PCH at one location.
Cat 2	8550.00		8553.0	0.0006	30	Hydrotest		street work
Cat 4	8553.0		8586	0.0063	30	Hydrotest	5	street work
Cat 3	8586		8712.00	0.0239	30	Hydrotest		street work

ACTIVITY AND LOCATION: PROJECT TITLE AND CLIENT: SOUTHERN CALIFORNIA GAS COMPANY PIPE HYDROTEST COST ESTIMATE	SPECIFICATION NO.			SHEET Sheet 1 of 1		
	ESTIMATED BY: SPEC SERVICES, INC.			DATE July 26, 2011		
	STATE OF DESIGN Conceptual			SPEC Project Number 5057		
	DESCRIPTION			Comments		
QUANTITY			MATERIAL COST		TOTAL COST	
NUMBER	UNIT		UNIT COST	TOTAL		
1 MATERIALS						
INPUT IN ALL BLUE CELLS						
Pipe	30 Actual OD (in)	Water Tank Volume				
	0.328 Wall Thickness (in)	Baker Tank Volume				
	6096 Length (ft)					
	1 QTY					
Hydrotest Test Segment						
Pipe	n/a Actual OD (in)	Water Volume				
	0.000 Wall Thickness (in)	Baker Tank Volume				
	0 Length (ft)					
	0 QTY					
Hydrotest Test Segment						
Pipe	n/a Actual OD (in)	Water Volume				
	0.000 Wall Thickness (in)	Baker Tank Volume				
	0 Length (ft)					
	0 QTY					
Hydrotest Test Segment						
Pipe	n/a Actual OD (in)	Water Volume				
	0.000 Wall Thickness (in)	Baker Tank Volume				
	0 Length (ft)					
	0 QTY					
Total Hydrotest Length						
1.2 Miles						
Total Hydrotest Segment(s) 1 QTY						
Purging Volume of Nitrogen [to obtain 3 atm (44 psig) on line], minimum 4 miles per test segment						
	297.565	SCF	\$ 0.19	\$ 56.537	\$ 56.537	
Temporary Pig Launcher/Receiver (one/ OD change)	1	LS	\$ 25,000	\$ 25,000	\$ 25,000	
Water Injection Pump & Filter (capacity 1200 gpm)	1	day(s)	\$ 486	\$ 486	\$ 486	
On-Site Vacuum Truck(s) (minimum one per/ test segment)	1	each	\$ 5,000	\$ 5,000	\$ 5,000	
Baker Tank(s) =X	10	each				
Total Baker Tank(s) Rental days (8/day per tank) =X*Z	70	day(s)	\$ 1,600	\$ 112,000	\$ 112,000	
Total Hydrotest Water (\$190/bbl)	5,098	bbl	\$ 19,000	\$ 96,860	\$ 96,860	
Water Disposal Vacuum Truck(s) =A	10	each				
Vacuum Truck Water Disposal loads (capacity 120 bbl) =B	43	loads				
Disposal Time =C=B/(A*10)	1	day(s)				
Total Vacuum Truck(s) Rental days (8/day per truck) =D=C*A	10	day(s)	\$ 5,000	\$ 50,000	\$ 50,000	
Treated Water Disposal (\$55/bbl)	5,098	bbl	\$ 55	\$ 280,385	\$ 280,385	
Miscellaneous Materials	5	%		\$ 31,314	\$ 31,314	
SCG Post Estimate Changes						
Additional Baker Tanks:	0 QTY					
Additional Test Segments:	0 QTY					
(due to elevation changes)						
Total Material Cost					\$ 657,600	
2 CONSTRUCTION						
Construction Labor (25K/ test segment)	1	LS	\$ 25,000	\$ 25,000	\$ 25,000	
Hydrotest Labor (10K/ test segment)	1	day(s)	\$ 10,000	\$ 10,000	\$ 10,000	
Dewater/ Dry Pipeline (\$15,000/ test segment)	1	LS	\$ 15,000	\$ 15,000	\$ 15,000	
Tie-ins Crew Rates (\$25,000/ test segment)	1	Each	\$ 25,000	\$ 25,000	\$ 25,000	
3rd Party Witness (\$2,000/ test segment)	1	Each	\$ 2,000	\$ 2,000	\$ 2,000	
Test/Construction period (6 days per test segment+ Hydrotest Labor+ Disposal Time) =Z						
	7	day(s)				
Total Construction Cost					\$ 77,000	
3 SCG LABOR / INSPECTION						
Projects < \$1 million - company labor is 10%	10	%	\$ 7,700	\$ 7,700	\$ 7,700	
\$1million < Projects < \$10 million - company labor is 5%	5	%	\$ -	\$ -	\$ -	
Projects >\$10 million - company labor is 2.5%	2.5	%	\$ -	\$ -	\$ -	
Total SCG Labor / Inspection Cost					\$ 7,700	
4 DESIGN / ENG. / CONST. / ENVIRON.						
Planning / Design / Eng / Coord / Procurement	5	%				
ROW Acquisition	0	LS	\$ 36,730	\$ 36,730	\$ 36,730	
Construction Permits	0	LS	\$ -	\$ -	\$ -	
Environmental Permits	0	LS	\$ -	\$ -	\$ -	
Environmental Monitoring	0	LS	\$ -	\$ -	\$ -	
Total Design / Engineering / Construction Cost					\$ 36,800	
5 CONTINGENCY						
Projects < \$2 million - Contingency is 30%	30	%	\$	\$ 233,730	\$ 233,730	
Projects >\$2 million - Contingency is 20%	20	%	\$	\$ -	\$ -	
TOTAL PROJECT COST (See Appendix for assumptions/certifications)					\$ 1,012,900	

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Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG
Plant Category	Trans
Line Number	2000
Diameter (in.)	18, 26, 30

Hydrotest Mileage		
Category 4		
Criteria	Accelerated	Total
55.027	62.574	117.600

Cost Detail

O&M

Hydrotest

Direct Labor	\$ 1,263,700
Direct Non Labor	\$ 63,940,600
Total Hydrotest	\$ 65,204,300

Hydrotest Repairs

Direct Labor	\$ 185,000
Direct Non Labor	\$ 1,665,000
Total Repairs	\$ 1,850,000

In Line Inspection

Direct Labor	\$ 120,000
Direct Non Labor	\$ 1,080,000
Total ILI	\$ 1,200,000

In Line Inspection Repairs

Direct Labor	\$ 972,600
Direct Non Labor	\$ 8,753,400
Total Repairs	\$ 9,726,000



Southern California Gas Company
Pipeline Safety Enhancement Program - Worksheet Supporting Chapter IX

Existing Segments

Category	Station		Criteria	Diameter	Action	Decision	
	Start	Stop	Miles			Tree Box	Comments
Cat 1	-650.39	50	0.1326	30			
Cat 1	50	278.1	0.0432	30			
Cat 1	278.1	328.22	0.0095	30			
Cat 4	328.22	372	0.0083	30	Hydrotest	5	possible RV lot
Cat 4	372	7368	0.2587	30	Hydrotest	5	possible RV lot, channel crossing
Cat 4	7368	7392	-	30			
Cat 1	7392	11754	0.5100	30			
Cat 4	11754	11784	-	30			
Cat 4	11784	14574	0.5000	30	Hydrotest	5	street work
Cat 4	14574	14594	0.0038	30	Hydrotest	5	street work
Cat 1	14594	19080	0.8496	30			
Cat 1	19080	19728	0.1227	30			
Cat 1	19120	33001	2.2000	30			
Cat 4	33001	33200	0.0377	30	Hydrotest	5	none
Cat 4	33200	33314.5	0.0217	30	Hydrotest	5	none
Cat 1	33314.5	33341.9	0.0052	30	Hydrotest	5	none
Cat 4	33341.9	33607	0.0502	30	Hydrotest	5	none
Cat 4	33607	33798.9	0.0363	30	Hydrotest	5	none
Cat 4	33798.9	55450	0.2000	30	Hydrotest	5	residential crossings
Cat 1	55450	62341	1.3051	30			
Cat 4	62341	70198	0.2424	30	Hydrotest	5	none
Cat 1	70198	70415.8	-	30			
Cat 4	70338	112489.25	-	30			
Cat 1	112489.25	113592.1	-	30			
Cat 4	113593.20	130487.4	-	30			
Cat 1	130487.4	131948.6	-	30			
Cat 1	131948.6	132675	-	30			
Cat 4	132675	133020.6	-	30			
Cat 1	133020.6	134469.2	-	30			

Cat 4	134469.2	275881.92	-	30			
Cat 1	275881.92	277060.78	-	30			
Cat 4	277060.78	392802	-	30			
Cat 1	392802	393778	-	30			
Cat 4	393778	426905.63	-	30			
Cat 1	426905.63	426930.9	-	30			
Cat 4	426930.9	427076.4	-	30			
Cat 1	427076.4	427103.9	-	30			
Cat 4	427103.9	451283	-	30			
Cat 4	451283	451694	-	30			
Cat 4	451694	451927	-	30			
Cat 4	451927	452595	-	30			
Cat 4	452554.00	539611.96	-	30			
Cat 1	473964.3	473991.86	-	30			
Cat 4	473991.86	476904	-	30			
Cat 1	476904	476930.63	-	30			
Cat 4	476930.63	493931	-	30			
Cat 4	493931	527812.4	-	30			
Cat 1	527812.4	527857.5	-	30			
Cat 4	527857.5	532674.3	-	30			
Cat 1	532674.3	532694.8	-	30			
Cat 4	532694.8	539612	-	30			
Cat 1	539611.96	539629	-	30			
Cat 4	539629	556091	-	30			
Cat 4	556091	559882.4	0.6800	30	Hydrotest	5	none
Cat 4	559859.35	571031.3	-	30			
Cat 1	571031.3	571054.8	-	30			
Cat 4	571054.8	618583.6	0.2100	30	Hydrotest	5	none, remote area
Cat 1	618583.6	618624.1	-	30	Hydrotest		none, remote area
Cat 4	618624.1	649146	0.4400	30	Hydrotest	5	none, remote area
Cat 1	649146	649154	-	30			
Cat 4	649154	655113	-	30			
Cat 1	655113	655149	-	30			
Cat 4	655149	666033.33	0.3300	30	Hydrotest	5	none, remote area
Cat 1	666033.33	666116.83	-	30			
Cat 4	666116.83	689891	0.5600	30	Hydrotest	5	none

Cat 1	689891	691384.5	0.2800	30					
Cat 4	691281.00	719723.96	0.2000	30	Hydrotest	5	none		
Cat 1	719723.96	719747.55	-	30					
Cat 4	719747.55	723936.06	-	30					
Cat 1	723936.06	726755	0.5339	30					
Cat 1	726755	727513.55	0.1438	30					
Cat 1	727513.55	728503.63	0.1875	30					
Cat 4	728297.55	729714	0.2683	30	Hydrotest		railroad crossing		
Cat 1	729714	730849.5	-	30					
Cat 4	730838.00	737752.21	-	30					
Cat 1	737752.21	737762.71	-	30					
Cat 4	737762.71	759019.5	4.0259	30	Hydrotest	5	street work		
Cat 1	759019.5	759044.5	0.0047	30	Hydrotest		none		
Cat 4	759044.5	771882.74	1.6915	30	Hydrotest	5	street work, residential crossing, parking lot		
Cat 4	771882.74	772549.45	0.1263	30	Hydrotest	5	street work		
Cat 4	772548.95	773093.26	0.1031	30	Hydrotest	5	street work		
Cat 4	773093.26	773195.01	0.0193	30	Hydrotest	5	street work		
Cat 4	773178.45	773541.29	0.0687	30	Hydrotest	5	street work		
Cat 4	773541.29	773628.71	0.0166	30	Hydrotest	5	street work		
Cat 4	773625.69	774724.15	0.2080	30	Hydrotest	5	street work		
Cat 1	774724.15	774749.15	0.0047	30	Hydrotest				
Cat 4	774749.15	774982.4	0.0442	30	Hydrotest	5	street work		
Cat 4	774982.4	775375.94	0.0745	30	Hydrotest	5	street work		
Cat 4	775371.28	776077	0.1337	30	Hydrotest	5	street work		
Cat 1	775610.1	776226.83	0.1168	30					
Cat 4	776215.66	777122.75	0.1718	30	Hydrotest	5	street work		
Cat 1	777122.75	777860.76	0.1398	30					
Cat 4	777849.08	779062.34	0.2298	30	Hydrotest	5	street work		
Cat 1	779529.2	779552.7	0.0045	30	Hydrotest		street work		
Cat 4	779552.7	822527.26	0.7932	30	Hydrotest	5	street work		
Cat 1	822527.26	822552.76	-	30					
Cat 4	822552.76	822920.67	-	30					
Cat 1	822920.67	822929	-	30					
Cat 4	822867	836328	2.5494	30	Hydrotest	5	street & dirt work		
Cat 1	836328	836410	0.0155	30	Hydrotest		dirt work		
Cat 4	836410	849478.35	2.4751	30	Hydrotest	5	street & dirt work		
Cat 1	849478.35	849678.04	0.0378	30					

Cat 4	849654.87	860083	1.7150	30	Hydrotest	5	street work
Cat 1	860083	860364	0.0532	30			
Cat 4	860364	871633	2.1343	30	Hydrotest	5	street work, commerical property crossings
Cat 1	871633	871733	0.0189	30			
Cat 4	871733	872142	0.0775	30	Hydrotest	5	dirt work
Cat 1	872142	872252	0.0208	30			
Cat 4	872252	873024	0.1462	30	Hydrotest	5	Hwy 215 crossing, RR crossing
Cat 1	873024	873329	0.0578	30			
Cat 4	873329	873910	0.1100	30	Hydrotest	5	commercial parking
Cat 1	873910	874108	0.0375	30			
Cat 4	874108	886226	2.2936	30	Hydrotest	5	commercial parking, some street work, dirt
Cat 1	886226	886241	0.0028	30	Hydrotest		street work
Cat 4	886241	896398	1.2437	30	Hydrotest	5	residential crossings, dirt work
Cat 1	896398	896423	0.0047	30	Hydrotest		dirt work
Cat 4	896423	897195	0.1462	30	Hydrotest	5	dirt work
Cat 1	897195	897565	0.0701	30			
Cat 4	897565	909248	1.2261	30	Hydrotest	5	street work, residential crossing
Cat 1	909248	909260	-	30			
Cat 4	909260	918731	-	30			
Cat 1	918731	922435	-	30			
Cat 4	922435	932703	1.4161	30	Hydrotest	5	street work, residential crossings
Cat 1	931922	932044	0.0231	30			
Cat 4	932044	932703	0.1248	30	Hydrotest	5	street work, residential crossings
Cat 1	932703	932809	0.0201	30			
Cat 4	932809	941105	1.5712	30	Hydrotest	5	street work, residential crossings, railroad crossing, commercial property
Cat 1	941105	941197	0.0174	30			
Cat 4	941197	943385	0.4144	30	Hydrotest	5	commercial property, parking lots
Cat 1	943385	944143	0.1436	30			
Cat 4	944143	956351	2.3121	30	Hydrotest	5	street work, residential crossings, golf course crossing
Cat 1	956351	956618	0.0506	30			
Cat 4	956618	957420	0.1519	30	Hydrotest	5	residential crossing
Cat 4	957420	957983	0.1066	30	Hydrotest	5	Hwy 15 crossing
Cat 4	957983	959986	0.3676	30	Hydrotest	5	residential crossing, street work
Cat 1	959986	960294	0.0110	30			
Cat 4	960294	963485	0.6044	30	Hydrotest	5	commercial parking,
Cat 1	963485	963615	0.0246	30			

Cat 4	963615	965462	0.3498	30	Hydrotest	5	street work, commercial parking
Cat 1	965462	965617	0.0294	30			
Cat 4	965617	966210	0.1123	30	Hydrotest	5	dirt work
Cat 4	966210	966251	0.0078	30	Hydrotest	5	dirt work
Cat 4	966251	968095	0.3492	30	Hydrotest	5	bridge crossing, aligned next to RR
Cat 4	968095	968099	0.0008	30	Hydrotest	5	aligned next to RR tracks
Cat 4	968099	968143	0.0083	30	Hydrotest	5	aligned next to RR tracks
Cat 1	968143	968156	0.0025	30	Hydrotest		aligned next to RR tracks
Cat 4	968156	969667	0.2862	30	Hydrotest	5	aligned next to RR tracks
Cat 1	969667	969683	0.0030	30	Hydrotest		aligned next to RR tracks
Cat 4	969683	976708	1.3305	30	Hydrotest	5	commercial property crossings, street work
Cat 1	976708	976865	0.0297	30	Hydrotest		
Cat 4	976865	977562	0.1320	30	Hydrotest	5	dirt work
Cat 4	977562	983010.78	-	30			
Cat 1	983010.78	984909.05	-	30			
Cat 4	984909.05	986696	-	30			
Cat 1	986696	986777	-	30			
Cat 1	986777	986946	-	30			
Cat 4	986946	987046	-	30			
Cat 1	987046	988786	-	30			
Cat 4	988786	101990	-	30			
Cat 4	101990	102002	-	30			
Cat 4	102002	1023581	-	30			
Cat 1	1023581	1023593	-	30			
Cat 4	1023593	1042666	0.3600	30	Hydrotest	5	none
Cat 4	1042666	1042694	-	30			
Cat 1	1042694	1044348	-	30			
Cat 4	1044348	1048356	0.0068	30	Hydrotest	5	none
Cat 4	1048356	1048923.8	0.1075	30	Hydrotest	5	none
Cat 1	1048923.8	1050555.4	0.3090	30			
Cat 4	1050612.05	1051255	0.1218	30	Hydrotest	5	none
Cat 2	1051255	1053914	0.5036	30			
Cat 4	1053914	1054363.2	0.0851	30	Hydrotest	5	none
Cat 1	1054363.2	1055472	0.2100	30			
Cat 4	1055472	1065133	1.5397	30	Hydrotest	5	commercial property crossings, street work, adjacent to residential homes
Cat 1	1065133	1065540	0.0771	30			

Cat 4	1065540	1071946	1.2133	30	Hydrotest	5	aligned between RR tracks & commercial property
Cat 2	1071946	1072070	0.0235	30	Hydrotest		
Cat 4	1072070	1090112	3.4170	30	Hydrotest	5	aligned between RR tracks, commercial property and residential homes. Two RR crossings
Cat 1	1090112	1090191	0.0150	30	Hydrotest		aligned between RR tracks and residential homes
Cat 4	1090191	1104725	2.7527	30	Hydrotest	5	aligned between RR tracks and residential homes, culvert crossing, street work
Cat 4	1104725	1104802	0.0146	30	Hydrotest	5	aligned between RR tracks and residential homes
Cat 4	1104802	1119539	2.7911	30	Hydrotest	5	aligned between RR tracks and residential homes, street work
Cat 4	1119539	1120486	0.1794	30	Hydrotest	5	aligned between RR tracks & commercial property
Cat 4	1120486	1126545	1.1475	30	Hydrotest	5	aligned between RR tracks & commercial property, multiple RR crossings, aligned near train hub
Cat 4	1126545	1200000	0.0053	26	Hydrotest	5	None, stationing chage
Cat 4	1200000	1200068.75	0.0130	26	Hydrotest	5	commercial property
Cat 1	1200068.75	1200134.95	0.0125	26			
Cat 1	1200138.42	1201086.5	0.1796	26			
Cat 4	1201697.85	1202780	0.2050	26	Hydrotest	5	commercial property next to RR tracks
Cat 4	1202780	1203675	0.1695	26	Hydrotest	5	aligned inbetween RR tracks and commercial property, train hub
Cat 4	1203675	1205799	0.4023	26	Hydrotest	5	aligned inbetween RR tracks and commercial property, train hub. RR crossings
Cat 1	1205799	1209419	0.6856	26			
Cat 1	1209419	1209960	0.1025	26			
Cat 4	1209960	1219576.1	1.8212	26	Hydrotest	5	aligned between RR tracks, commercial property and residential homes
Cat 1	1219576	1220618	0.1973	18			
Cat 4	1220618	1225918	1.0038	26	Hydrotest	5	aligned next to commercial property. Near Hwy 5. street work
Cat 4	1225918	1227503	0.3002	26	Hydrotest	5	aligned next to commercial property. Near Hwy 5. street work, parking lot
Cat 2	1227503	1228993	0.2822	30			
Cat 4	1228993	1234940	1.1263	26	Hydrotest	5	aligned next to RR tracks. RR crossing
Cat 2	1234940	1235944	0.1902	26			
Cat 4	1235944	1241122	0.9807	26	Hydrotest	5	street work, hwy 710 crossing
Cat 4	1241122	1241203	0.0153	26	Hydrotest	5	street work
Cat 4	1241203	1252765	2.1898	26	Hydrotest	5	multiple RR crossings, commercial crossings, critical primary train hub, street work

ACTIVITY AND LOCATION:		Line 2000		SHEET		SHEET 1 of 1	
PROJECT TITLE AND CLIENT:		ESTIMATED BY:		DATE		July 26, 2011	
SOUTHERN CALIFORNIA GAS COMPANY		SPEC SERVICES, INC.		SPEC Project Number		5057	
PIPE HYDROTEST COST ESTIMATE		STATE OF DESIGN		Conceptual			
DESCRIPTION		QUANTITY		MATERIAL COST		LABOR COST	
		NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL
1 MATERIALS							
INPUT IN ALL BLUE CELLS							
Pipe	30 Actual OD (in)	424.213	bbf / OD				
	0.281 Wall Thickness (in)		bbf / Segment				
	503950 Length (ft)	14.140					
Hydrotest Test Segment		30 QTY					
Pipe	26 Actual OD (in)	73.671	bbf / OD				
	0.264 Wall Thickness (in)		bbf / Segment				
	116884 Length (ft)	10.524					
Hydrotest Test Segment		7 QTY					
Pipe	n/a Actual OD (in)	0	bbf / OD				
	0.000 Wall Thickness (in)		bbf / Segment				
	0 Length (ft)	0					
Hydrotest Test Segment		0 QTY					
Total Hydrotest Length		117.6 Miles					
Total Hydrotest Segment(s)		37 QTY					
Purging Volume of Nitrogen [to obtain 3 atm (44 psig) on line], minimum 4 miles per test segment		10.553,740	SCF	\$ 0.19	\$ 2,005,211		\$ 2,005,211
Temporary Pig Launcher/Receiver (one/ OD change)		2	LS	\$ 25,000	\$ 50,000		\$ 50,000
Water Injection Pump & Filter (capacity 1200 gpm)		37	day(s)	\$ 486	\$ 17,982		\$ 17,982
On-Site Vacuum Truck(s) (minimum one per / test segment)		37	each	\$ 5,000	\$ 185,000		\$ 185,000
Baker Tank(s) =X		10	each				
Total Baker Tank(s) Rental days (\$/day per tank) =X*Y		2,640	day(s)	\$ 1,600	\$ 4,224,000		\$ 4,224,000
Total Hydrotest Water (\$190/bbl)		497,884	bbl	\$ 19.00	\$ 9,459,796		\$ 9,459,796
Water Disposal Vacuum Truck(s) =A		10	bbls				
Vacuum Truck Water Disposal loads (capacity 120 bbl) =B		4,150	loads				
Disposal Time =C*B/(A*10)		42	day(s)	\$ 5,000	\$ 2,100,000		\$ 2,100,000
Total Vacuum Truck(s) Rental days (\$/day per truck) =D=C*A		420	day(s)	\$ 55	\$ 27,383,621		\$ 27,383,621
Treated Water Disposal (\$55/bbl)		497,884	bbl		\$ 2,271,281		\$ 2,271,281
Miscellaneous Materials		5	%				
SCG Post Estimate Changes							
Additional Baker Tanks:		0 QTY					
Additional Test Segments:							
(due to elevation changes)		0 QTY					
Total Material Cost							\$ 47,696,300
2 CONSTRUCTION							
Construction Labor (25K / test segment)		37	LS			\$ 25,000	\$ 925,000
Hydrotest Labor (10K / test segment)		37	day(s)			\$ 10,000	\$ 370,000
Dewater/ Dry Pipeline (\$15,000/ test segment)		37	LS			\$ 15,000	\$ 555,000
Tie-ins Crew Rates (\$25,000/ test segment)		37	Each			\$ 25,000	\$ 925,000
3rd Party Witness (\$2,000/ test segment)		37	Each			\$ 2,000	\$ 74,000
Test/Construction period (6 days per test segment+ Hydrotest Labor+ Disposal Time) =Z		264	day(s)				
Total Construction Cost							\$ 2,648,000
3 SCG LABOR / INSPECTION							
Projects < \$1 million - company labor is 10%		10	%			\$ -	\$ -
\$1million < Projects < \$10 million - company labor is 5%		5	%			\$ -	\$ -
Projects >\$10 million - company labor is 2.5%		2.5	%			\$ 1,263,648	\$ 1,263,648
Total SCG Labor / Inspection Cost							\$ 1,263,700
4 DESIGN / ENG. / CONST. / ENVIRON.							
Planning / Design / Eng / Coord / Procurement		5	%				
ROW Acquisition		0	LS			\$ 2,527,295	\$ 2,527,295
Construction Permits		0	LS			\$ -	\$ -
Environmental Permits		0	LS			\$ -	\$ -
Environmental Monitoring		0	LS			\$ -	\$ -
Total Design / Engineering / Construction Cost							\$ 2,527,300
5 CONTINGENCY							
Projects < \$2 million - Contingency is 30%		30	%			\$ -	\$ -
Projects >\$2 million - Contingency is 20%		20	%			\$ 10,867,360	\$ 10,867,360
TOTAL PROJECT COST (See Appendix for assumptions/certifications)							\$ 85,204,300

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Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG
Plant Category	Trans
Line Number	2001 East
Diameter (in.)	30

Hydrotest Mileage		
Category 4 Criteria	Accelerated	Total
0.760	6.341	7.100

Cost Detail

O&M

Hydrotest

Direct Labor	\$ 171,300
Direct Non Labor	\$ 4,350,300
Total Hydrotest	\$ 4,521,600

Hydrotest Repairs

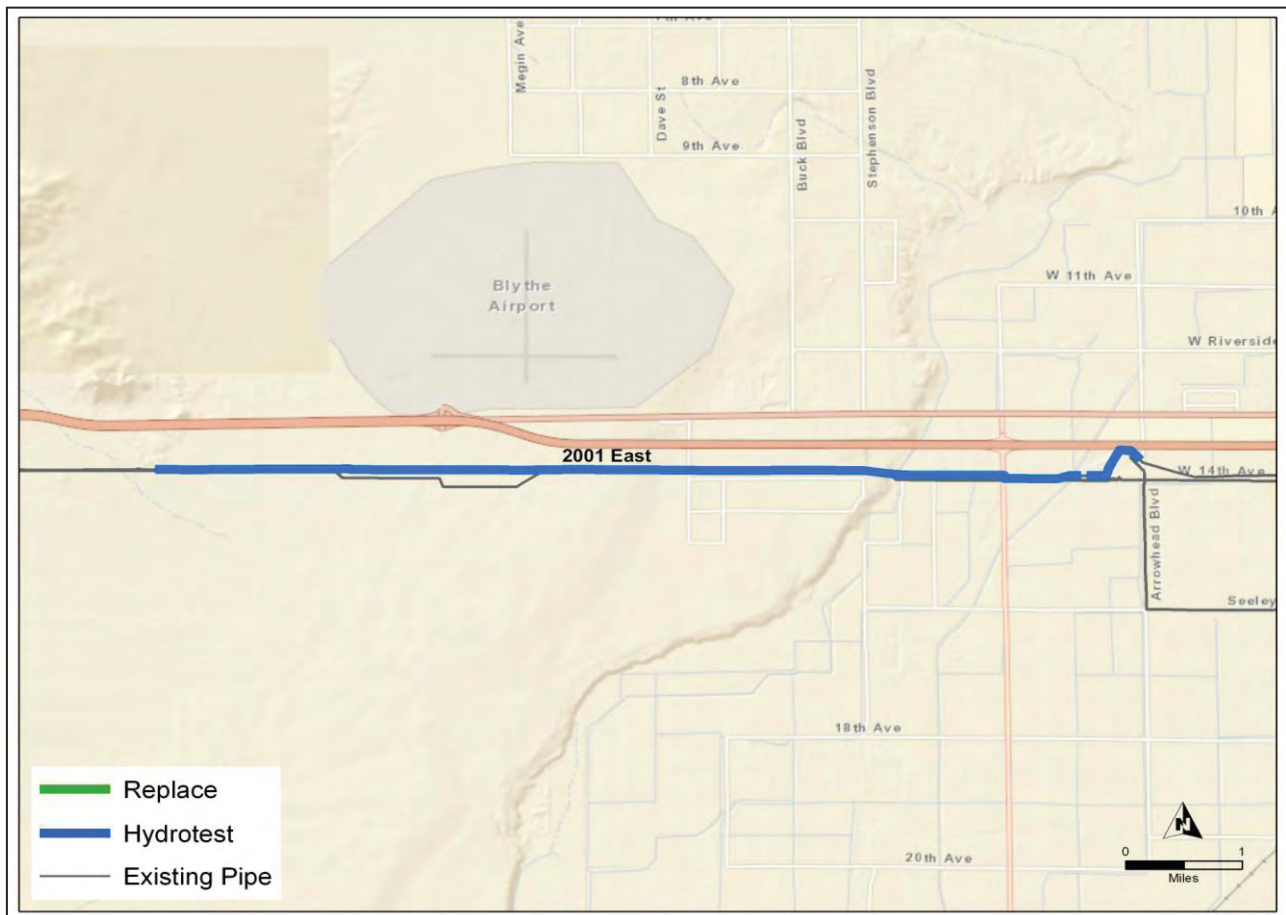
Direct Labor	\$ 15,000
Direct Non Labor	\$ 135,000
Total Repairs	\$ 150,000

In Line Inspection

Direct Labor	\$ 30,000
Direct Non Labor	\$ 270,000
Total ILI	\$ 300,000

In Line Inspection Repairs

Direct Labor	\$ 323,925
Direct Non Labor	\$ 2,915,325
Total Repairs	\$ 3,239,250



Southern California Gas Company
Pipeline Safety Enhancement Program - Workshop Supporting Chapter IX

Existing Segments

Category	Station		Station Stop	Criteria		Diameter	Action	Decision	
	Start			Miles				Tree Box	Comments
Cat 1	0		25.12	0.0048		30			
Cat 1	25.12		146.56	0.0230		30			
Cat 1	146.56		389.9	0.0461		30			
Cat 1	389.9		505.49	0.0219		30			
Cat 1	505.49		1652.85	0.1851		30			
Cat 1	1652.85		7071	0.0074		30			
Cat 1	7071		8135	0.2015		30			
Cat 1	8135		8432.5	0.0563		30			
Cat 1	8432.5		14915.4	0.9595		30			
Cat 1	14915.4		15017.4	0.0193		30			
Cat 1	15017.4		16172.2	0.2187		30			
Cat 1	16172.2		16295.45	0.0233		30			
Cat 1	16295.45		18968.37	0.5062		30			
Cat 1	18968.37		24184.65	0.9879		30			
Cat 1	24184.65		24333.43	0.0282		30			
Cat 1	24333.43		26924.99	0.4190		30			
Cat 1	26924.99		27074.54	0.0283		30			
Cat 1	27074.54		29668.24	0.4912		30			
Cat 1	29668.24		32843.38	0.2237		30			
Cat 1	32843.38		32875.47	0.0061		30			
Cat 1	32875.47		33434.25	0.1058		30			
Cat 4	33435.81		34031.63	0.1128	Hydrotest	30	5	Pig launcher/receiver desert	
Cat 1	34031.63		34072.35	0.0077	Hydrotest	30	5	Crossover with 2000	
Cat 4	34072.35		35810.52	0.3292	Hydrotest	30			
Cat 1	35810.52		36028.92	0.0108		30			
Cat 4	36028.92		71285.14	1.5831	Hydrotest	30	5	4600ft through desert town Cross a few water canals	
Cat 1	71285.14		71488.14	-		30			
Cat 4	71488.14		114598.02	-		30			
Cat 4	114598.02		168204	-		30			
Cat 4	168204		168310	-		30			
Cat 4	168310		231838	-		30			

Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG
Plant Category	Trans
Line Number	2001 West
Diameter (in.)	30

Hydrotest Mileage		
Category 4 Criteria	Accelerated	Total
15.809	48.291	64.100

Cost Detail

O&M

Hydrotest

Direct Labor	\$ 747,900
Direct Non Labor	\$ 37,843,100
Total Hydrotest	\$ 38,591,000

Hydrotest Repairs

Direct Labor	\$ 125,000
Direct Non Labor	\$ 1,125,000
Total Repairs	\$ 1,250,000

In Line Inspection

Direct Labor	\$ 90,000
Direct Non Labor	\$ 810,000
Total ILI	\$ 900,000

In Line Inspection Repairs

Direct Labor	\$ 770,100
Direct Non Labor	\$ 6,930,900
Total Repairs	\$ 7,701,000



Southern California Gas Company
Pipeline Safety Enhancement Program - Workshop Supporting Chapter IX

Existing Segments

Category	Station Start	Station Stop	Criteria Miles	Diameter	Action	Decision Tree Box	Comments
Cat 4	0000	60	0.0114	30	Hydrotest	5	Will include valve station ID-465 T
Cat 4	60	170	0.0208	30	Hydrotest	5	
Cat 1	170	2756.08	0.4898	30			
Cat 4	2756.08	3614.84	0.1626	30	Hydrotest	5	Rio Hondo flood control channel
Cat 1	3607.72	5534	0.3648	30			
Cat 4	5534.08	9870.3	0.8213	30	Hydrotest	5	casing across Rosemead Ave
Cat 4	9870.3	9931.3	0.0116	30	Hydrotest	5	
Cat 4	9931.3	13121.9	0.6043	30	Hydrotest	5	MLV 24 - past Santa Anita
Cat 1	13121.9	13169.8	0.0091	30	Hydrotest		
Cat 4	13165.9	25826.5	2.3978	30	Hydrotest	5	multi casing crossings / San Gabriel River crossing / 605 FWY crossing / golf course crossing
Cat 1	25826.5	25840.5	0.0027	30	Hydrotest		residential road
Cat 4	25840.5	28000	0.4090	30	Hydrotest	5	residential road
Cat 4	28000	28200	0.0379	30	Hydrotest	5	residential road
Cat 4	28200	32448	0.8045	30	Hydrotest	5	residential road
Cat 4	32448	33248	0.1515	30	Hydrotest	5	
Cat 4	33248	36368.67	0.5910	30	Hydrotest	5	
Cat 4	36368.67	36525.17	0.0296	30	Hydrotest	5	
Cat 4	36512.67	37900	0.2628	30	Hydrotest	5	L&G Pig Site
Cat 1	37900	37949	0.0093	30			
Cat 4	231792	381004.8	-	30			
Cat 1	432273	432298	-	30			
Cat 4	381004.8	432359	-	30			
Cat 4	432359	666266.63	1.3000	30			
Cat 4	457240	457952	-	30	Hydrotest	5	San Jose Creek Crossing - Flood Control Channel
Cat 1	479334.85	479355.85	-	30			
Cat 1	533253.72	533274.72	-	30			
Cat 1	538497.25	539836.3	0.2536	30			
Cat 1	539831.6	540916.6	0.2055	30			

Cat 4	544973	545073	0.6881	30	Hydrotest	5	
Cat 4	555962	559770.2	0.6799	30	Hydrotest	5	
Cat 1	570909.87	570931.37	-	30			
Cat 1	618595.22	618615.22	-	30			
Cat 1	648798	648806	-	30			
Cat 1	666206.29	666266.63	-	30			
Cat 4	432359	666266.63	-	30			
Cat 4	16407	18617	0.4185	30	Hydrotest	5	desert - offset a rail road
Cat 1	20048	20810.2	-	30			
Cat 4	23396	26374	0.1878	30	Hydrotest	5	West of Cottonwood - paralleling I-10
Cat 1	23939.17	25349.7	0.2671	30			
Cat 1	25349.7	25994.4	0.1220	30			
Cat 1	26778.7	27480.88	-	30			
Cat 1	38725.9	40580.5	-	30			
Cat 4	63436	69497	-	30			
Cat 1	63436	66581.6	0.0120	30			
Cat 4	66546	72423	0.7560	30	Hydrotest	5	San Grogornio river x-ing
Cat 4	77455	92463	2.2129	30	Hydrotest	5	Park, Montgomery River, and ravine x-ings
Cat 1	87966.5	91144.1	0.6018	30			
Cat 1	90542.28	90642.16	0.0189	30			
Cat 1	90871.3	92462.68	0.3015	30			
Cat 4	96146	98020	0.4755	30	Hydrotest	5	
Cat 1	96102.3	97714.6	0.2970	30			
Cat 1	97500	99651.53	0.0985	30			
Cat 4	103821	138490	1.7125	30	Hydrotest	5	Noble Creek Flood Control x-ing, I-10 Fwy crossing, casing under RailRoad, San Timoteo Wash x-ing
Cat 1	109506	109933.2	0.0809	30			
Cat 1	114192.5	115600.4	0.1239	30			
Cat 1	122221.3	122614	0.0744	30			
Cat 1	122559	138490.3	3.0173	30			
Cat 4	162693	435679	-	30			
Cat 1	162665	193785	3.3331	30			
Cat 1	162648.4	162670	0.0041	30			
Cat 1	162670	162694	0.0078	30			
Cat 1	193785	228874.7	5.6622	30			
Cat 1	193773.9	193795.9	0.0042	30			
Cat 1	213896.72	214390.98	0.0936	30			

Cat 1	228863.2	228883.9	0.0039	30			
Cat 4	228883.9	228888	0.0008	30	Hydrotest	5	station valving ID 249
Cat 1	228888	238248	1.7727	30			
Cat 4	238248	238258	0.0019	30	Hydrotest	5	residential canyon
Cat 1	238258	259400	3.8183	30			
Cat 1	245404.81	246386.29	0.1859	30			
Cat 1	259400	270199	1.3618	30			
Cat 1	270199	270219	0.0038	30			
Cat 4	270219	270520.8	0.0572	30	Hydrotest	5	Santa Ana River
Cat 4	270520.8	270527.8	0.0013	30	Hydrotest	5	Santa Ana River
Cat 4	270527.8	271361.3	0.1579	30	Hydrotest	5	Santa Ana Suspended Span
Cat 1	271361.3	271373.3	0.0023	30			
Cat 1	271373.3	287819	2.7538	30			
Cat 1	271537	271557.6	0.0039	30			
Cat 1	278166.4	279604.06	0.2723	30			
Cat 1	287819	325062.5	4.3821	30			
Cat 1	287810	287828	0.0034	30			
Cat 1	299828.6	300111.8	0.0536	30			
Cat 1	300367.6	302053.8	0.3194	30			
Cat 1	316229.01	316355.12	0.0239	30			
Cat 1	316799.86	317058.54	0.0490	30			
Cat 1	325053.5	325071.5	0.0034	30			
Cat 1	325062.5	348753.5	1.8621	30			
Cat 1	348753.5	359895.6	1.2847	30			
Cat 1	325218.6	325309.25	0.0172	30			
Cat 4	325225	328575	0.6345	30	Keep As Is		2112 submitted on 5/4/2011 clearing this section - work at Chino Airport never completed for this segment under WO
Cat 1	332126.8	332415.7	0.0547	30			
Cat 1	343876.6	343957.7	0.0154	30			
Cat 1	348044.77	348959.78	0.1733	30			
Cat 1	348743	348763	0.0038	30			
Cat 4	348778.48	348795.48	0.0032	30	Hydrotest	5	Chino State prison property
Cat 4	359895.6	359913	0.0033	30	Hydrotest	5	Casing - Chino State Prison property
Cat 1	359915	359931	0.0030	30			
Cat 1	359913	359942	0.0051	30			
Cat 1	360122	365162	0.9492	30			
Cat 1	365162	378434	2.5136	30			

Cat 4	416695	416749.08	0.0104	30	Hydrotest	5	drop section in Rail Road ROW
Cat 4	419959	419974	0.0028	30	Hydrotest	5	
Cat 1	419981.5	420004.5	0.0044	30	Hydrotest		
Cat 4	433290.5	433521.5	0.0438	30	Hydrotest	5	San Jose creek - flood control crossing

ACTIVITY AND LOCATION:		Line 2001 West		SHEET Sheet 1 of 1	
PROJECT TITLE AND CLIENT:		SOUTHERN CALIFORNIA GAS COMPANY		SPECIFICATION NO.	
PIPE HYDROTEST COST ESTIMATE		SPEC SERVICES, INC.		SHEET Sheet 1 of 1	
ESTIMATED BY:		SPEC SERVICES, INC.		DATE July 28, 2011	
CONVENIENCE		STATUS OF DESIGN		SPEC Project Number 5057	
DESCRIPTION		QUANTITY		MATERIAL COST	
		NUMBER	UNIT	UNIT COST	TOTAL
1. MATERIALS					
INPUT IN ALL BLUE CELLS					
Pipe	30 Actual OD (in)	Water Volume	285.010	bbf / OD	
	0.281 Wall Thickness (in)	Baker Tank Volume	11.400	bbf / Segment	
	339582 Length (ft)				
Hydrotest Test Segment					
	25 QTY				
Pipe	n/a Actual OD (in)	Water Volume	0	bbf / OD	
	0.000 Wall Thickness (in)	Baker Tank Volume	0	bbf / Segment	
	0 Length (ft)				
Hydrotest Test Segment					
	0 QTY				
Pipe	n/a Actual OD (in)	Water Volume	0	bbf / OD	
	0.000 Wall Thickness (in)	Baker Tank Volume	0	bbf / Segment	
	0 Length (ft)				
Hydrotest Test Segment					
	0 QTY				
Total Hydrotest Length	64.1 Miles				
Total Hydrotest Segment(s)	25 QTY				
Purging Volume of Nitrogen [to obtain 3 atm (44 psig) on line], minimum 4 miles per test segment					
Temporary Pig Launcher/Receiver (one/ OD change)		7,486,851	SCF	\$ 0.19 \$ 1,422,502	\$ 1,422,502
Water Injection Pump & Filter (capacity 1200 gpm)		1	LS	\$ 25,000 \$ 25,000	\$ 25,000
On-Site Vacuum Truck(s) (minimum one per test segment)		21	day(s)	\$ 486 \$ 10,206	\$ 10,206
Baker Tank(s) =X		25	each	\$ 5,000 \$ 125,000	\$ 125,000
Total Baker Tank(s) Rental days (8/day per tank) =Y*X*Z		10	each		
Total Hydrotest Water (\$190/bbl)		1,740	day(s)	\$ 1,600 \$ 2,784,000	\$ 2,784,000
Total Hydrotest Vacuum Truck(s) =A		285.010	bbf	\$ 19.00 \$ 5,415,191	\$ 5,415,191
Vacuum Truck Water Disposal loads (capacity 120 bbl) =B		2,376	loads		
Disposal Time =C*B/(A*10)		24	day(s)		
Total Vacuum Truck(s) Rental days (8/day per truck) =D=C*A		240	day(s)	\$ 5,000 \$ 1,200,000	\$ 1,200,000
Treated Water Disposal (\$55/bbl)		285.010	bbf	\$ 55 \$ 15,675,552	\$ 15,675,552
Miscellaneous Materials		5	%	\$ 1,332,873	\$ 1,332,873
SCG Post Estimate Changes					
Additional Baker Tanks:	0 QTY				
Additional Test Segments:	0 QTY				
(due to elevation changes)	0 QTY				
Total Material Cost					\$ 27,990,400
2. CONSTRUCTION					
Construction Labor (25K/ test segment)		25	LS	\$ 25,000 \$ 625,000	\$ 625,000
Hydrotest Labor (10K/ test segment)		25	day(s)	\$ 10,000 \$ 250,000	\$ 250,000
De-water/ Dry Pipeline (\$15,000/ test segment)		25	LS	\$ 15,000 \$ 375,000	\$ 375,000
Tie-ins Crew Rates (\$25,000/ test segment)		25	Each	\$ 25,000 \$ 625,000	\$ 625,000
3rd Party Witness (\$2,000/ test segment)		25	Each	\$ 2,000 \$ 50,000	\$ 50,000
Test/Construction period (6 days per test segment+ Hydrotest Labor+ Disposal Time) =Z					
		174	day(s)		
Total Construction Cost					\$ 1,925,000
3. SCG LABOR / INSPECTION					
Projects < \$1 million - company labor is 10%		10	%	\$ - \$ -	\$ -
\$1million < Projects < \$10 million - company labor is 5%		5	%	\$ - \$ -	\$ -
Projects >\$10 million - company labor is 2.5%		2.5	%	\$ 747,885 \$ 747,885	\$ 747,885
Total SCG Labor / Inspection Cost					\$ 747,900
4 DESIGN / ENG. / CONST. / ENVIRON.					
Planning / Design / Eng / Coord / Procurement		5	%		
ROW Acquisition		0	LS	\$ 1,495,770 \$ 1,495,770	\$ 1,495,770
Construction Permits		0	LS	\$ - \$ -	\$ -
Environmental Permits		0	LS	\$ - \$ -	\$ -
Environmental Monitoring		0	LS	\$ - \$ -	\$ -
Total Design / Engineering / Construction Cost					\$ 1,495,800
5 CONTINGENCY					
Projects < \$2 million - Contingency is 30%		30	%	\$ - \$ -	\$ -
Projects >\$2 million - Contingency is 20%		20	%	\$ 6,431,820 \$ 6,431,820	\$ 6,431,820
TOTAL PROJECT COST (See Appendix for assumptions/certifications)					\$ 38,591,000

WP-IX-1-A77

Southern California Gas Company

Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG
Plant Category	Trans
Line Number	2003
Diameter (in.)	30

Hydrotest Mileage		
Category 4		
Criteria	Accelerated	Total
26.225	0.275	26.500

Cost Detail

O&M

Hydrotest

Direct Labor	\$	304,400
Direct Non Labor	\$	15,399,200
Total Hydrotest	\$	15,703,600

Hydrotest Repairs

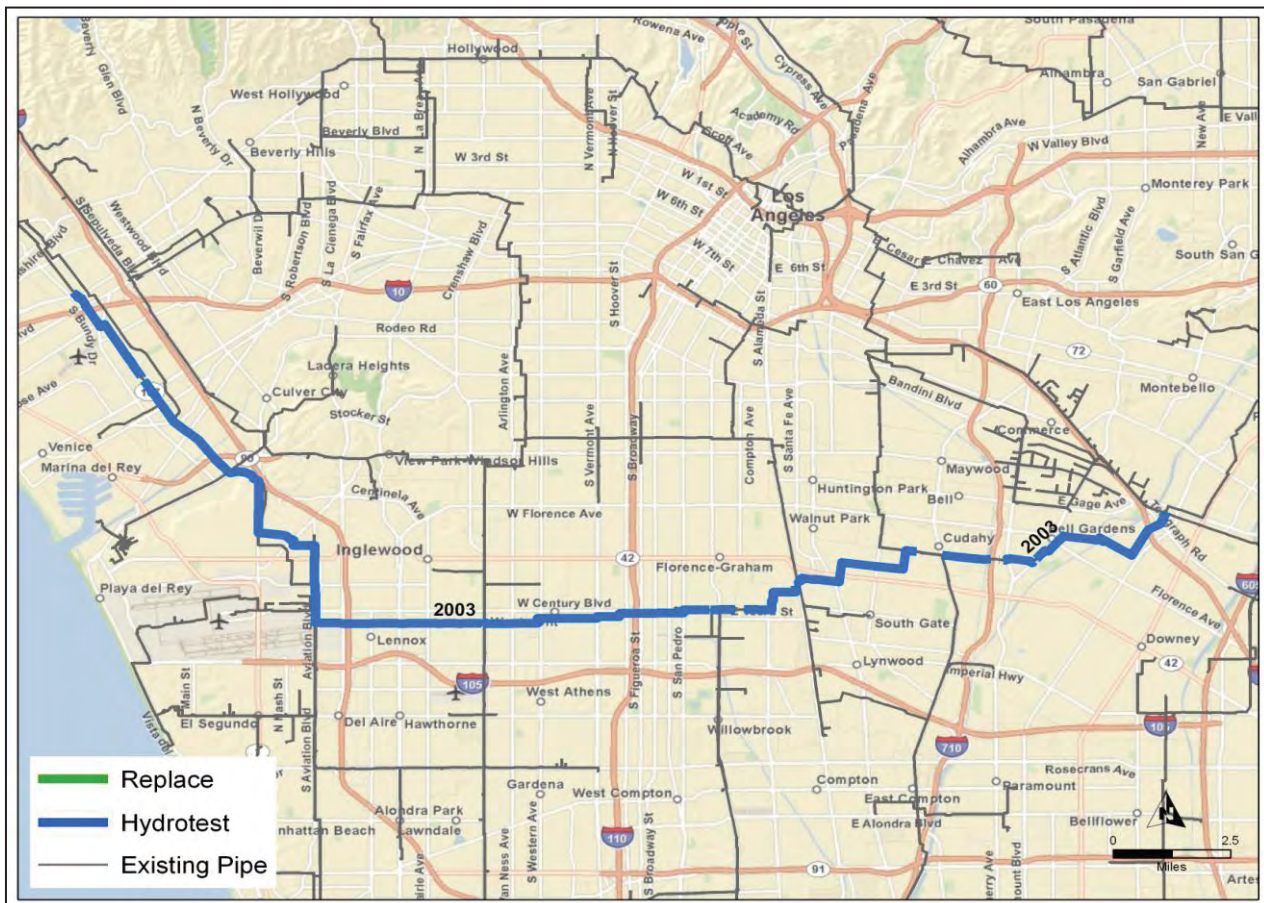
Direct Labor	\$	50,000
Direct Non Labor	\$	450,000
Total Repairs	\$	500,000

In Line Inspection

Direct Labor	\$	60,000
Direct Non Labor	\$	540,000
Total ILI	\$	600,000

In Line Inspection Repairs

Direct Labor	\$	202,200
Direct Non Labor	\$	1,819,800
Total Repairs	\$	2,022,000



Southern California Gas Company
Pipeline Safety Enhancement Program - Workbook Supporting Chapter IX

Existing Segments

Category	Station		Criteria	Diameter	Action	Decision	
	Start	Stop	Miles			Tree Box	Comments
Cat 1	0	21.18	0.0040	30			
Cat 4	21.18	41	0.0038	30	Hydrotest	5	
Cat 4	41	1709	0.3159	30	Hydrotest	5	
Cat 4	1709	2462	0.1237	30	Hydrotest	5	
Cat 4	2438.01	4061.8	0.3075	30	Hydrotest	5	
Cat 1	4061.8	4108.8	0.0089	30	Keep As Is		
Cat 4	4108.8	12517.09	1.5925	30	Hydrotest	5	Crosses I-5 fwy
Cat 4	12517.09	13062.39	0.1033	30	Hydrotest	5	Crosses Rio Hondo River
Cat 4	12913.39	19371.02	1.2230	30	Hydrotest	5	
Cat 1	19371.02	19471.72	0.0191	30			
Cat 4	19471.8	20603.5	0.2143	30	Hydrotest	5	
Cat 4	20603.5	23500.5	0.5487	30	Hydrotest	5	
Cat 1	23500.50	24050.5	0.1042	30			
Cat 4	24050.50	24060.95	0.0020	30	Hydrotest	5	
Cat 4	24060.95	24060.95	0.1117	30	Hydrotest	5	
Cat 1	24650.70	24842.7	0.0364	30			Crosses 710 Fwy
Cat 4	24842.70	29350.32	0.8537	30	Hydrotest	5	Crosses L.A. River
Cat 1	29350.32	29404.9	0.0104	30	Hydrotest		
Cat 4	29404.90	31634	0.4222	30	Hydrotest	5	
Cat 1	31634.00	31881	0.0222	30			
Cat 4	31781.00	46556.8	2.6280	30	Hydrotest	5	Parallels RR ROW
Cat 1	46556.80	46568.8	0.0023	30	Hydrotest		Alameda Corridor crossing
Cat 4	46568.80	46952.2	0.0726	30	Hydrotest	5	Alameda Corridor
Cat 1	46952.2	47166.7	0.0407	30			Alameda Corridor
Cat 4	47146.2	47187.2	0.0078	30	Hydrotest	5	Alameda Corridor
Cat 1	47187.20	47228.2	0.0078	30			Alameda Corridor
Cat 4	47228.20	54474.4	1.3724	30	Hydrotest	5	RR xing
Cat 1	54474.4	55349.4	0.1657	30			
Cat 4	55349.40	57918.9	0.4866	30	Hydrotest	5	

ACTIVITY AND LOCATION:

Line 2003

PROJECT TITLE AND CLIENT:
SOUTHERN CALIFORNIA GAS COMPANY
PIPE HYDROTEST COST ESTIMATE

ALFARO WARE
SPEC SERVICES

SHEET
Sheet 1 of 1
DATE
July 26, 2011
SPEC Project Number
5057

SPECIFICATION NO.

ESTIMATED BY:
SPEC SERVICES, INC.
STATUS OF DESIGN
Overall

DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		TOTAL COST
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	TOTAL
1 MATERIALS							
INPUT IN ALL BLUE CELLS							
Pipe	30	Actual OD (in)					
	0.375	Wall Thickness (in)					
	139625	Length (ft)					
	10	QTY					
Hydrotest Test Segment							
Pipe	n/a	Actual OD (in)					
	0.000	Wall Thickness (in)					
	0	Length (ft)					
	0	QTY					
Hydrotest Test Segment							
Pipe	n/a	Actual OD (in)					
	0.000	Wall Thickness (in)					
	0	Length (ft)					
	0	QTY					
Hydrotest Test Segment							
Total Hydrotest Length	26.5	Miles					
Total Hydrotest Segment(s)	10	QTY					
Purging Volume of Nitrogen [to obtain 3 atm (44 psig) on line], minimum 4 miles per test segment							
Temporary Pig Launcher/Receiver (over OD change)							
Water Injection Pump & Filter (Capacity 2200 gpm)							
On-Site Vacuum Truck(s) (minimum one per test segment)							
Baker Tank(s) =X							
Total Baker Tank(s) Rental days (8/day per tank) =Y=X*Z							
Total Hydrotest Water (\$190/bbl)							
Water Disposal Vacuum Truck(s) =A							
Vacuum Truck Water Disposal loads (capacity 120 bbl) =B							
Disposal Time =C=B/(A*10)							
Total Vacuum Truck(s) Rental days (8/day per truck) =D=C*Y							
Treated Water Disposal (\$55/bbl)							
Miscellaneous Materials							
SCG Post Estimate Changes							
Additional Baker Tanks: 0 QTY							
Additional Test Segments: 0 QTY							
(due to elevation changes)							
Total Material Cost							
2 CONSTRUCTION							
Construction Labor (25K/ test segment)							
Hydrotest Labor (10K/ test segment)							
Dewater/ Dry Pipeline (\$15,000/ test segment)							
Tie-ins Crew Rates (\$25,000/ test segment)							
3rd Party Witness (\$2,000/ test segment)							
Test/Construction period (6 days per test segment+ Hydrotest Labor+ Disposal Time) =Z							
Total Construction Cost							
3 SCG LABOR / INSPECTION							
Projects <\$1 million - company labor is 10%							
\$1million < Projects < \$10 million - company labor is 5%							
Projects >\$10 million - company labor is 2.5%							
Total SCG Labor / Inspection Cost							
4 DESIGN / ENG. / CONST. / ENVIRON.							
Planning / Design / Eng / Coord / Procurement							
ROW Acquisition							
Construction Permits							
Environmental Permits							
Environmental Monitoring							
Total Design / Engineering / Construction Cost							
5 CONTINGENCY							
Projects <\$2 million - Contingency is 30%							
Projects >\$2 million - Contingency is 20%							
TOTAL PROJECT COST (See Appendix for assumptions/certifications)							

Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG	Hydrotest Mileage		
Plant Category	Trans	Category 4		
		Criteria	Accelerated	Total
Line Number	3000 East	0.260	11.640	11.900
Diameter (in.)	30			

Cost Detail

O&M

Hydrotest

Direct Labor	\$	270,000
Direct Non Labor	\$	6,856,200
Total Hydrotest	\$	7,126,200

Hydrotest Repairs

Direct Labor	\$	20,000
Direct Non Labor	\$	180,000
Total Repairs	\$	200,000

In Line Inspection

Direct Labor	\$	30,000
Direct Non Labor	\$	270,000
Total ILI	\$	300,000

In Line Inspection Repairs

Direct Labor	\$	58,500
Direct Non Labor	\$	526,500
Total Repairs	\$	585,000



Southern California Gas Company
Pipeline Safety Enhancement Program - Workbook Supporting Chapter IX

Existing Segments

Category	Station		Station Stop	Criteria Miles	Diameter	Action	Decision	
	Start	Stop					Tree Box	Comments
Cat 1	0	567		0.1100	30			
Cat 1	567	2955.39		0.1700	30			
Cat 2	2955.39	2958.39		-	30			
Cat 2	2958.39	2992.26		-	30			
Cat 2	2992.26	2995.26		-	30			
Cat 2	2995.26	4684.83		-	30			
Cat 2	4684.83	13744.12		0.3200	30			
Cat 1	13744.12	14421.58		-	30			
Cat 2	14412.88	18525.93		-	30			
Cat 2	18525.93	26748.83		-	30			
Cat 2	26748.83	26877.03		-	30			
Cat 2	26877.03	42184.53		0.1853	30			
Cat 2	42184.53	42270.94		0.0164	30			
Cat 4	42270.94	42370.94		0.0189	30	Hydrotest	5	none, remote area
Cat 4	42379.28	42472.01		0.0176	30	Hydrotest	5	none, remote area
Cat 4	42472.01	42507.55		0.0067	30	Hydrotest	5	none, remote area
Cat 4	42507.55	42591.28		0.0159	30	Hydrotest	5	none, remote area
Cat 4	42591.28	42724.28		0.0252	30	Hydrotest	5	none, remote area
Cat 4	42727.28	42818.13		0.0172	30	Hydrotest	5	none, remote area
Cat 4	42818.13	105087.53		0.1651	30	Hydrotest	5	none, remote area

Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG
Plant Category	Trans
Line Number	4000
Diameter (in.)	36

Hydrotest Mileage		
Category 4		
Criteria	Accelerated	Total
0.586	3.114	3.700

Cost Detail

O&M

Hydrotest

Direct Labor	\$	114,200
Direct Non Labor	\$	2,899,800
Total Hydrotest	\$	3,014,000

Hydrotest Repairs

Direct Labor	\$	5,000
Direct Non Labor	\$	45,000
Total Repairs	\$	50,000

In Line Inspection

Direct Labor	\$	30,000
Direct Non Labor	\$	270,000
Total ILI	\$	300,000

In Line Inspection Repairs

Direct Labor	\$	258,675
Direct Non Labor	\$	2,328,075
Total Repairs	\$	2,586,750



Southern California Gas Company
Pipeline Safety Enhancement Program - Workbook Supporting Chapter IX

Existing Segments

Category	Station		Criteria Miles	Diameter	Action	Decision	
	Start	Stop				Tree Box	Comments
Cat 4	209353	219000	-	36			
Cat 1	219000	260400	5.3080	36			
Cat 4	260400	305200	-	36			
Cat 4	305200	324984	0.5858	36	Hydrotest	5	multiple railroad crossings, terrain
Cat 1	324984	325037	-	36			
Cat 4	325037	327100	-	36			
Cat 1	327100	333115	-	36			
Cat 1	333115	333960	-	36			
Cat 1	333960	348269	-	36			
Cat 1	348269	349114	-	36			
Cat 1	349114	371728	0.1898	36			
Cat 1	371728	372984	0.2379	36			
Cat 1	372984	376306	0.6292	36			
Cat 2	376306	382166	0.7078	36			
Cat 1	382166	382694	-	36			
Cat 2	382694	383803	-	36			
Cat 1	383803	383909	-	36			
Cat 2	383909	389753	-	36			
Cat 1	389753	389951	-	36			
Cat 2	389951	425068	2.7568	36			
Cat 1	425068	425301	0.0441	36			
Cat 2	425301	434333	1.7106	36			
Cat 1	434333	434410	0.0146	36			
Cat 2	434410	437392	0.5648	36			
Cat 1	437392	437408	0.0030	36			
Cat 2	437408	443069	1.0722	36			
Cat 1	443069	443171	0.0193	36			
Cat 2	443171	457106	2.6392	36			
Cat 1	457106	457229	0.0233	36			

Cat 2	457229	499955	8.0920	36
Cat 1	499955	500012	0.0108	36
Cat 2	500012	510603	2.0059	36
Cat 1	510603	510970	0.0695	36
Cat 2	510970	536044	4.7489	36
Cat 1	536044	537037	0.1881	36
Cat 2	537037	569538	2.2114	36
Cat 1	569538	571753	0.4195	36
Cat 2	571753	577743	1.1345	36
Cat 1	577743	578386	0.1218	36
Cat 2	578386	582035	0.6911	36
Cat 1	582035	582337	0.0572	36
Cat 2	582337	586563	0.8004	36
Cat 1	586563	586579	0.0030	36
Cat 2	586579	586875	0.0561	36
Cat 1	586875	586910	0.0066	36
Cat 2	586910	588958	0.3879	36
Cat 1	588958	589629	0.1271	36
Cat 2	589629	591414	0.3381	36
Cat 1	591414	592048	0.1201	36
Cat 2	592048	600734	1.6451	36
Cat 1	600734	600800	0.0125	36
Cat 2	600800	615800	2.8409	36
Cat 1	615800	615854	0.0102	36
Cat 2	615854	620345	0.8506	36
Cat 1	620345	620735	0.0739	36
Cat 2	620735	622760	0.3835	36
Cat 1	622760	622866	0.0201	36
Cat 2	622866	623545	0.1286	36
Cat 1	623545	623570	0.0047	36

ACTIVITY AND LOCATION:			SPECIFICATION NO.		SHEET		LINE ITEM NAME		SHEET 1 of 1	
PROJECT TITLE AND CLIENT:			ESTIMATED BY:		DATE		JULY 26, 2011			
SOUTHERN CALIFORNIA GAS COMPANY			SPEC SERVICES, INC.		STATE OF DESIGN		SPEC Project Number		5057	
PIPE HYDROTEST COST ESTIMATE			Conceptual							
DESCRIPTION			QUANTITY		MATERIAL COST		LABOR COST		TOTAL COST	
			NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
1 MATERIALS										
INPUT IN ALL BLUE CELLS										
Pipe	36 Actual OD (in)	Water Volume	23,795	bbt / OD						
	0.406 Wall Thickness (in)	Baker Tank Volume	23,795	bbt / Segment						
	19784 Length (ft)									
Hydrotest Test Segment			1	QTY						
Pipe	n/a Actual OD (in)	Water Volume	0	bbt / OD						
	0.000 Wall Thickness (in)	Baker Tank Volume	0	bbt / Segment						
	0 Length (ft)									
Hydrotest Test Segment			0	QTY						
Pipe	n/a Actual OD (in)	Water Volume	0	bbt / OD						
	0.000 Wall Thickness (in)	Baker Tank Volume	0	bbt / Segment						
	0 Length (ft)									
Hydrotest Test Segment			0	QTY						
Total Hydrotest Length	3.7 Miles									
Total Hydrotest Segment(s)	1	QTY								
Purging Volume of Nitrogen [to obtain 3 atm (44 psig) on line], minimum 4 miles per test segment			427,890	SCF	\$ 0.19	\$ 81,299				\$ 81,299
Temporary Pig Launcher/Receiver (one/ OD change)			1	LS	\$ 25,000	\$ 25,000				\$ 25,000
Water Injection Pump & Filter (capacity 1200 gpm)			2	day(s)	\$ 486	\$ 972				\$ 972
On-Site Vacuum Truck(s) (minimum one per / test segment)			1	each	\$ 5,000	\$ 5,000				\$ 5,000
Baker Tank(s) =X			10	each						
Total Baker Tank(s) Rental days (8/day per tank) =X*Z			80	day(s)	\$ 1,600	\$ 128,000				\$ 128,000
Total Hydrotest Water (\$190/bbl)			23,795	bbt	\$ 19.00	\$ 452,102				\$ 452,102
Water Disposal Vacuum Truck(s) =A			10	loads						
Vacuum Truck Water Disposal loads (capacity 120 bbl) =B			199	day(s)						
Disposal Time =C*B/(A*10)			2	day(s)	\$ 5,000	\$ 100,000				\$ 100,000
Total Vacuum Truck(s) Rental days (8/day per truck) =D=C*A			20	day(s)	\$ 55	\$ 1,308,717				\$ 1,308,717
Treated Water Disposal (\$55/bbl)			23,795	bbt						\$ 105,055
Miscellaneous Materials			5	%						
SCG Post Estimate Changes										
Additional Baker Tanks:			0	QTY						
Additional Test Segments:			0	QTY						
(due to elevation changes)										
Total Material Cost										\$ 2,206,200
2 CONSTRUCTION										
Construction Labor (25K/ test segment)			1	LS			\$ 25,000	\$ 25,000		\$ 25,000
Hydrotest Labor (10K/ test segment)			1	day(s)			\$ 10,000	\$ 10,000		\$ 10,000
Dewater/ Dry Pipeline (\$15,000/ test segment)			1	LS			\$ 15,000	\$ 15,000		\$ 15,000
Tie-ins Crew Rates (\$25,000/ test segment)			1	Each			\$ 25,000	\$ 25,000		\$ 25,000
3rd Party Witness (\$2,000/ test segment)			1	Each			\$ 2,000	\$ 2,000		\$ 2,000
Test/Construction period (6 days per test segment+ Hydrotest Labor+ Disposal Time) =Z			8	day(s)						
Total Construction Cost										\$ 77,000
3 SCG LABOR / INSPECTION										
Projects < \$1 million - company labor is 10%			10	%			\$ -	\$ -		\$ -
\$1million < Projects < \$10 million - company labor is 5%			5	%			\$ 114,160	\$ 114,160		\$ 114,160
Projects >\$10 million - company labor is 2.5%			2.5	%			\$ -	\$ -		\$ -
Total SCG Labor / Inspection Cost										\$ 114,200
4 DESIGN / ENG. / CONST. / ENVIRON.										
Planning / Design / Eng / Coord / Procurement			5	%						
ROW Acquisition			0	LS			\$ 114,160	\$ 114,160		\$ 114,160
Construction Permits			0	LS			\$ -	\$ -		\$ -
Environmental Permits			0	LS			\$ -	\$ -		\$ -
Environmental Monitoring			0	LS			\$ -	\$ -		\$ -
Total Design / Engineering / Construction Cost										\$ 114,200
5 CONTINGENCY										
Projects < \$2 million - Contingency is 30%			30	%			\$ -	\$ -		\$ -
Projects >\$2 million - Contingency is 20%			20	%			\$ 502,320	\$ 502,320		\$ 502,320
TOTAL PROJECT COST (See Appendix for assumptions/certifications)										\$ 3,014,000

WP-IX-1-A88

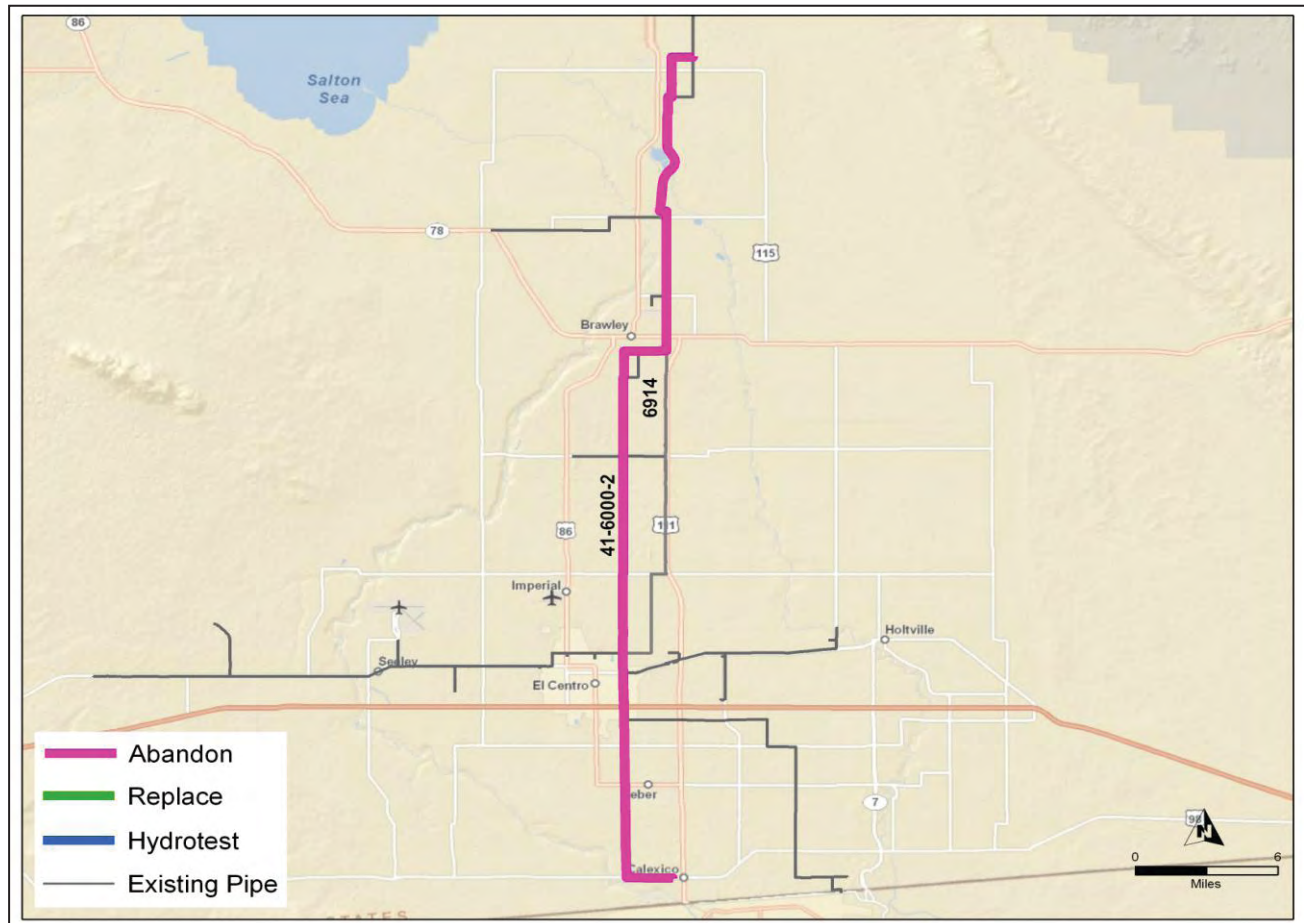
Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG	Abandonment Mileage		
Plant Category	Dist	Category 4		
		Criteria	Accelerated	Total
Line Number	41-6000-2	11.373	24.577	35.950
Diameter (in.)	Multiple: 6.625 - 16			

Cost Detail

Capital		O&M	
Direct Labor	\$ 978,000	Direct Labor	\$ -
Direct Non Labor	\$ 52,202,600	Direct Non Labor	\$ -
Total Direct Capital	\$ 53,180,600	Total Direct O&M	\$ -

* Capital cost estimates provided cover the extension of existing L-6914. Extending this pipeline will allow for the abandonment of line 41-6000-2.



Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Existing Segments

Category	Station Start	Station Stop	Criteria Miles	Diameter	Action	Decision Tree Box	Comments
Cat 1	-10.5	1	-	6.625	Abandon	2	
Cat 1	1	8	-	8.625	Abandon	2	
Cat 4	8	6711	0.8527	8.625	Abandon	2	
Cat 4	6711	17814	0.5763	10.75	Abandon	2	State Highway 115 crossing on Brown Ave, rail road crossing at Brown Ave & Bowles Rd.
Cat 4	17814	17818	-	10.75	Abandon	2	
Cat 4	17818	55404	-	10.75	Abandon	2	Alamo River Canal crossing Possible environmental issues.
Cat 1	55404	56161	-	10.75	Abandon	2	Shank Road crossing.
Cat 4	56161	66076	1.3220	10.75	Abandon	2	
Cat 4	66076	66100	0.0045	10.75	Abandon	2	Bryant canal crossing.
Cat 4	66100	72548	1.2212	10.75	Abandon	2	
Cat 4	72548	79544	0.9335	8.625	Abandon	2	Two railroad crossings.
Cat 4	79544	90047	0.1458	16	Abandon	2	
Cat 4	90047	90197	-	8.625	Abandon	2	
Cat 4	90197	99505	-	16	Abandon	2	Tie-in connection with supply line 41-80 also recommended for replacement (see tab 2).
Cat 4	99505	106908	0.1212	8.625	Abandon	2	
Cat 4	106908	106990	-	8.625	Abandon	2	Date Canal crossing
Cat 4	106990	129872	-	8.625	Abandon	2	
Cat 4	129872	130017	-	8.625	Abandon	2	Central Drain (Sloped) on 23rd Rd.
Cat 4	130017	135172	0.2805	8.625	Abandon	2	
Cat 4	135172	145969	2.0449	6.625	Abandon	2	Railroad crossing on Imperial Ave.
Cat 2	145969	146412	0.0756	6.625	Abandon	2	Highway 8 crossing. Approx. 440 feet of Cat 2 in between Cat 4 segments.
Cat 4	146412	169783	2.4225	6.625	Abandon	2	
Cat 1	169783	169983	-	6.625	Abandon	2	Railroad crossing and Central Main Canal crossing next to Jasper Rd. Approx. 200 feet of Cat 2 in between Cat 4 segments.
Cat 4	169983	175560	-	6.625	Abandon	2	
Cat 4	175560	175839	-	6.625	Abandon	2	Beech Canal crossing
Cat 4	175839	184215	0.4055	6.625	Abandon	2	
Cat 2	184215	184303	0.0167	6.625	Abandon	2	All American Canal crossing. Approx. 88 feet of Cat 2 in between Cat 4 segments.
Cat 4	184303	189807	1.0424	6.625	Abandon	2	

New Segments

Length (ft)	Wall		Grade	Comments
	Diameter	Thickness		
60069	24	0.375	X-65	The extension of existing L-6914 will allow for the abandonment of 41-6000-2
13484	10	0.365	X-52	

ACTIVITY AND LOCATION:		SPECIFICATION NO.		A/E FIRM NAME		SHEET	
Line 6914		ESTIMATED BY:		SPEC SERVICES		Sheet 1 of 1	
PROJECT TITLE AND CLIENT:		SPEC		DATE:		July 30, 2011	
SOUTHERN CALIFORNIA GAS COMPANY		STATUS OF DESIGN		SPEC Project Number		5057	
PIPE REPLACEMENT COST ESTIMATE		Conceptual					
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		TOTAL COST
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	TOTAL
INPUT IN ALL GREEN CELLS							
1 MATERIALS							
Pipe 24 inch, .375 WT X-65	60069	Feet	\$ 92	\$ 5,508,928			\$ 5,508,928
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	244	Each	\$ 7,229	\$ 1,763,959			\$ 1,763,959
Pressure Rating 400 lb Block Valve w/Electric Actuator (one per 4 miles)	2	Each	\$ 365,386	\$ 730,772			\$ 730,772
FBE Coating (\$/ft)		\$	\$ 6.58	\$ 395,254			\$ 395,254
Miscellaneous Materials (5%)	1	Lot					\$ 400,183
Freight / Tax	12.5	%					\$ 1,099,887
Pipe 10 inch, STD. WT X-52	13484	Feet	\$ 36	\$ 487,986			\$ 487,986
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	57	Each	\$ 1,408	\$ 80,256			\$ 80,256
Pressure Rating 400 lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ 87,798	\$ -			\$ -
FBE Coating (\$/ft)		\$	\$ 2.86	\$ 38,564			\$ 38,564
Miscellaneous Materials (5%)	1	Lot					\$ 28,412
Freight / Tax	12.5	%					\$ 79,402
Pipe n/a	0	Feet	\$ -	\$ -			\$ -
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ -	\$ -			\$ -
Pressure Rating n/a lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ -	\$ -			\$ -
FBE Coating (\$/ft)		\$	\$ -	\$ -			\$ -
Miscellaneous Materials (5%)	1	Lot					\$ -
Freight / Tax	12.5	%					\$ -
Casing 14 inch, STD. WT X-52	100	Feet	\$ 55	\$ 5,548			\$ 5,548
Miscellaneous Materials (5%)	1	Lot					\$ 277.40
Freight / Tax	12.5	%					\$ 1,327,429
Total length	13.9	Miles					
Total Material Cost							\$ 11,946,900
2 CONSTRUCTION (See Appendix for construction type definitions)							
24 inch pipe							
Pipe Install - Type 1	7639	Feet			\$ 225	\$ 1,718,775	\$ 1,718,775
Pipe Install - Type 2	50670	Feet			\$ 360	\$ 18,241,200	\$ 18,241,200
Pipe Install - Type 3	0	Feet			\$ 540	\$ -	\$ -
Pipe Install - Type 4	0	Feet			\$ 850	\$ -	\$ -
Pipe Install - Type 5	1760	Feet			\$ 800	\$ 1,408,000	\$ 1,408,000
Pipe Install - Type 6	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 7	0	Feet			\$ 702	\$ -	\$ -
10 inch pipe							
Pipe Install - Type 1	472	Feet			\$ 175	\$ 82,600	\$ 82,600
Pipe Install - Type 2	12500	Feet			\$ 280	\$ 3,500,000	\$ 3,500,000
Pipe Install - Type 3	0	Feet			\$ 450	\$ -	\$ -
Pipe Install - Type 4	0	Feet			\$ 600	\$ -	\$ -
Pipe Install - Type 5	512	Feet			\$ 400	\$ 204,800	\$ 204,800
Pipe Install - Type 6	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 7	0	Feet			\$ 585	\$ -	\$ -
n/a							
Pipe Install - Type 1	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 2	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 3	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 4	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 5	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 7	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 6	0	Feet			\$ -	\$ -	\$ -
Tie-ins Crew Rates	2	Each			\$ 33,167	\$ 66,334	\$ 66,334
Purging Volume of Nitrogen (to obtain 3 atm (44 psig) on line)	784268	SCF	\$ 0.19	\$ 149,011			\$ 149,011
Purging Labor	1	LS			\$ 25,000	\$ 25,000	\$ 25,000
95% Abandonment of Existing Pipeline (\$50/CY)	6892	CY			\$ 95	\$ 654,740	\$ 654,740
5% Removal of Existing Pipeline (75% of Construction Labor Cost)	75	%					\$ 943,327
Mobilization / Demobilization	2	Each			\$ 30,000	\$ 60,000	\$ 60,000
Contaminated Soil	0	CY			\$ -	\$ -	\$ -
Asbestos Abatement	0	Feet			\$ -	\$ -	\$ -
Radiographic Inspection	156	Days	\$ 150	\$ 23,400	\$ 600	\$ 93,600	\$ 117,000
Construction period	164	days					
Total Construction Cost							\$ 27,170,800
3 SCG LABOR / INSPECTION							
Projects < \$1 million - company labor is 10%	10	%			\$ -	\$ -	\$ -
\$1million < Projects < \$10 million - company labor is 5%	5	%			\$ -	\$ -	\$ -
Projects > \$10 million - company labor is 2.5%	2.5	%			\$ 977,943	\$ 977,943	\$ 977,943
Total SCG Labor / Inspection Cost							\$ 978,000
4 DESIGN / ENG. / CONST / ENVIRON.							
Planning / Design / Eng / Coord / Procurement	10	%			\$ 3,911,770	\$ 3,911,770	\$ 3,911,770
Construction Stake, As-Built Survey (2 man crew)	156	Days	\$ 100	\$ 15,600	\$ 1,400	\$ 218,400	\$ 234,000
ROW Acquisition	0	LS			\$ -	\$ -	\$ -
Construction Permits	0	LS			\$ -	\$ -	\$ -
Environmental Permits	0	LS			\$ -	\$ -	\$ -
Environmental Monitoring	0	LS			\$ -	\$ -	\$ -
As-Built Drawings (\$2000*\$1/ft)	1	LS			\$ 75,553	\$ 75,553	\$ 75,553
Total Design / Engineering / Construction Cost							\$ 4,221,400
5 CONTINGENCY							
Projects < \$2 million - Contingency is 30%	30	%			\$ -	\$ -	\$ -
Projects >\$2 million - Contingency is 20%	20	%			\$ 8,863,420	\$ 8,863,420	\$ 8,863,420
TOTAL PROJECT COST (See Appendix for assumptions/clarifications)							\$ 53,180,600

Comments

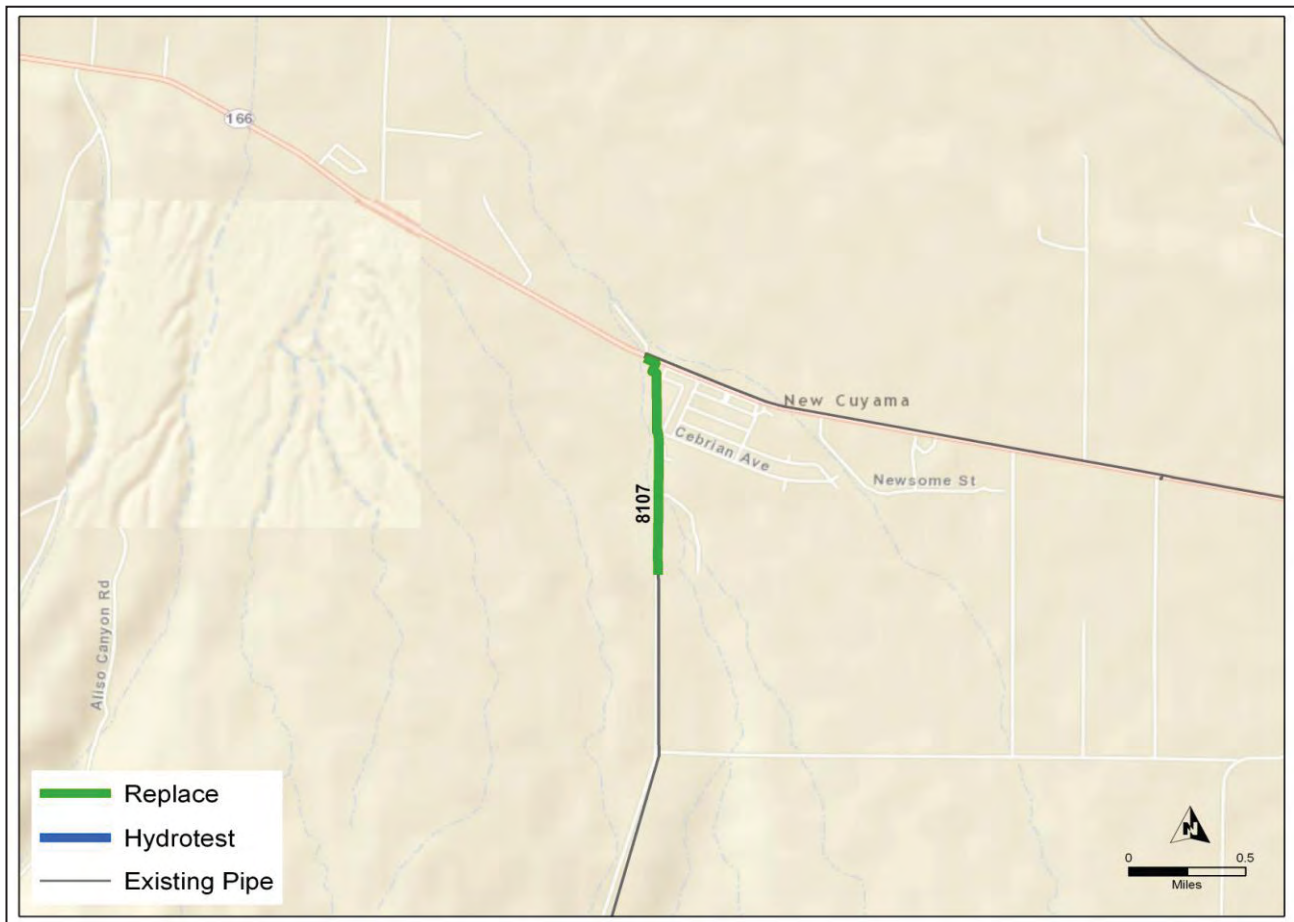
Casing Pipe for RR Crossing

Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company	SCG	Replacement Mileage		
Plant Category	Trans	Category 4		
		Criteria	Accelerated	Total
Line Number	8107	0.541	0.351	0.892
Diameter (in.)	10.75			

Cost Detail

Capital		O&M	
Direct Labor	\$ -	Direct Labor	\$ -
Direct Non Labor	\$ -	Direct Non Labor	\$ -
Total Direct Capital	\$ -	Total Direct O&M	\$ -



Southern California Gas Company
Pipeline Safety Enhancement Program - Worksheet Supporting Chapter IX

Existing Segments

Category	Station		Criteria		Diameter	Action	Decision	
	Start	Stop	Miles				Tree Box	Comments
Cat 4	0	4709.62	0.5407		10.75	Replace	5	

New Segments

Station Start	Station		Wall		Grade	Comments
	Start	Stop	Diameter	Thickness		
0	4709.62	8	0.322	X-52		

Southern California Gas Company
Pipeline Safety Enhancement Program - Workpaper Supporting Chapter IX

Company SCG
Plant Category Trans

Summary of remaining pipelines

Line Number	Replacement Mileage			Capital Cost Detail		
	Category 4			Direct Labor	Direct Non Labor	Total Direct Capital
	Criteria	Accelerated	Total			
1003LT2	0.003	-	0.003	\$ -	\$ -	\$ -
1005 ID805-T	0.004	-	0.004	\$ -	\$ -	\$ -
1014	0.003	-	0.003	\$ 17,000	\$ 254,600	\$ 271,600
1017BP1	0.005	-	0.005	\$ 10,600	\$ 160,900	\$ 171,500
1017BP2	0.005	-	0.005	\$ 10,600	\$ 160,900	\$ 171,500
1017BP3	0.005	-	0.005	\$ 10,600	\$ 160,900	\$ 171,500
1017BR4	0.004	-	0.004	\$ 10,800	\$ 164,400	\$ 175,200
1017BR5	0.004	-	0.004	\$ 10,700	\$ 162,400	\$ 173,100
1017BR6	0.004	-	0.004	\$ 10,700	\$ 162,400	\$ 173,100
1017BR7	0.005	-	0.005	\$ 10,800	\$ 164,400	\$ 175,200
1018	0.043	0.005	0.048	\$ -	\$ -	\$ -
1019BP1	0.004	-	0.004	\$ 9,900	\$ 150,600	\$ 160,500
1025	0.072	-	0.072	\$ 30,300	\$ 448,900	\$ 479,200
1170 ID502-T 1	0.001	-	0.001	\$ 8,800	\$ 134,900	\$ 143,700
1171 ID567-P 13	0.003	-	0.003	\$ 11,800	\$ 178,000	\$ 189,800
1171LT1BP2	0.017	-	0.017	\$ 19,400	\$ 289,700	\$ 309,100
1171LT2	0.012	-	0.012	\$ 17,200	\$ 257,500	\$ 274,700
1172 ID 2313 1	0.001	-	0.001	\$ 8,900	\$ 136,400	\$ 145,300
1172 ID 2313 2	0.015	-	0.015	\$ 14,500	\$ 217,200	\$ 231,700
1172 ID 2313 3	0.009	-	0.009	\$ 11,800	\$ 178,800	\$ 190,600
1172BP2ST1	0.001	-	0.001	\$ -	\$ -	\$ -
1172BP2ST2	0.001	-	0.001	\$ 8,600	\$ 132,000	\$ 140,600
1172BP2ST3	0.003	-	0.003	\$ -	\$ -	\$ -
1172BP2ST4	0.006	-	0.006	\$ -	\$ -	\$ -
1172BP3	0.012	-	0.012	\$ -	\$ -	\$ -
1230-A	0.022	-	0.022	\$ -	\$ -	\$ -
1230-B	0.001	-	0.001	\$ -	\$ -	\$ -
169	0.012	-	0.012	\$ 12,600	\$ 190,500	\$ 203,100
2000-0.18-BO	0.012	-	0.012	\$ 11,200	\$ 169,700	\$ 180,900
2000-0.18-XO1	0.009	-	0.009	\$ 10,700	\$ 162,900	\$ 173,600
2000-0.18-XO2	0.009	-	0.009	\$ 14,200	\$ 213,600	\$ 227,800
2002 ID465-T 2	0.006	-	0.006	\$ -	\$ -	\$ -
2002 ID465-T 3	0.002	-	0.002	\$ -	\$ -	\$ -
2007 ID629-T2	0.003	-	0.003	\$ -	\$ -	\$ -
247	0.082	-	0.082	\$ 28,800	\$ 427,300	\$ 456,100
3000-261.73-BO	0.002	-	0.002	\$ 9,100	\$ 138,600	\$ 147,700
3000-261.73-BR	0.005	-	0.005	\$ 9,800	\$ 149,200	\$ 159,000
408XO1	0.011	-	0.011	\$ 14,100	\$ 211,400	\$ 225,500
5009	0.041	-	0.041	\$ 23,900	\$ 359,600	\$ 383,500
6100	0.006	-	0.006	\$ -	\$ -	\$ -

Line Number	Replacement Mileage			Capital Cost Detail		
	Category 4			Direct Labor	Direct Non Labor	Total Direct Capital
	Criteria	Accelerated	Total			
765-8.24-BO	0.013	-	0.013	\$ -	\$ -	\$ -
765-8.24-BR	0.001	-	0.001	\$ -	\$ -	\$ -
765BR4	0.005	-	0.005	\$ -	\$ -	\$ -
765ST2	0.002	-	0.002	\$ 9,300	\$ 142,300	\$ 151,600
775	0.090	-	0.090	\$ 24,100	\$ 358,800	\$ 382,900
775BO1	0.007	-	0.007	\$ 10,900	\$ 165,000	\$ 175,900

Line Number	Abandonment Mileage		
	Category 4		
	Criteria	Accelerated	Total
53	0.880	0.390	1.270

[illegible]

ACTIVITY AND LOCATION:		SPECIFICATION NO.		A/E FIRM NAME		SHEET	
Line 1017 BR6				SPC SERVICES		Sheet 1 of 1	
PROJECT TITLE AND CLIENT:		ESTIMATED BY:		DATE:			
SOUTHERN CALIFORNIA GAS COMPANY		SPEC		July 12, 2011			
PIPE REPLACEMENT COST ESTIMATE		STATUS OF DESIGN		SPEC Project Number			
		Conceptual		5057			
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		TOTAL COST
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	TOTAL
INPUT IN ALL GREEN CELLS							
1 MATERIALS							
Pipe 12 inch, STD. WT X-52	24	Feet	\$ 44	\$ 1,063			\$ 1,063
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ 1,833	\$ 7,333			\$ 7,333
Pressure Rating 300 lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ 36,010	\$ -			\$ -
FBE Coating (\$/ft)		\$	\$ 3.26	\$ 78			\$ 78
Miscellaneous Materials (5%)	1	Lot					\$ 420
Freight / Tax	12.5	%					\$ 1,112
Pipe n/a	0	Feet	\$ -	\$ -			\$ -
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ -	\$ -			\$ -
Pressure Rating n/a lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ -	\$ -			\$ -
FBE Coating (\$/ft)		\$	\$ -	\$ -			\$ -
Miscellaneous Materials (5%)	1	Lot					\$ -
Freight / Tax	12.5	%					\$ -
Pipe n/a	0	Feet	\$ -	\$ -			\$ -
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ -	\$ -			\$ -
Pressure Rating n/a lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ -	\$ -			\$ -
FBE Coating (\$/ft)		\$	\$ -	\$ -			\$ -
Miscellaneous Materials (5%)	1	Lot					\$ -
Freight / Tax	12.5	%					\$ -
Casing n/a	0	Feet	\$ -	\$ -			\$ -
Miscellaneous Materials (5%)	1	Lot					\$ -
Freight / Tax	12.5	%					\$ -
Total length	0.0	Miles					
Total Material Cost							\$ 10,100
2 CONSTRUCTION							
(See Appendix for construction type definitions)							
12 inch pipe							
Pipe Install - Type 1	0	Feet			\$ 175	\$ -	\$ -
Pipe Install - Type 2	0	Feet			\$ 280	\$ -	\$ -
Pipe Install - Type 3	0	Feet			\$ 450	\$ -	\$ -
Pipe Install - Type 4	0	Feet			\$ 600	\$ -	\$ -
Pipe Install - Type 5	0	Feet			\$ 400	\$ -	\$ -
Pipe Install - Type 6	24	Feet		\$ 6,720	\$ 14,400		\$ 14,400
Pipe Install - Type 7	0	Feet			\$ 585	\$ -	\$ -
n/a							
Pipe Install - Type 1	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 2	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 3	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 4	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 5	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 6	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 7	0	Feet			\$ -	\$ -	\$ -
n/a							
Pipe Install - Type 1	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 2	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 3	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 4	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 5	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 7	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 6	0	Feet			\$ -	\$ -	\$ -
Tie-ins Crew Rates	1	Each			\$ 25,000	\$ 25,000	\$ 25,000
Purging Volume of Nitrogen (to obtain 3 atm (44 psig) on line)	76	SCF	\$ 0.19	\$ 14			\$ 14
Purging Labor	1	LS			\$ 25,000	\$ 25,000	\$ 25,000
95% Abandonment of Existing Pipeline (\$50/CY)	1	CY			\$ 95	\$ 95	\$ 95
5% Removal of Existing Pipeline (75% of Construction Labor Cost)	75	%					\$ 540
Mobilization / Demobilization	1	Each			\$ 30,000	\$ 30,000	\$ 30,000
Contaminated Soil	0	CY			\$ -	\$ -	\$ -
Asbestos Abatement	0	Feet			\$ -	\$ -	\$ -
Radiographic Inspection	2	Days	\$ 150	\$ 300	\$ 600	\$ 1,200	\$ 1,500
Construction period	10	days					
Total Construction Cost							\$ 96,600
3 SCG LABOR / INSPECTION							
Projects < \$1 million - company labor is 10%	10	%				\$ 10,670	\$ 10,670
\$1million <Projects < \$10 million - company labor is 5%	5	%				\$ -	\$ -
Projects >\$10 million - company labor is 2.5%	2.5	%				\$ -	\$ -
Total SCG Labor / Inspection Cost							\$ 10,700
4 DESIGN / ENG. / CONST / ENVIRON.							
Planning / Design / Eng / Coord / Procurement	10	%				\$ 10,670	\$ 10,670
Construction Stake, As-Built Survey (2 man crew)	2	Days	\$ 100	\$ 200	\$ 1,400	\$ 2,800	\$ 3,000
ROW Acquisition	0	LS				\$ -	\$ -
Construction Permits	0	LS				\$ -	\$ -
Environmental Permits	0	LS				\$ -	\$ -
Environmental Monitoring	0	LS				\$ -	\$ -
As-Built Drawings (\$2000*\$1/ft)	1	LS				\$ 2,024	\$ 2,024
Total Design / Engineering / Construction Cost							\$ 15,700
5 CONTINGENCY							
Projects < \$2 million - Contingency is 30%	30	%				\$ 39,930	\$ 39,930
Projects>\$2 million - Contingency is 20%	20	%				\$ -	\$ -
TOTAL PROJECT COST (See Appendix for assumptions/clarifications)							\$ 173,100

Comments

Facility piping.

ACTIVITY AND LOCATION: Line 1017 BR7		SPECIFICATION NO.		A/E FIRM NAME SPC SERVICES		SHEET Sheet 1 of 1		
PROJECT TITLE AND CLIENT: SOUTHERN CALIFORNIA GAS COMPANY PIPE REPLACEMENT COST ESTIMATE		ESTIMATED BY: SPEC		DATE: July 12, 2011		SPEC Project Number 5057		
		STATUS OF DESIGN Conceptual						
DESCRIPTION		QUANTITY		MATERIAL COST		LABOR COST		TOTAL COST
		NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	TOTAL
INPUT IN ALL GREEN CELLS								
1 MATERIALS								
Pipe	12 inch, STD. WT X-52	26	Feet	\$ 44	\$ 1,151			\$ 1,151
	Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ 1,833	\$ 7,333			\$ 7,333
Pressure Rating	300 lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ 36,010	\$ -			\$ -
	FBE Coating (\$/ft)			\$ 3.26	\$ 85			\$ 85
	Miscellaneous Materials (5%)	1	Lot					\$ 424
	Freight / Tax	12.5	%					\$ 1,124
Pipe	n/a	0	Feet	\$ -	\$ -			\$ -
	Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ -	\$ -			\$ -
Pressure Rating	n/a lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ -	\$ -			\$ -
	FBE Coating (\$/ft)			\$ -	\$ -			\$ -
	Miscellaneous Materials (5%)	1	Lot					\$ -
	Freight / Tax	12.5	%					\$ -
Pipe	n/a	0	Feet	\$ -	\$ -			\$ -
	Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ -	\$ -			\$ -
Pressure Rating	n/a lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ -	\$ -			\$ -
	FBE Coating (\$/ft)			\$ -	\$ -			\$ -
	Miscellaneous Materials (5%)	1	Lot					\$ -
	Freight / Tax	12.5	%					\$ -
Casing	n/a	0	Feet	\$ -	\$ -			\$ -
	Miscellaneous Materials (5%)	1	Lot					\$ -
	Freight / Tax	12.5	%					\$ -
Total length		0.0	Miles					
Total Material Cost								\$ 10,200
2 CONSTRUCTION (See Appendix for construction type definitions)								
12 inch pipe								
	Pipe Install - Type 1	0	Feet			\$ 175	\$ -	\$ -
	Pipe Install - Type 2	0	Feet			\$ 280	\$ -	\$ -
	Pipe Install - Type 3	0	Feet			\$ 450	\$ -	\$ -
	Pipe Install - Type 4	0	Feet			\$ 600	\$ -	\$ -
	Pipe Install - Type 5	0	Feet			\$ 400	\$ -	\$ -
	Pipe Install - Type 6	26	Feet		\$ 600	\$ 15,600		\$ 15,600
	Pipe Install - Type 7	0	Feet		\$ 585	\$ -	\$ -	\$ -
n/a								
	Pipe Install - Type 1	0	Feet		\$ -	\$ -	\$ -	\$ -
	Pipe Install - Type 2	0	Feet		\$ -	\$ -	\$ -	\$ -
	Pipe Install - Type 3	0	Feet		\$ -	\$ -	\$ -	\$ -
	Pipe Install - Type 4	0	Feet		\$ -	\$ -	\$ -	\$ -
	Pipe Install - Type 5	0	Feet		\$ -	\$ -	\$ -	\$ -
	Pipe Install - Type 6	0	Feet		\$ -	\$ -	\$ -	\$ -
	Pipe Install - Type 7	0	Feet		\$ -	\$ -	\$ -	\$ -
n/a								
	Pipe Install - Type 1	0	Feet		\$ -	\$ -	\$ -	\$ -
	Pipe Install - Type 2	0	Feet		\$ -	\$ -	\$ -	\$ -
	Pipe Install - Type 3	0	Feet		\$ -	\$ -	\$ -	\$ -
	Pipe Install - Type 4	0	Feet		\$ -	\$ -	\$ -	\$ -
	Pipe Install - Type 5	0	Feet		\$ -	\$ -	\$ -	\$ -
	Pipe Install - Type 6	0	Feet		\$ -	\$ -	\$ -	\$ -
	Pipe Install - Type 7	0	Feet		\$ -	\$ -	\$ -	\$ -
Tie-ins Crew Rates								
	Purging Volume of Nitrogen (to obtain 3 atm (44 psig) on line)	84	SCF	\$ 0.19	\$ 16	\$ 25,000	\$ 25,000	\$ 25,000
	Purging Labor	1	LS			\$ 25,000	\$ 25,000	\$ 25,000
	95% Abandonment of Existing Pipeline (\$50/CY)	1	CY			\$ 95	\$ 95	\$ 95
	5% Removal of Existing Pipeline (75% of Construction Labor Cost)	75	%					\$ 585
	Mobilization / Demobilization	1	Each			\$ 30,000	\$ 30,000	\$ 30,000
	Contaminated Soil	0	CY			\$ -	\$ -	\$ -
	Asbestos Abatement	0	Feet			\$ -	\$ -	\$ -
	Radiographic Inspection	2	Days	\$ 150	\$ 300	\$ 600	\$ 1,200	\$ 1,500
Construction period		10	days					
Total Construction Cost								\$ 97,800
3 SCG LABOR / INSPECTION								
	Projects < \$1 million - company labor is 10%	10	%				\$ 10,800	\$ 10,800
	\$1million <Projects < \$10 million - company labor is 5%	5	%				\$ -	\$ -
	Projects >\$10 million - company labor is 2.5%	2.5	%				\$ -	\$ -
Total SCG Labor / Inspection Cost								\$ 10,800
4 DESIGN / ENG. / CONST / ENVIRON.								
	Planning / Design / Eng / Coord / Procurement	10	%				\$ 10,800	\$ 10,800
	Construction Stake, As-Built Survey (2 man crew)	2	Days	\$ 100	\$ 200	\$ 1,400	\$ 2,800	\$ 3,000
	ROW Acquisition	0	LS				\$ -	\$ -
	Construction Permits	0	LS				\$ -	\$ -
	Environmental Permits	0	LS				\$ -	\$ -
	Environmental Monitoring	0	LS				\$ -	\$ -
	As-Built Drawings (\$2000+\$1/ft)	1	LS				\$ 2,026	\$ 2,026
Total Design / Engineering / Construction Cost								\$ 15,900
5 CONTINGENCY								
	Projects < \$2 million - Contingency is 30%	30	%				\$ 40,410	\$ 40,410
	Projects>\$2 million - Contingency is 20%	20	%				\$ -	\$ -
TOTAL PROJECT COST (See Appendix for assumptions/clarifications)								\$ 175,200

Comments

Facility piping.

[illegible]

[illegible]

[illegible]

ACTIVITY AND LOCATION: Line 1171 LT 2		SPECIFICATION NO.		A/E FIRM NAME SP3 SERVICES		SHEET Sheet 1 of 1		
PROJECT TITLE AND CLIENT: SOUTHERN CALIFORNIA GAS COMPANY PIPE REPLACEMENT COST ESTIMATE		ESTIMATED BY: SPEC		STATUS OF DESIGN Conceptual		DATE: July 12, 2011		
		SPEC Project Number 5057						
DESCRIPTION		QUANTITY		MATERIAL COST		LABOR COST		TOTAL COST
		NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	TOTAL
INPUT IN ALL GREEN CELLS								
1 MATERIALS								
Pipe	24 inch, 375 WT X-65	62	Feet	\$ 92	\$ 5,686			\$ 5,686
	Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ 7,229	\$ 28,917			\$ 28,917
Pressure Rating	300 lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ 179,283	\$ -			\$ -
	FBE Coating (\$/ft)		\$	\$ 6.58	\$ 408			\$ 408
	Miscellaneous Materials (5%)	1	Lot					\$ 1,730
	Freight / Tax	12.5	%					\$ 4,593
Pipe	n/a	0	Feet	\$ -	\$ -			\$ -
	Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ -	\$ -			\$ -
Pressure Rating	n/a lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ -	\$ -			\$ -
	FBE Coating (\$/ft)		\$	\$ -	\$ -			\$ -
	Miscellaneous Materials (5%)	1	Lot					\$ -
	Freight / Tax	12.5	%					\$ -
Pipe	n/a	1	Feet	\$ -	\$ -			\$ -
	Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ -	\$ -			\$ -
Pressure Rating	n/a lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ -	\$ -			\$ -
	FBE Coating (\$/ft)		\$	\$ -	\$ -			\$ -
	Miscellaneous Materials (5%)	1	Lot					\$ -
	Freight / Tax	12.5	%					\$ -
Casing	n/a	0	Feet	\$ -	\$ -			\$ -
	Miscellaneous Materials (5%)	1	Lot					\$ -
	Freight / Tax	12.5	%					\$ -
Total length		0.0	Miles					
Total Material Cost								\$ 41,400
2 CONSTRUCTION (See Appendix for construction type definitions)								
24 inch pipe								
	Pipe Install - Type 1	0	Feet			\$ 225	\$ -	\$ -
	Pipe Install - Type 2	0	Feet			\$ 360	\$ -	\$ -
	Pipe Install - Type 3	0	Feet			\$ 540	\$ -	\$ -
	Pipe Install - Type 4	0	Feet			\$ 850	\$ -	\$ -
	Pipe Install - Type 5	0	Feet			\$ 800	\$ -	\$ -
	Pipe Install - Type 6	62	Feet		\$ 600	\$ 37,200		\$ 37,200
	Pipe Install - Type 7	0	Feet			\$ 702	\$ -	\$ -
n/a								
	Pipe Install - Type 1	0	Feet			\$ -	\$ -	\$ -
	Pipe Install - Type 2	0	Feet			\$ -	\$ -	\$ -
	Pipe Install - Type 3	0	Feet			\$ -	\$ -	\$ -
	Pipe Install - Type 4	0	Feet			\$ -	\$ -	\$ -
	Pipe Install - Type 5	0	Feet			\$ -	\$ -	\$ -
	Pipe Install - Type 6	0	Feet			\$ -	\$ -	\$ -
	Pipe Install - Type 7	0	Feet			\$ -	\$ -	\$ -
n/a								
	Pipe Install - Type 1	0	Feet			\$ -	\$ -	\$ -
	Pipe Install - Type 2	0	Feet			\$ -	\$ -	\$ -
	Pipe Install - Type 3	0	Feet			\$ -	\$ -	\$ -
	Pipe Install - Type 4	0	Feet			\$ -	\$ -	\$ -
	Pipe Install - Type 5	0	Feet			\$ -	\$ -	\$ -
	Pipe Install - Type 7	1	Feet			\$ -	\$ -	\$ -
	Pipe Install - Type 6	0	Feet			\$ -	\$ -	\$ -
Tie-ins Crew Rates								
	Purging Volume of Nitrogen (to obtain 3 atm (44 psig) on line)	780	SCF	\$ 0.19	\$ 148			\$ 148
	Purging Labor	1	LS			\$ 25,000	\$ 25,000	\$ 25,000
	95% Abandonment of Existing Pipeline (\$50/CY)	7	CY			\$ 95	\$ 665	\$ 665
	5% Removal of Existing Pipeline (75% of Construction Labor Cost)	75	%					\$ 1,395
	Mobilization / Demobilization	1	Each			\$ 30,000	\$ 30,000	\$ 30,000
Contaminated Soil								
	Asbestos Abatement	0	CY			\$ -	\$ -	\$ -
	Radiographic Inspection	2	Days	\$ 150	\$ 300	\$ 600	\$ 1,200	\$ 1,500
Construction period		10	days					
Total Construction Cost								\$ 130,400
3 SCG LABOR / INSPECTION								
	Projects < \$1 million - company labor is 10%	10	%				\$ 17,180	\$ 17,180
	\$1million <Projects < \$10 million - company labor is 5%	5	%				\$ -	\$ -
	Projects >\$10 million - company labor is 2.5%	2.5	%				\$ -	\$ -
Total SCG Labor / Inspection Cost								\$ 17,200
4 DESIGN / ENG. / CONST / ENVIRON.								
	Planning / Design / Eng / Coord / Procurement	10	%				\$ 17,180	\$ 17,180
	Construction Stake, As-Built Survey (2 man crew)	2	Days	\$ 100	\$ 200	\$ 1,400	\$ 2,800	\$ 3,000
	ROW Acquisition	0	LS				\$ -	\$ -
	Construction Permits	0	LS				\$ -	\$ -
	Environmental Permits	0	LS				\$ -	\$ -
	Environmental Monitoring	0	LS				\$ -	\$ -
	As-Built Drawings (\$2000+\$1/ft)	1	LS				\$ 2,063	\$ 2,063
Total Design / Engineering / Construction Cost								\$ 22,300
5 CONTINGENCY								
	Projects < \$2 million - Contingency is 30%	30	%				\$ 63,390	\$ 63,390
	Projects>\$2 million - Contingency is 20%	20	%				\$ -	\$ -
TOTAL PROJECT COST (See Appendix for assumptions/clarifications)								\$ 274,700

Comments

Facility piping.

ACTIVITY AND LOCATION:		SPECIFICATION NO.		A/E FIRM NAME		SHEET	
Line 247		ESTIMATED BY:		SPEC		Sheet 1 of 1	
PROJECT TITLE AND CLIENT:		SPEC		STATUS OF DESIGN		DATE:	
SOUTHERN CALIFORNIA GAS COMPANY		Circumfer		SPEC Project Number		July 12, 2011	
PIPE REPLACEMENT COST ESTIMATE						5057	
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		TOTAL COST
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	TOTAL
INPUT IN ALL GREEN CELLS							
1 MATERIALS							
Pipe 16 inch, .312 WT X-65	430	Feet	\$ 57	\$ 24,665			\$ 24,665
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	5	Each	\$ 3,339	\$ 16,693			\$ 16,693
Pressure Rating 400 lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ 210,828	\$ -			\$ -
FBE Coating (\$/ft)		\$	\$ 4.14	\$ 1,780			\$ 1,780
Miscellaneous Materials (5%)	1	Lot					\$ 2,068
Freight / Tax	12.5	%					\$ 5,651
Pipe n/a	0	Feet	\$ -	\$ -			\$ -
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ -	\$ -			\$ -
Pressure Rating n/a lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ -	\$ -			\$ -
FBE Coating (\$/ft)		\$	\$ -	\$ -			\$ -
Miscellaneous Materials (5%)	1	Lot					\$ -
Freight / Tax	12.5	%					\$ -
Pipe n/a	1	Feet	\$ -	\$ -			\$ -
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ -	\$ -			\$ -
Pressure Rating n/a lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ -	\$ -			\$ -
FBE Coating (\$/ft)		\$	\$ -	\$ -			\$ -
Miscellaneous Materials (5%)	1	Lot					\$ -
Freight / Tax	12.5	%					\$ -
Casing n/a	0	Feet	\$ -	\$ -			\$ -
Miscellaneous Materials (5%)	1	Lot					\$ -
Freight / Tax	12.5	%					\$ -
Total length	0.1	Miles					
Total Material Cost							\$ 50,900
2 CONSTRUCTION	(See Appendix for construction type definitions)						
16 inch pipe							
Pipe Install - Type 1	0	Feet			\$ 200	\$ -	\$ -
Pipe Install - Type 2	430	Feet			\$ 320	\$ 137,600	\$ 137,600
Pipe Install - Type 3	0	Feet			\$ 500	\$ -	\$ -
Pipe Install - Type 4	0	Feet			\$ 750	\$ -	\$ -
Pipe Install - Type 5	0	Feet			\$ 600	\$ -	\$ -
Pipe Install - Type 6	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 7	0	Feet			\$ 650	\$ -	\$ -
n/a							
Pipe Install - Type 1	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 2	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 3	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 4	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 5	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 6	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 7	0	Feet			\$ -	\$ -	\$ -
n/a							
Pipe Install - Type 1	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 2	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 3	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 4	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 5	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 7	1	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 6	0	Feet			\$ -	\$ -	\$ -
Tie-ins Crew Rates	1	Each			\$ 34,919	\$ 34,919	\$ 34,919
Purging Volume of Nitrogen (to obtain 3 atm (44 psig) on line)	2404	SCF	\$ 0.19	\$ 457			\$ 457
Purging Labor	1	LS			\$ 25,000	\$ 25,000	\$ 25,000
95% Abandonment of Existing Pipeline (\$50/CY)	22	CY			\$ 95	\$ 2,090	\$ 2,090
5% Removal of Existing Pipeline (75% of Construction Labor Cost)	75	%					\$ 5,160
Mobilization / Demobilization	1	Each			\$ 30,000	\$ 30,000	\$ 30,000
Contaminated Soil	0	CY			\$ -	\$ -	\$ -
Asbestos Abatement	0	Feet			\$ -	\$ -	\$ -
Radiographic Inspection	2	Days	\$ 150	\$ 300	\$ 600	\$ 1,200	\$ 1,500
Construction period	10	days					
Total Construction Cost							\$ 236,800
3 SCG LABOR / INSPECTION							
Projects < \$1 million - company labor is 10%	10	%			\$ 28,770	\$ 28,770	\$ 28,770
\$1million <Projects < \$10 million - company labor is 5%	5	%			\$ -	\$ -	\$ -
Projects >\$10 million - company labor is 2.5%	2.5	%			\$ -	\$ -	\$ -
Total SCG Labor / Inspection Cost							\$ 28,800
4 DESIGN / ENG. / CONST / ENVIRON.							
Planning / Design / Eng / Coord / Procurement	10	%			\$ 28,770	\$ 28,770	\$ 28,770
Construction Stake, As-Built Survey (2 man crew)	2	Days	\$ 100	\$ 200	\$ 1,400	\$ 2,800	\$ 3,000
ROW Acquisition	0	LS			\$ -	\$ -	\$ -
Construction Permits	0	LS			\$ -	\$ -	\$ -
Environmental Permits	0	LS			\$ -	\$ -	\$ -
Environmental Monitoring	0	LS			\$ -	\$ -	\$ -
As-Built Drawings (\$2000*\$/ft)	1	LS			\$ 2,431	\$ 2,431	\$ 2,431
Total Design / Engineering / Construction Cost							\$ 34,300
5 CONTINGENCY							
Projects < \$2 million - Contingency is 30%	30	%			\$ 105,240	\$ 105,240	\$ 105,240
Projects>\$2 million - Contingency is 20%	20	%			\$ -	\$ -	\$ -
TOTAL PROJECT COST (See Appendix for assumptions/clarifications)							\$ 456,100

Comments

[illegible]

ACTIVITY AND LOCATION:		SPECIFICATION NO.		A/E FIRM NAME		SHEET	
Line 408X01				SPC SERVICES		Sheet 1 of 1	
PROJECT TITLE AND CLIENT:		ESTIMATED BY:		DATE:			
SOUTHERN CALIFORNIA GAS COMPANY		SPEC		July 13, 2011			
PIPE REPLACEMENT COST ESTIMATE		STATUS OF DESIGN		SPEC Project Number			
		Conceptual		5057			
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		TOTAL COST
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	TOTAL
INPUT IN ALL GREEN CELLS							
1 MATERIALS							
Pipe 16 inch, .312 WT X-65	56	Feet	\$ 57	\$ 3,212			\$ 3,212
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ 3,339	\$ 13,355			\$ 13,355
Pressure Rating 300 lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ 94,320	\$ -			\$ -
FBE Coating (\$/ft)			\$ 4.14	\$ 232			\$ 232
Miscellaneous Materials (5%)	1	Lot					\$ 828
Freight / Tax	12.5	%					\$ 2,203
Pipe n/a	0	Feet	\$ -	\$ -			\$ -
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ -	\$ -			\$ -
Pressure Rating n/a lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ -	\$ -			\$ -
FBE Coating (\$/ft)			\$ -	\$ -			\$ -
Miscellaneous Materials (5%)	1	Lot					\$ -
Freight / Tax	12.5	%					\$ -
Pipe n/a	1	Feet	\$ -	\$ -			\$ -
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)	4	Each	\$ -	\$ -			\$ -
Pressure Rating n/a lb Block Valve w/Electric Actuator (one per 4 miles)	0	Each	\$ -	\$ -			\$ -
FBE Coating (\$/ft)			\$ -	\$ -			\$ -
Miscellaneous Materials (5%)	1	Lot					\$ -
Freight / Tax	12.5	%					\$ -
Casing n/a	0	Feet	\$ -	\$ -			\$ -
Miscellaneous Materials (5%)	1	Lot					\$ -
Freight / Tax	12.5	%					\$ -
Total length	0.0	Miles					
Total Material Cost							\$ 19,900
2 CONSTRUCTION	(See Appendix for construction type definitions)						
16 inch pipe							
Pipe Install - Type 1	0	Feet			\$ 200	\$ -	\$ -
Pipe Install - Type 2	0	Feet			\$ 320	\$ -	\$ -
Pipe Install - Type 3	56	Feet			\$ 500	\$ 28,000	\$ 28,000
Pipe Install - Type 4	0	Feet			\$ 750	\$ -	\$ -
Pipe Install - Type 5	0	Feet			\$ 600	\$ -	\$ -
Pipe Install - Type 6	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 7	0	Feet			\$ 650	\$ -	\$ -
n/a							
Pipe Install - Type 1	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 2	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 3	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 4	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 5	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 6	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 7	0	Feet			\$ -	\$ -	\$ -
n/a							
Pipe Install - Type 1	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 2	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 3	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 4	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 5	0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 7	1	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 6	0	Feet			\$ -	\$ -	\$ -
Tie-ins Crew Rates	1	Each			\$ 34,386	\$ 34,386	\$ 34,386
Purging Volume of Nitrogen (to obtain 3 atm (44 psig) on line)	316	SCF	\$ 0.19	\$ 60			\$ 60
Purging Labor	1	LS			\$ 25,000	\$ 25,000	\$ 25,000
95% Abandonment of Existing Pipeline (\$50/CY)	3	CY			\$ 95	\$ 285	\$ 285
5% Removal of Existing Pipeline (75% of Construction Labor Cost)	75	%					\$ 1,050
Mobilization / Demobilization	1	Each			\$ 30,000	\$ 30,000	\$ 30,000
Contaminated Soil	0	CY			\$ -	\$ -	\$ -
Asbestos Abatement	0	Feet			\$ -	\$ -	\$ -
Radiographic Inspection	2	Days	\$ 150	\$ 300	\$ 600	\$ 1,200	\$ 1,500
Construction period	10	days					
Total Construction Cost							\$ 120,300
3 SCG LABOR / INSPECTION							
Projects < \$1 million - company labor is 10%	10	%				\$ 14,020	\$ 14,020
\$1million <Projects < \$10 million - company labor is 5%	5	%				\$ -	\$ -
Projects >\$10 million - company labor is 2.5%	2.5	%				\$ -	\$ -
Total SCG Labor / Inspection Cost							\$ 14,100
4 DESIGN / ENG. / CONST / ENVIRON.							
Planning / Design / Eng / Coord / Procurement	10	%				\$ 14,020	\$ 14,020
Construction Stake, As-Built Survey (2 man crew)	2	Days	\$ 100	\$ 200	\$ 1,400	\$ 2,800	\$ 3,000
ROW Acquisition	0	LS				\$ -	\$ -
Construction Permits	0	LS				\$ -	\$ -
Environmental Permits	0	LS				\$ -	\$ -
Environmental Monitoring	0	LS				\$ -	\$ -
As-Built Drawings (\$2000*\$1/ft)	1	LS				\$ 2,057	\$ 2,057
Total Design / Engineering / Construction Cost							\$ 19,100
5 CONTINGENCY							
Projects < \$2 million - Contingency is 30%	30	%				\$ 52,020	\$ 52,020
Projects>\$2 million - Contingency is 20%	20	%				\$ -	\$ -
TOTAL PROJECT COST (See Appendix for assumptions/clarifications)							\$ 225,500

Comments

Inside Road Shoulder

ACTIVITY AND LOCATION:		Line 5009		SPECIFICATION NO.		I-E FIRM NAME		SHEET		
PROJECT TITLE AND CLIENT: SOUTHERN CALIFORNIA GAS COMPANY PIPE REPLACEMENT COST ESTIMATE				ESTIMATED BY:				SHEET 1 of 1		
				SPEC				DATE:		
				STATUS OF DESIGN				SPEC Project Number		
50090000								5007		
DESCRIPTION				QUANTITY		MATERIAL COST		LABOR COST		TOTAL COST
				NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	TOTAL
INPUT IN ALL GREEN CELLS										
1 MATERIALS										
Pipe 12 inch, STD, WT X-52				216	Feet	\$ 44	\$ 9,564			\$ 9,564
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)				4	Each	\$ 1,833	\$ 7,333			\$ 7,333
Pressure Rating 150 lb Block Valve w/Electric Actuator (one per 4 miles)				0	Each	\$ -	\$ -			\$ -
FBE Coating (\$/ft)						\$ 3.26	\$ 704			\$ 704
Miscellaneous Materials (5%)				1	Lot					\$ 845
Freight / Tax				12.5	%					\$ 2,306
Pipe 150				0	Feet	\$ -	\$ -			\$ -
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)				4	Each	\$ -	\$ -			\$ -
Pressure Rating 150 lb Block Valve w/Electric Actuator (one per 4 miles)				0	Each	\$ -	\$ -			\$ -
FBE Coating (\$/ft)						\$ -	\$ -			\$ -
Miscellaneous Materials (5%)				1	Lot					\$ -
Freight / Tax				12.5	%					\$ -
Pipe 150				1	Feet	\$ -	\$ -			\$ -
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)				4	Each	\$ -	\$ -			\$ -
Pressure Rating 150 lb Block Valve w/Electric Actuator (one per 4 miles)				0	Each	\$ -	\$ -			\$ -
FBE Coating (\$/ft)						\$ -	\$ -			\$ -
Miscellaneous Materials (5%)				1	Lot					\$ -
Freight / Tax				12.5	%					\$ -
Casing 150				0	Feet	\$ -	\$ -			\$ -
Miscellaneous Materials (5%)				1	Lot					\$ -
Freight / Tax				12.5	%					\$ -
Total length				0.0	Miles					
Total Material Cost										\$ 20,800
2 CONSTRUCTION										
(See Appendix for construction type definitions)										
12 inch pipe										
Pipe Install - Type 1				0	Feet			\$ 175	\$ -	\$ -
Pipe Install - Type 2				0	Feet			\$ 280	\$ -	\$ -
Pipe Install - Type 3				0	Feet			\$ 450	\$ -	\$ -
Pipe Install - Type 4				0	Feet			\$ 600	\$ -	\$ -
Pipe Install - Type 5				0	Feet			\$ 400	\$ -	\$ -
Pipe Install - Type 6				216	Feet			\$ 600	\$ 129,600	\$ 129,600
Pipe Install - Type 7				0	Feet			\$ 585	\$ -	\$ -
n/a										
Pipe Install - Type 1				0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 2				0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 3				0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 4				0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 5				0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 6				0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 7				0	Feet			\$ -	\$ -	\$ -
n/a										
Pipe Install - Type 1				0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 2				0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 3				0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 4				0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 5				0	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 6				1	Feet			\$ -	\$ -	\$ -
Pipe Install - Type 7				0	Feet			\$ -	\$ -	\$ -
Tie-ins Crew Rates										
Purging Volume of Nitrogen (to obtain 3 atm (44 psig) on line)				680	SCF	\$ 0.19	\$ 129			\$ 129
Purging Labor				1	LS			\$ 25,000	\$ 25,000	\$ 25,000
95% Abandonment of Existing Pipeline (\$50/CY)				6	CY			\$ 95	\$ 570	\$ 570
5% Removal of Existing Pipeline (75% of Construction Labor Cost)				75	%					\$ 4,860
Mobilization / Demobilization				1	Each			\$ 30,000	\$ 30,000	\$ 30,000
Contaminated Soil				0	CY			\$ -	\$ -	\$ -
Asbestos Abatement				0	Feet			\$ -	\$ -	\$ -
Radiographic Inspection				4	Days	\$ 150	\$ 600	\$ 600	\$ 2,400	\$ 3,000
Construction period				12	days					
Total Construction Cost										\$ 218,100
3 SCG LABOR / INSPECTION										
Projects < \$1 million - company labor is 10%				10	%				\$ 23,890	\$ 23,890
\$1million <Projects < \$10 million - company labor is 5%				5	%				\$ -	\$ -
Projects >\$10 million - company labor is 2.5%				2.5	%				\$ -	\$ -
Total SCG Labor / Inspection Cost										\$ 23,900
4 DESIGN / ENG. / CONST. / ENVIRON.										
Planning / Design / Eng / Coord / Procurement				10	%				\$ 23,890	\$ 23,890
Construction Stake, As-Built Survey (2 man crew)				4	Days	\$ 100	\$ 400	\$ 1,400	\$ 5,600	\$ 6,000
ROW Acquisition				0	LS				\$ -	\$ -
Construction Permits				0	LS				\$ -	\$ -
Environmental Permits				0	LS				\$ -	\$ -
Environmental Monitoring				0	LS				\$ -	\$ -
As-Built Drawings (\$2000+\$1/ft)				1	LS				\$ 2,217	\$ 2,217
Total Design / Engineering / Construction Cost										\$ 32,200
5 CONTINGENCY										
Projects < \$2 million - Contingency is 30%				30	%				\$ 88,500	\$ 88,500
Projects>\$2 million - Contingency is 20%				20	%				\$ -	\$ -
TOTAL PROJECT COST (See Appendix for assumptions/clarifications)										\$ 383,500

[illegible]

[illegible]

ACTIVITY AND LOCATION:		SPECIFICATION NO.		A/E FIRM NAME		SHEET	
Line 775BO1				SPC SERVICES		Sheet 1 of 1	
PROJECT TITLE AND CLIENT:		ESTIMATED BY:		DATE:			
SOUTHERN CALIFORNIA GAS COMPANY		SPEC		July 13, 2011			
PIPE REPLACEMENT COST ESTIMATE		STATUS OF DESIGN		SPEC Project Number			
		Conceptual		5057			
DESCRIPTION		QUANTITY		MATERIAL COST		LABOR COST	
		NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL
							TOTAL
INPUT IN ALL GREEN CELLS							
1 MATERIALS							
Pipe 8 inch, STD. WT X-52		35	Feet	\$ 26	\$ 902		\$ 902
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)		4	Each	\$ 824	\$ 3,296		\$ 3,296
Pressure Rating 300 lb Block Valve w/Electric Actuator (one per 4 miles)		0	Each	\$ 24,779	\$ -		\$ -
FBE Coating (\$/ft)			\$	\$ 2.29	\$ 80		\$ 80
Miscellaneous Materials (5%)		1	Lot				\$ 210
Freight / Tax		12.5	%				\$ 561
Pipe n/a		0	Feet	\$ -	\$ -		\$ -
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)		4	Each	\$ -	\$ -		\$ -
Pressure Rating n/a lb Block Valve w/Electric Actuator (one per 4 miles)		0	Each	\$ -	\$ -		\$ -
FBE Coating (\$/ft)			\$	\$ -	\$ -		\$ -
Miscellaneous Materials (5%)		1	Lot				\$ -
Freight / Tax		12.5	%				\$ -
Pipe n/a		0	Feet	\$ -	\$ -		\$ -
Bends, 3R-Forged (minimum of 4, plus 1 bend/250 feet)		4	Each	\$ -	\$ -		\$ -
Pressure Rating n/a lb Block Valve w/Electric Actuator (one per 4 miles)		0	Each	\$ -	\$ -		\$ -
FBE Coating (\$/ft)			\$	\$ -	\$ -		\$ -
Miscellaneous Materials (5%)		1	Lot				\$ -
Freight / Tax		12.5	%				\$ -
Casing n/a		0	Feet	\$ -	\$ -		\$ -
Miscellaneous Materials (5%)		1	Lot				\$ -
Freight / Tax		12.5	%				\$ -
Total length		0.0	Miles				
Total Material Cost							\$ 5,100
2 CONSTRUCTION (See Appendix for construction type definitions)							
8 inch pipe							
Pipe Install - Type 1		0	Feet		\$ 175	\$ -	\$ -
Pipe Install - Type 2		0	Feet		\$ 280	\$ -	\$ -
Pipe Install - Type 3		0	Feet		\$ 450	\$ -	\$ -
Pipe Install - Type 4		0	Feet		\$ 600	\$ -	\$ -
Pipe Install - Type 5		0	Feet		\$ 400	\$ -	\$ -
Pipe Install - Type 6		35	Feet		\$ 600	\$ 21,000	\$ 21,000
Pipe Install - Type 7		0	Feet		\$ 585	\$ -	\$ -
n/a							
Pipe Install - Type 1		0	Feet		\$ -	\$ -	\$ -
Pipe Install - Type 2		0	Feet		\$ -	\$ -	\$ -
Pipe Install - Type 3		0	Feet		\$ -	\$ -	\$ -
Pipe Install - Type 4		0	Feet		\$ -	\$ -	\$ -
Pipe Install - Type 5		0	Feet		\$ -	\$ -	\$ -
Pipe Install - Type 6		0	Feet		\$ -	\$ -	\$ -
Pipe Install - Type 7		0	Feet		\$ -	\$ -	\$ -
n/a							
Pipe Install - Type 1		0	Feet		\$ -	\$ -	\$ -
Pipe Install - Type 2		0	Feet		\$ -	\$ -	\$ -
Pipe Install - Type 3		0	Feet		\$ -	\$ -	\$ -
Pipe Install - Type 4		0	Feet		\$ -	\$ -	\$ -
Pipe Install - Type 5		0	Feet		\$ -	\$ -	\$ -
Pipe Install - Type 7		0	Feet		\$ -	\$ -	\$ -
Pipe Install - Type 6		0	Feet		\$ -	\$ -	\$ -
Tie-ins Crew Rates		1	Each		\$ 25,000	\$ 25,000	\$ 25,000
Purging Volume of Nitrogen (to obtain 3 atm (44 psig) on line)		52	SCF	\$ 0.19	\$ 10		\$ 10
Purging Labor		1	LS		\$ 25,000	\$ 25,000	\$ 25,000
95% Abandonment of Existing Pipeline (\$50/CY)		1	CY		\$ 95	\$ 95	\$ 95
5% Removal of Existing Pipeline (75% of Construction Labor Cost)		75	%				\$ 788
Mobilization / Demobilization		1	Each		\$ 30,000	\$ 30,000	\$ 30,000
Contaminated Soil		0	CY		\$ -	\$ -	\$ -
Asbestos Abatement		0	Feet		\$ -	\$ -	\$ -
Radiographic Inspection		2	Days	\$ 150	\$ 300	\$ 600	\$ 1,200
Construction period		10	days				
Total Construction Cost							\$ 103,400
3 SCG LABOR / INSPECTION							
Projects < \$1 million - company labor is 10%		10	%			\$ 10,850	\$ 10,850
\$1million <Projects < \$10 million - company labor is 5%		5	%			\$ -	\$ -
Projects >\$10 million - company labor is 2.5%		2.5	%			\$ -	\$ -
Total SCG Labor / Inspection Cost							\$ 10,900
4 DESIGN / ENG. / CONST / ENVIRON.							
Planning / Design / Eng / Coord / Procurement		10	%			\$ 10,850	\$ 10,850
Construction Stake, As-Built Survey (2 man crew)		2	Days	\$ 100	\$ 200	\$ 1,400	\$ 2,800
ROW Acquisition		0	LS			\$ -	\$ -
Construction Permits		0	LS			\$ -	\$ -
Environmental Permits		0	LS			\$ -	\$ -
Environmental Monitoring		0	LS			\$ -	\$ -
As-Built Drawings (\$2000*\$1/ft)		1	LS			\$ 2,035	\$ 2,035
Total Design / Engineering / Construction Cost							\$ 15,900
5 CONTINGENCY							
Projects < \$2 million - Contingency is 30%		30	%			\$ 40,590	\$ 40,590
Projects>\$2 million - Contingency is 20%		20	%			\$ -	\$ -
TOTAL PROJECT COST (See Appendix for assumptions/clarifications)							\$ 175,900

Comments

Facility Piping