

Application of SOUTHERN CALIFORNIA GAS)
COMPANY for authority to update its gas revenue)
requirement and base rates)
effective January 1, 2016 (U 904-G))

(NOI for) Application No. 14-11-____
Exhibit No.: (SCG-08-WP)

WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF MARIA T. MARTINEZ
ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

JULY 2014



2016 General Rate Case - APP
INDEX OF WORKPAPERS

Exhibit SCG-08-WP - TIMP & DIMP

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Overall Summary For Exhibit No. SCG-08-WP

Area:	TIMP & DIMP
Witness:	Maria T. Martinez

Description	In 2013 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Non-Shared Services	82,057	77,403	71,832	97,154
Shared Services	0	0	0	0
Total	82,057	77,403	71,832	97,154

Note: Totals may include rounding differences.

Southern California Gas Company
 2016 GRC - APP
 Non-Shared Service Workpapers

Area: TIMP & DIMP
 Witness: Maria T. Martinez

Summary of Non-Shared Services Workpapers:

Description	In 2013 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
A. TIMP	42,717	49,212	44,740	55,027
B. DIMP	39,340	28,191	27,092	42,127
Total	82,057	77,403	71,832	97,154

Note: Totals may include rounding differences.

Southern California Gas Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: TIMP & DIMP
Witness: Maria T. Martinez
Category: A. TIMP
Workpaper: 2TD000.000

Summary for Category: A. TIMP

	In 2013\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	12,873	13,324	13,790	14,273
Non-Labor	29,844	35,888	30,950	40,754
NSE	0	0	0	0
Total	42,717	49,212	44,740	55,027
FTE	147.9	152.0	157.0	163.0

Workpapers belonging to this Category:

2TD000.000 TIMP

Labor	12,873	13,324	13,790	14,273
Non-Labor	29,844	35,888	30,950	40,754
NSE	0	0	0	0
Total	42,717	49,212	44,740	55,027
FTE	147.9	152.0	157.0	163.0

Note: Totals may include rounding differences.

SoCalGas TIMP Non-Labor Support O&M Supplemental Work Paper

Business Purpose

To be in compliance SoCalGas' is required under CFR Part 192 Subpart O—Gas Transmission Pipeline Integrity Management to continually identify threats to their transmission pipelines located in High Consequence Areas (HCAs), determine the risk posed by these threats, schedule and track assessments to address threats within prescribed timelines, collect information about the condition of the pipelines, take actions to minimize applicable threats and integrity concerns to reduce the risk of a pipeline failure and report findings to regulators.

The activities as prescribed by Subpart O are primarily implemented and managed by the Transmission Integrity Management Program Team. The team is composed of engineers, project managers, technical advisors, project specialist and other roles with varying degree of responsibility. The various activities managed by the TIMP team can be categorized into seven areas associated with the compliance of Subpart O.

- Threat Identification and Risk Assessment
- Baseline Assessment Plan
- Assessment
- Remediation
- Additional Preventative and Mitigative Measures
- Geographic Information System (GIS) – High Pressure Pipeline Database
- Auditing and Reporting

Physical Description & Project Justification

The O&M non-labor to support the seven areas of compliance can be grouped in the following areas:

Contracting (Consulting and Field Services): As part of the continuous improvement consulting and field services are leveraged throughout the year to provide feedback on existing processes for areas of improvement or develop new processes. Field support is needed throughout the year for additional preventative and mitigative measures for casings and facility inspections.

Data Collection (Pipe Samples, Records, Testing): As part of the traceable, verifiable and complete recommendation issued by NTSB additional records research and in some cases pipe sampling is needed to support the expectation issued by PHMSA in response to the NTSB (Advisory Bulletin 11-01, January 3, 2011).

The advisory states that operators relying on the review of design, construction, inspection, testing, and other related data to calculate MAOP (for gas pipelines) or MOP

(for liquid pipelines) must diligently search for relevant records and ensure that the records are traceable, verifiable, and complete. If such a search and verification cannot be completed, the operator cannot rely on this method for calculating MAOP. The advisory also reminded operators of their responsibilities to identify pipeline integrity threats; perform rigorous risk analyses; integrate information; and identify, evaluate, and implement preventative and mitigative measures.

High Pressure Pipeline Database (Application Upgrades, Aerial Photography, Building Detection Changes): The HPPD supports various activities within Pipeline Integrity such as High Consequence Area review, creation of the Assessment Plan to support scheduling of assessments, analysis for risk and threat and assessment analysis. An upgrade to a new version of ESRI will be required and conversion to PODS model database. As part of the of the annual High Consequence Area review new photography is purchased for change detection.

Staff Support (Training, Licenses and Certifications): The TIMP team consists mainly of engineers that support critical roles such as assessment and remediation recommendations, risk and threat analysis and preventative and mitigative recommendations. The engineers throughout the year sent to courses centered on these activities and some cases obtain certifications from the National Association of Corrosion Engineers. For such as ASME or DOT training custom courses is with an emphasis on pipeline integrity and provided to the engineering team.

Forecast Methodology

The forecast methodology was developed using recent contracting rates, bids submittals and average cost for activities.

- Average hourly rate for consulting and fields services: \$131
- Average cost per excavation: \$45,000
- Training: \$4,000 (\$3,000 per course and \$1,000 travel), \$25,000 group in-house training sessions
- Aerial Photography, Change Detection and Licenses for HPPD: \$517,000
- Total 2016 Request: \$8,714,006

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2016 GRC - APP
Non-Shared Service Workpapers

		2016		
SCG - TIMP	Labor	Non-Labor	Total	
1	In-Line Inspection (Assessment)	2,078,435	29,271,644	31,350,079
2	ECDA (Assessment)	0	2,768,350	2,768,350
3	Casing Inspections (P&M)	0	8,714,006	0
4	Integrity Assessment 2200-2109, 2299	1,178,053		1,178,053
5	Data Mgt 2200-2297, 2325	1,187,906		1,187,906
6	Data Mgt/Compliance/GPS 2200-0319, 2290, 2298	1,656,170		1,656,170
7	Assessment Planning 2200- 2291, 2292	1,327,749		1,327,749
8	Direct Assessment/ECDA/P&M 2200-2203, 2294	1,381,200		1,381,200
9	PI Director 2200-2108	494,918		9,208,924
10	Other (various cost centers)	2,666,421		2,666,421
11	Ops Tech Support 2200-2499	17,041		17,041
12	Vacation & Sick	2,285,107		0
13		\$14,273,000	\$40,754,000	\$55,027,000

**In-Line Inspection (ILI)
O&M Workpaper - SoCalGas**

Business Purpose

On December 17, 2002 the Pipeline Safety Improvement Act of 2002 (PSIA 2002) was signed into law, and subsequently 49 C.F.R. Part 192 Subpart O was published. The final rule was effective January 14, 2004. Under this rule, operators of gas transmission pipelines are required to identify the threats to their pipelines, analyze the risk posed by these threats, assess the physical condition of their pipelines and take actions to address applicable threats and integrity concerns before pipeline incidents can occur.

Physical Description

The assessment of this pipeline will be completed using In-Line Inspection (ILI) tools. The ILI tools will traverse internally along the route of the pipeline to collect information that will be used to complete the assessment of the pipeline. The tools are inserted into the pipelines by installing a temporary or permanent launcher and receiver typically installed near the time of inspection.

Following the completion of the inspection excavations to validate or remediate the inspection findings will be needed. When possible, multiple pipelines may be combined into a single run, and conversely, a single pipeline may require multiple launcher and receiver points.

Project Justification

All DOT Transmission Pipeline Integrity assessments are in response to the Federal Pipeline Safety Improvement Act of 2002 and are required to comply with the subsequent rule making. Capital repairs and replacements are constructed in accordance with 49 C.F.R. Part 192, ASME B31.8, and other codes and standards as appropriate. Assessments need to be completed on continual basis using In-Line Inspection (ILI) tools, Pressure Testing or Direct Assessment to address the identified threats on each pipeline. The assessment of transmission pipelines located in High Consequence Area (HCA) requires an assessment to be completed at a minimum every 7 years. 49 C.F.R § 192.939 establishes the requirements for determining the reassessment interval for covered pipelines but goes on to stipulate “ *the maximum reassessment interval by an allowable reassessment method is seven years*”.

Forecast Methodology

The cost to assess a pipeline is forecast using the following four components:

1. Retrofit of the pipeline and capital replacement
2. Installation of launcher and receiver facilities
3. In-Line Inspection
4. Excavations & remediation

The retrofit and installation of launcher and receiver is a capitalized cost while the in-line inspection and excavation and minor repairs (components 3 and 4 above) are expense.

To forecast the cost of this assessment project, the methodology is using the average cost of ILI per site and minor repairs. The methodology for capital costs is to use the average cost of installing a launcher/receiver facilities and average cost for retrofit/repairs.

Capital Component:

The cost to complete this component is based upon the average cost incurred during 2013 for the retrofit, installation launch/receiver materials of a typical project including radiography and equipment expenses and capital replacements. The resulting total average cost for capital is \$1,062,415 per site.

O&M Component:

The cost to complete this component is based upon the average cost incurred during 2013 for data collection, ILI inspection and excavations required for validation and minor repairs. The resulting total average cost for O&M is \$1,008,791 per ILI run. For the projects denoted with an asterisk below additional costs are expected for retrofit and replacement based on similar projects.

Distribution of Labor /Non Labor:

The majority of work required to accomplish in projects is contractor work and materials which is pooled into the non-labor category. Based upon 2013 company headcount will remain fairly constant for the 2014-2016 period, we are estimating labor to be based on 2013 actual inflated each year by labor factor of 3.5%.

Based upon the methodology described above, the projected costs for ILI O&M are:

1	Task	Avg Cost
2	Avg Cst per ILI Site	\$1,008,791
3	Add'l Cst TFI/Retrofit repairs	\$504,396

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Non-Shared Service Workpapers

Year 2014				
Pipeline	Launch (start)	Receive (end)	Miles	
1	1010	Gaviota Reg Station	Divide Station	31.59
2	35-20	Bristol St & Red Hill (Conta Mesa)	Dana Point Station	21.25
3	235 E	Kelso Compr Station	Newberry Springs Compr Station	58.79
4	404	Olive St Station	Santa Clara Rivera	12.5
5	1024 & 1176	LeCouver Reg Station	Del Amo & Wilmington	5.45
6	404	Somis Meter Station	Haskell Station	24.14
7	800	Kettleman City - Henrietta Peaker Plnt	LeMoore Ca	25.93
8	1016	Yorba Reg Station	Chestnut & Grand	13.4
9	765	Ph 1 & Ph4 TwYrd / ArroyoSeco	Spence Street/ATS Tow Yard	6.0
10	765	PH 3 Spence Station	Willow Station	17.13
11	765	Ph2 Fairmont & 134 Frwy	Cypress & Arroyo Seco	6.26
12	765	Ph5 Cargo Container Yrd - South of PCH	Casings # 8001313 to 8001314	0.49
13	127 & 1004	Goleta Compr Station	Parsons (1004S3)	22.64
14	406	Ventura Compr Station	Burbank & Lindley	51.00
15	235 W	Newberry Springs Compr Station	Victorville Base	46.77
16	3001	Burbank Blvd	Noble Ave	5.23
17	45-1106	Alameda St	Casing #8000564	0.13
18	31-09	Barranca - South Garvey	Casing # 8000027	0.13
19	6916	29 Palms	Morongo	60.12
20			ILI Sites: 19	\$19,167,029
21			Carryover into 2015	\$3,833,406
22			Subtotal 2014 Non-Labor	\$15,333,623
23			add'l charge for Retrofit/Repair	\$0
24			2013 Carryover into 2014	\$4,438,680
25			Labor 2014	\$1,940,243
26			Total O&M 2014	\$21,712,546

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Year 2015				
Pipeline	Launch (start)	Receive (end)	Miles	
1	1027	Moreno Comp Station	Rainbow Mater Station	34.45
2	1019	Almond St & Parker Ave	Haynes Reg Station	14.50
3	3001	Burbank Blvd & Lindley	Noble Ave & Valley Heart	5.19
4	1200	Eubank & Q Street	Bell Porte & 257th Street	3.29
5	38-504	Hanford Base	LeMoore Junction	10.18
6	1020	Lakewood Ca (Del Amo & State St)	Haynes Reg Station	6.04
7	1172	Duley Station	NRG Steam Power Plant	3.37
8	247	Goleta Comp Station	Gaviota Reg Station	24.21
9	7039	L7200	Kern River	16.98
10	5000-2	Blythe Compr Station	Cactus Cit Compr Station	50.44
11	20000	Santa Fe Springs Station	Spence Station	3.52
12	235 W	Victorville Base	Quigley Station	72.00
13	1173	400" w/o Aviation & El Segundo	Grand Ave East of Vista Del Mar	2.85
14	325	Willow Station	Alameda	1.35
15	5000-4 *	MLV 19B	MLV 20B (Chino Airport)	7.19
16			ILI Sites: 15	\$15,131,865
17			Carryover into 2016	\$3,026,373
18			Subtotal 2015 Non-Labor	\$12,105,492
19			*add'l charge for Retrofit/Repair	\$504,396
20			2014 Carryover into 2015	\$3,833,406
21			Labor 2014	\$2,007,866
22			Total O&M 2015	\$18,451,159

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Year 2016				
Pipeline	Launch (start)	Receive (end)	Miles	
1	5000-3	Whitewater Station Beaumont	Moreno Comp Station	31.42
2	2001 W	Cactus City Compr Station	Moreno Station	75.64
3	160 & 1005	More Ranch Rd Station	Ventura Comp Station	0.52
4	6905	Kramer Junction	Adelanto Comp Station	31.71
5	80	UCSB Miller Well Site	California Freeway 217	0.8
6	80	UCSB Miller Well Site	California Freeway 217	0.55
7	6916	Essex	Twenty-nine Palms	52.41
8	1185 & 4002	Adelanto Compr Station	Fontana Base	30.6
9	1005	Taylor Ranch Rd Crossover Valve	Ventura Compr Station	0.52
10	1017	Santa Ana (Grand Ave & Chestnut)	Costa Mesa (Red Hill Ave)	6.48
11	325	Willow Station	Alameda	1.35
12	2000	Cactus City Compr Station	Moreno Compr Station	75.1
13	3600	Harvest Road Station	Santee Station	29.86
14	3002	Glen Oaks & Estelle	Glendale & Fairmont	0.35
15	235 W *	Kelso	Newberry Springs	56.71
16	3000 E *	El Paso Gas / River Station	Needles Compr Station	8.27
17	3000 E *	Needles Compr Station	Newberry Compr Station	116.43
18	8109 *	Ph 1Cuyama Meter Station	Apache Valve Sta	18.21
19	8109 *	Ph 2 Apache Valve Station	Live Oaks Valve - Santa Ana Rd	22.55
20	8109 *	Ph 3 Live Oaks Valve - Santa Ana Rd	Mandalay Steam Plant	16.7
21	7000/293 *	DelAmo Junction Station	Visalia Station	39.45
22			ILI Sites: 21	\$21,184,611
23			Carryover into 2017	\$4,236,922
24			Subtotal 2016 Non-Labor	\$16,947,689
25			*add'l charge for Retrofit/Repair	\$9,297,582
26			2015 Carryover into 2016	\$3,026,373
27			Labor 2016	\$2,078,435
28			Total O&M 2016	\$31,350,079

External Corrosion Direct Assessment (ECDA)

O&M Supplemental Work Paper

Business Purpose

External Corrosion Direct Assessment (ECDA) of Department of Transportation defined transmission pipelines is conducted in accordance with the TIMP Baseline/Re- Assessment Plan to comply with requirements of CFR 49 part 192 subpart O.

Physical Description

ECDA is a process that proactively seeks to identify external corrosion defects before they grow to a size that affects the structural integrity of the inspected pipeline segment. ECDA is a four step process including

1. Pre-assessment (data collection, review evaluation)
2. Indirect inspection surveys (over line electrical surveys)
3. Direct examination digs (excavation and field inspection of pipe)
4. Post assessment (data review, verification and acceptance)

Project Justification

Assessment is mandated by regulatory requirements in CFR 49 part 192 subpart O. Assessment using ECDA is utilized for pipelines to address threats of external corrosion where ILI is not practical or feasible.

Forecast Methodology

Costs for ECDA projects are estimated based on a history of completing these type projects over the past 10 years and are assembled based on the costs for each phase/step of an ECDA project and the overall length of the pipeline assessment. Typical costs are \$35,000/mile for indirect inspection (with a minimum cost of \$16,000 per project), 1.79 digs per mile (with a minimum of 4 digs per project) at a cost of 45,000 per dig non-labor.

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Task	Average Cost	
Line Survey	\$35,000	per mile
Excavations	\$45,000	Per dig
Company Labor	\$30,000	Per Job

2014						
Line Number	Miles	Survey Cost	# of Digs	Cost of Digs	Labor	Total Cost
L 1011	2.15	75,250	6	270,000	30,000	\$375,250
L 35-20-A	2.35	82,250	3	135,000	30,000	\$247,250
L 36-9-06	35.60	1,246,000	5	225,000	30,000	\$1,501,000
L 37-07	3.10	108,500	2	90,000	30,000	\$228,500
L 37-18	3.68	128,800	3	135,000	30,000	\$293,800
L 37-18-F&K	3.73	130,550	5	225,000	30,000	\$385,550
L 6916	19.30	675,500	5	225,000	30,000	\$930,500
Line 404	13.25	463,750	11	495,000	30,000	\$988,750
Line 119N	1.81	63,350	4	180,000	30,000	\$273,350
					Total	\$5,223,950
					Labor	\$270,000
					NonLabor	\$4,953,950

2015						
Line Number	Miles	Survey Cost	# of Digs	Cost of Digs	Labor	Total Cost
L 30-18	4.30	150,500	4	180,000	30,000	\$360,500
L 32-24 & 44-725	1.50	52,500	2	90,000	30,000	\$172,500
L 32-25	1.50	52,500	2	90,000	30,000	\$172,500
L 36-1007	4.00	140,000	3	135,000	30,000	\$305,000
L 36-37 & 33-37	16.00	560,000	8	360,000	30,000	\$950,000
L 41-05	12.80	448,000	7	315,000	30,000	\$793,000
					Total	\$2,753,500
					Labor	\$180,000
					NonLabor	\$2,573,500

2016						
Line Number	Miles	Survey Cost	# of Digs	Cost of Digs	Labor	Total Cost
L 7025	0.22	7,700	2	90,000	30,000	\$127,700
L 8032	0.43	15,050	2	90,000	30,000	\$135,050
L 32-21	8.00	280,000	4	180,000	30,000	\$490,000
L 32-60	6.00	210,000	2	90,000	30,000	\$330,000
L 35-10	5.00	175,000	3	135,000	30,000	\$340,000
L 36-9-09 South	1.23	43,050	2	90,000	30,000	\$163,050
L 36-9-21	5.75	201,250	3	135,000	30,000	\$366,250
L 38-501	2.67	93,450	4	180,000	30,000	\$303,450
L 43-1106	1.00	35,000	4	180,000	30,000	\$245,000
L 44-1008	1.00	35,000	2	90,000	30,000	\$155,000
L 35-20-A1	1.00	35,000	2	90,000	30,000	\$155,000
L 8045	0.35	12,250	2	90,000	30,000	\$132,250
L 408	0.16	5,600	4	180,000	30,000	\$215,600
					Total	\$3,158,350
					Labor	\$390,000
					NonLabor	\$2,768,350

Beginning of Workpaper
2TD000.000 - TIMP

Southern California Gas Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: TIMP & DIMP
 Witness: Maria T. Martinez
 Category: A. TIMP
 Category-Sub: 1. TIMP
 Workpaper: 2TD000.000 - TIMP

Activity Description:

Primary activities focus on the development, management and support of the Pipeline Integrity Management Program (TIMP). Support activities include data collection, analysis, management, and reporting; assessment planning; integrity assessments and project management; preventive and mitigative measure analysis; technical and engineering support in the areas of corrosion protection and treatment, metallurgy, pipeline materials specifications and standard operating procedures.

Forecast Explanations:

Labor - Zero-Based

The activities and operation support provided by this work group are project specific and as such are provided as a zero based forecasting methodology.

Non-Labor - Zero-Based

The activities and operation support provided by this work group are project specific and as such are provided as a zero based forecasting methodology

NSE - Zero-Based

There are no Non-Standard Escalation expenses in this work group.

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2009	2010	2011	2012	2013	2014	2015	2016	
Labor		6,196	8,241	9,345	10,464	12,873	13,324	13,790	14,273	
Non-Labor		10,949	18,561	15,056	34,765	29,844	35,888	30,950	40,754	
NSE		0	0	0	0	0	0	0	0	
Total		17,144	26,802	24,401	45,230	42,717	49,212	44,740	55,027	
FTE		67.1	95.0	112.3	120.0	147.9	152.0	157.0	163.0	

Note: Totals may include rounding differences.

Southern California Gas Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: TIMP & DIMP
Witness: Maria T. Martinez
Category: A. TIMP
Category-Sub: 1. TIMP
Workpaper: 2TD000.000 - TIMP

Forecast Summary:

In 2013 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2014	2015	2016	2014	2015	2016	2014	2015	2016
Labor	Zero-Based	0	0	0	13,324	13,790	14,273	13,324	13,790	14,273
Non-Labor	Zero-Based	0	0	0	35,888	30,950	40,754	35,888	30,950	40,754
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		0	0	0	49,212	44,740	55,027	49,212	44,740	55,027
FTE	Zero-Based	0.0	0.0	0.0	152.0	157.0	163.0	152.0	157.0	163.0

Forecast Adjustment Details:

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adi Type</u>
2014	13,324	35,888	0	49,212	152.0	1-Sided Adj

Labor (including FTE) and Non-Labor expense requirements for Transmission Integrity Management Program (TIMP) associated with inspection and assessments. See Supplemental workpaper 2Txxxxx.pdf for activity details.

2014 Total	13,324	35,888	0	49,212	152.0	
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2015	13,790	30,950	0	44,740	157.0	1-Sided Adj
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Labor (including FTE) and Non-Labor expense requirements for Transmission Integrity Management Program (TIMP) associated with inspection and assessments. See Supplemental workpaper 2Txxxxx.pdf for activity details.

2015 Total	13,790	30,950	0	44,740	157.0	
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2016	14,273	40,754	0	55,027	163.0	1-Sided Adj
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Labor (including FTE) and Non-Labor expense requirements for Transmission Integrity Management Program (TIMP) associated with inspection and assessments. See Supplemental workpaper 2Txxxxx.pdf for activity details.

2016 Total	14,273	40,754	0	55,027	163.0	
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Note: Totals may include rounding differences.

Southern California Gas Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: TIMP & DIMP
Witness: Maria T. Martinez
Category: A. TIMP
Category-Sub: 1. TIMP
Workpaper: 2TD000.000 - TIMP

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	4,827	6,589	7,657	8,809	11,043
Non-Labor	9,882	17,175	14,480	34,164	29,844
NSE	0	0	0	0	0
Total	14,709	23,764	22,137	42,973	40,887
FTE	56.4	80.4	95.9	103.0	126.5
Adjustments (Nominal \$) **					
Labor	-66	-60	-5	-1	-4
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	-66	-60	-5	-1	-4
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	4,761	6,528	7,652	8,808	11,039
Non-Labor	9,882	17,175	14,480	34,164	29,844
NSE	0	0	0	0	0
Total	14,643	23,703	22,132	42,972	40,882
FTE	56.4	80.4	95.9	103.0	126.5
Vacation & Sick (Nominal \$)					
Labor	860	1,141	1,271	1,410	1,835
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	860	1,141	1,271	1,410	1,835
FTE	10.7	14.5	16.4	17.1	21.4
Escalation to 2013\$					
Labor	574	571	421	246	0
Non-Labor	1,066	1,387	577	601	0
NSE	0	0	0	0	0
Total	1,641	1,958	998	847	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	6,196	8,241	9,345	10,464	12,873
Non-Labor	10,949	18,561	15,056	34,765	29,844
NSE	0	0	0	0	0
Total	17,144	26,802	24,401	45,230	42,717
FTE	67.1	94.9	112.3	120.1	147.9

* After company-wide exclusions of Non-GRC costs

** Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

Southern California Gas Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: TIMP & DIMP
Witness: Maria T. Martinez
Category: A. TIMP
Category-Sub: 1. TIMP
Workpaper: 2TD000.000 - TIMP

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2009	2010	2011	2012	2013
Labor	-66	-60	-5	-1	-4
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	-66	-60	-5	-1	-4
FTE	0.0	0.0	0.0	0.0	0.0

Detail of Adjustments to Recorded:

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>From CCtr</u>	<u>RefID</u>
2009	-66	0	0	0.0	CCTR Transf	To 2200-2022.000	TPDLB201402251 21358350
Ed Newton s group (R.Mueller + G.Ching) are moving from PI to Gas Engineering. Moving historical costs to reflect this.							
2009 Total	-66	0	0	0.0			
2010	-60	0	0	0.0	CCTR Transf	To 2200-2022.000	TPDLB201402251 21141573
Ed Newton s group (R.Mueller + G.Ching) are moving from PI to Gas Engineering. Moving historical costs to reflect this.							
2010 Total	-60	0	0	0.0			
2011	-5	0	0	0.0	CCTR Transf	To 2200-2022.000	TPDLB201402251 20801033
Ed Newton s group (R.Mueller + G.Ching) is moving from PI to Gas Engineering. Move historical costs to reflect this.							
2011 Total	-5	0	0	0.0			
2012	-1	0	0	0.0	CCTR Transf	To 2200-2022.000	TPDLB201402251 20440837
Ed Newton s group is moving from PI to Gas Engineering (D.Haines). moving labor cost into 2200-2022							

Note: Totals may include rounding differences.

Southern California Gas Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: TIMP & DIMP
 Witness: Maria T. Martinez
 Category: A. TIMP
 Category-Sub: 1. TIMP
 Workpaper: 2TD000.000 - TIMP

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>From Cctr</u>	<u>RefID</u>
2012 Total	-1	0	0	0.0			
2013	-4	0	0	0.0	CCTR Transf	To 2200-2022.000	TPDLB201402241 20543890
Ed Newton s group (R.Mueller + G.Ching) are moving from PI to Gas Engineering (D.Haines) in ReOrg 2014. To align with this we are moving historical costs also.							
2013 Total	-4	0	0	0.0			

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 2TD000.000

Southern California Gas Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: TIMP & DIMP
Witness: Maria T. Martinez
Category: B. DIMP
Workpaper: 2TD000.001

Summary for Category: B. DIMP

	In 2013\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	9,560	9,895	10,241	10,599
Non-Labor	29,780	18,296	16,851	31,528
NSE	0	0	0	0
Total	39,340	28,191	27,092	42,127
FTE	115.9	113.0	117.0	121.0

Workpapers belonging to this Category:

2TD000.001 DIMP

Labor	9,560	9,895	10,241	10,599
Non-Labor	29,780	18,296	16,851	31,528
NSE	0	0	0	0
Total	39,340	28,191	27,092	42,127
FTE	115.9	113.0	117.0	121.0

Note: Totals may include rounding differences.

Beginning of Workpaper
2TD000.001 - DIMP

Southern California Gas Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: TIMP & DIMP
 Witness: Maria T. Martinez
 Category: B. DIMP
 Category-Sub: 1. DIMP
 Workpaper: 2TD000.001 - DIMP

Activity Description:

This group has been organized and resourced to address the requirements of the DOT mandated Distribution Integrity Management Program (DIMP) rules set for in 49 CFR section 192, subpart P. Primarily, the activities will focus on generating and enhancing knowledge of pipeling system (location, materials, data retention, analysis, etc.); Threat identification and mitigation; evaluate, rank and address risk; Damage Prevention, Leakage prevntion and mitigation, etc.

Forecast Explanations:

Labor - Zero-Based

Due to the recent enactment of the DIMP and the evolving nature of activities performed in this category, a zero based forecast best represents the funding requirements. Specific activities and program developed for compliance with DIMP drive the labor expense requirements.

Non-Labor - Zero-Based

Due to the recent enactment of the DIMP and the evolving nature of activities performed in this category, a zero based forecast best represents the funding requirements. Specific activities and program developed for compliance with DIMP drive the non labor expense requirements.

NSE - Zero-Based

There are no Non-Standard Escalation expenses in this work group.

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2009	2010	2011	2012	2013	2014	2015	2016	
Labor		1,596	2,812	4,140	5,428	9,560	9,895	10,241	10,599	
Non-Labor		4,852	11,421	14,039	13,159	29,780	18,296	16,851	31,528	
NSE		0	0	0	0	0	0	0	0	
Total		6,448	14,233	18,179	18,586	39,340	28,191	27,092	42,127	
FTE		19.4	35.7	51.0	67.1	115.9	113.0	117.0	121.0	

Note: Totals may include rounding differences.

Southern California Gas Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: TIMP & DIMP
Witness: Maria T. Martinez
Category: B. DIMP
Category-Sub: 1. DIMP
Workpaper: 2TD000.001 - DIMP

Forecast Summary:

In 2013 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2014	2015	2016	2014	2015	2016	2014	2015	2016
Labor	Zero-Based	0	0	0	9,895	10,241	10,599	9,895	10,241	10,599
Non-Labor	Zero-Based	0	0	0	18,296	16,851	31,528	18,296	16,851	31,528
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		0	0	0	28,191	27,092	42,127	28,191	27,092	42,127
FTE	Zero-Based	0.0	0.0	0.0	113.0	117.0	121.0	113.0	117.0	121.0

Forecast Adjustment Details:

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adi Type</u>
2014	9,895	18,296	0	28,191	113.0	1-Sided Adj

Labor (including FTE) and Non-Labor expense requirements for Distribution Integrity Management Program (DIMP) as set forth in 49 CFR Sec 192, subpart P. See Supplemental workpaper 2TDxxx.pdf for activity details.

2014 Total	9,895	18,296	0	28,191	113.0	
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2015	10,241	16,851	0	27,092	117.0	1-Sided Adj
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Labor (including FTE) and Non-Labor expense requirements for Distribution Integrity Management Program (DIMP) as set forth in 49 CFR Sec 192, subpart P. See Supplemental workpaper 2TDxxxx.pdf for activity details.

2015 Total	10,241	16,851	0	27,092	117.0	
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2016	10,599	31,528	0	42,127	121.0	1-Sided Adj
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Labor (including FTE) and Non-Labor expense requirements for Distribution Integrity Management Program (DIMP) as set forth in 49 CFR Sec 192, subpart P. See Supplemental workpaper 2TDxxx.pdf for activity details.

2016 Total	10,599	31,528	0	42,127	121.0	
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Note: Totals may include rounding differences.

Southern California Gas Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: TIMP & DIMP
Witness: Maria T. Martinez
Category: B. DIMP
Category-Sub: 1. DIMP
Workpaper: 2TD000.001 - DIMP

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	1,787	2,839	4,146	5,342	9,061
Non-Labor	4,379	10,568	13,501	12,931	29,780
NSE	0	0	0	0	0
Total	6,166	13,407	17,647	18,273	38,841
FTE	22.3	36.9	51.9	65.7	108.3
Adjustments (Nominal \$) **					
Labor	-560	-611	-756	-773	-863
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	-560	-611	-756	-773	-863
FTE	-6.0	-6.6	-8.3	-8.2	-9.1
Recorded-Adjusted (Nominal \$)					
Labor	1,227	2,228	3,390	4,569	8,198
Non-Labor	4,379	10,568	13,501	12,931	29,780
NSE	0	0	0	0	0
Total	5,606	12,796	16,892	17,500	37,978
FTE	16.3	30.3	43.6	57.5	99.2
Vacation & Sick (Nominal \$)					
Labor	222	389	563	731	1,362
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	222	389	563	731	1,362
FTE	3.1	5.5	7.4	9.5	16.8
Escalation to 2013\$					
Labor	148	195	187	128	0
Non-Labor	473	853	538	228	0
NSE	0	0	0	0	0
Total	621	1,048	724	355	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	1,596	2,812	4,140	5,428	9,560
Non-Labor	4,852	11,421	14,039	13,159	29,780
NSE	0	0	0	0	0
Total	6,448	14,233	18,179	18,586	39,340
FTE	19.4	35.8	51.0	67.0	116.0

* After company-wide exclusions of Non-GRC costs

** Refer to "Detail of Adjustments to Recorded" page for line item adjustments

Note: Totals may include rounding differences.

Southern California Gas Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: TIMP & DIMP
Witness: Maria T. Martinez
Category: B. DIMP
Category-Sub: 1. DIMP
Workpaper: 2TD000.001 - DIMP

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2009	2010	2011	2012	2013
Labor	-560	-611	-756	-773	-863
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	-560	-611	-756	-773	-863
FTE	-6.0	-6.6	-8.3	-8.2	-9.1

Detail of Adjustments to Recorded:

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>From CCtr</u>	<u>RefID</u>
2009	-2	0	0	0.0	CCTR Transf	To 2200-2022.000	TPDLB201402241 20354807
Ed Newtons Group (R.Mueller + G.Ching) are moving from PI to Gas Engineering (D.Haines) in 2014 ReOrg. So we are moving historical costs to follow this.							
2009	-558	0	0	-6.0	CCTR Transf	To 2200-2022.000	TPDLB201402251 22453417
Ed Newton s group (R.Mueller + G.Ching) are moving from PI to Gas Engineering. Moving historical costs to reflect this.							
2009 Total	-560	0	0	-6.0			
2010	-53	0	0	-0.6	CCTR Transf	To 2200-2022.000	TPDLB201402241 20119503
Ed Newton s group (R.Mueller + G.Ching) are moving from PI to Gas Engineering (D.Haines) Org in 2014. Will move historical costs to go along with this ReORG							
2010	-558	0	0	-6.0	CCTR Transf	To 2200-2022.000	TPDLB201402251 22324290
Ed Newton s group (R.Mueller + G.Ching) are moving from PI to Gas Engineering. Moving historical costs to reflect this.							
2010 Total	-611	0	0	-6.6			
2011	-198	0	0	-2.3	CCTR Transf	To 2200-2022.000	TPDLB201402241 15907847
Ed Newton s group (R.Mueller + G.Ching) are moving from PI to under Gas Engineering (D.Haines) in 2014 in ReOrg. So moving historical costs also.							

Note: Totals may include rounding differences.

Southern California Gas Company
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Non-Shared Service Workpapers

Area: TIMP & DIMP
Witness: Maria T. Martinez
Category: B. DIMP
Category-Sub: 1. DIMP
Workpaper: 2TD000.001 - DIMP

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>From CCtr</u>	<u>RefID</u>
2011	-558	0	0	-6.0	CCTR Transf	To 2200-2022.000	TPDLB201402251 22120010
Ed Newton s group (R.Mueller + G.Ching) are moving from PI to Gas Engineering. Moving historical costs to reflect this.							
2011 Total	-756	0	0	-8.3			
2012	-215	0	0	-2.2	CCTR Transf	To 2200-2022.000	TPDLB201402241 15455673
Ed Newtons group (R.Mueller + G.Ching) are moving from PI to under Gas Engineering (D.Haines)							
2012	-558	0	0	-6.0	CCTR Transf	To 2200-2022.000	TPDLB201402251 21954450
Ed Newton s group (R.Mueller + G.Ching) are moving from PI to Gas Engineering. Moving historical costs to reflect this.							
2012 Total	-773	0	0	-8.2			
2013	-305	0	0	3.1	CCTR Transf	To 2200-2022.000	TPDLB201402241 14625260
Two groups under Ed Newton are transferring to Gas Engineering under D.Haines (R.Mueller + G.Ching)							
2013	0	0	0	-6.2	1-Sided Adj	N/A	TPDLB201402251 13106397
adjusting FTE to zero out because on transfer from 2200-2296 to 2200-022 (D.Haines) didn't put negative in front of FTE 3.1, so need to double the correction to zero it out.							
2013	-558	0	0	-6.0	CCTR Transf	To 2200-2022.000	TPDLB201402251 21830230
Ed Newton s group (R.Mueller + G.Ching) is moving from PI to Gas Engineering. Moving historical costs to reflect this.							
2013 Total	-863	0	0	-9.1			

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 2TD000.001

SoCalGas DIMP Non-Labor Support O&M Supplemental Work Paper

Business Purpose

These activities are required for compliance with CFR Part 192.1001 Subpart P—Gas Distribution Pipeline Integrity Management. PHMSA purpose for DIMP is to enhance pipeline safety by having operators identify and reduce pipeline integrity risks specifically for distribution pipelines¹. These activities are primarily implemented and managed by the Distribution Integrity Management Program Team. The team is composed of engineers, project managers, technical advisors, project specialist and other roles with varying degree of responsibility. This cost supports the company's goals of operating the system safely and with excellence by continually assessing, mitigating and reducing the system risk. The following topics and activities will be discussed in additional detail to demonstrate the reasonableness of the labor and non-labor cost.

- System Knowledge
- Threat Identification and Risk Analysis
- Programs and Activities to Address Risk
- Geographic Information System
- Compliance, Auditing and Reporting

Physical Description & Project Justification

The O&M non-labor to support the seven areas of compliance can be grouped in the following areas:

Contracting (Consulting and Field Services): As part of the continuous improvement consulting and field services are leveraged throughout the year to provide feedback on existing processes for areas of improvement or develop new processes. Field or office support needed throughout the year for additional measures.

Data Collection (Records, Data Integration, Pipe Samples, Records and Testing): As part of the traceable, verifiable and complete recommendation issued by NTSB additional records research and in some cases pipelines sampling is needed to support the expectation issued by PHMSA in response to the NTSB (Advisory Bulletin 11-01, January 3, 2011).

¹ PHMSA DIMP FAQ B.1.1 Why did PHMSA mandate integrity management requirements to distribution pipeline system? "PHMSA's regulation in part 192 have contributed to producing an admirable safety record. Nevertheless, incidents continue to occur, some of which involve significant consequences, including death and injury. It is not possible to significantly reduce high consequence pipeline incidents without reducing the likelihood of their occurrence on distribution pipelines...."

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The advisory states that operators relying on the review of design, construction, inspection, testing, and other related data to calculate MAOP (for gas pipelines) or MOP (for liquid pipelines) must diligently search for relevant records and ensure that the records are traceable, verifiable, and complete. If such a search and verification cannot be completed, the operator cannot rely on this method for calculating MAOP. The advisory also reminded operators of their responsibilities to identify pipeline integrity threats; perform rigorous risk analyses; integrate information; and identify, evaluate, and implement preventative and mitigative measures.

Enterprise-GIS (Applications and Licenses): Applications and license to support data analysis to prioritize the various Program and Activities to Address Risk (PAAR).

Staff Support (Training and Licenses): The DIMP team consists mainly of engineers that support critical roles. The engineers throughout the year are sent to courses centered on DIMP fundamentals and emerging industry changes.

Forecast Methodology

The forecast methodology was developed using recent contracting rates, bids submittals and average cost for activities.

- Average hourly rate for consulting and fields services: \$131
- Average cost per excavation: \$45,000
- Training: \$4,000 (\$3,000 per course and \$1,000 travel), \$25,000 group in-house training
- Enterprise GIS: \$100,000
- Total 2016 Request: \$2,547,520

2016				
	SCG - DIMP	Labor	Non-Labor	Total
1	GI PP	1,165,000	1,860,480	3,025,480
2	SLIP	1,827,738	8,400,000	10,227,738
3	DRIP	1,999,044	18,720,000	20,719,044
4	Program Support	3,861,668	2,547,520	6,409,188
5	Vacation & Sick	1,745,549	0	1,745,549
6		\$10,599,000	\$31,528,000	\$42,127,000

Gas Infrastructure Inspection Program (GIIP)

O&M Workpaper - SoCalGas

Business Purpose

PHMSA published a final rule that amended the federal pipeline safety regulations to require operators of gas distribution pipelines to develop and implement a pipeline integrity management program by August 2, 2011. On December 4, 2009, the Distribution Integrity Management Program (DIMP) rule was posted as: Pipeline Safety: Final Rule, 74 Fed. Reg. 63,906-63,936 (codified 49 C.F.R. 192). PHMSA's purpose for DIMP is to enhance pipeline safety by having operators identify and reduce pipeline integrity risks specifically for distribution pipelines. As noted by PHMSA, DIMP requires activities beyond those required by traditional regulation. SoCalGas therefore has created individualized DIMP activities such as the Gas Infrastructure Inspection Program (GIIP) that are above and beyond its core regulatory requirements.

Physical Description

Vehicular damage is a threat and while the projected incident rate is low, the consequences can be high. This low-frequency, high-consequence event is the type of threat PHMSA intended to address when it developed DIMP regulations. To address vehicular damage to company facilities, SoCalGas will identify, evaluate, recommend and then implement a damage prevention solution. SoCalGas has developed a collection of mitigation measures to effectively address this threat. The collection of mitigation measures include, constructing barriers, relocating the facility or installing an Excess Flow Valve (EFV) to mitigate the threat.

Project Justification

GIIP is intended to address potential vehicular damage associated with above-ground pressurized facilities. During a review of company records approximately 1,000 instances were found to be related to a moving vehicle damaging a pressurized aboveground gas facility. SoCalGas is embarking on a DIMP driven program to address potential vehicular damage associated with above-ground distribution facilities

Forecast Methodology

Costs for GIPP projects are estimated based on historical costs incurred up to March 2014. Average costs were used for the various O&M tasks of Site Inspections, Non Standard Mitigation, and FSR Vault Mitigation.

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Task	Avg Cost
Site Inspections	\$8
Non Std Mitigation	\$6,302
FSR Vault Mitigation	\$6,000

	Site Inspections	Non Std Mitigations	FSR Vault Mitigations	Labor	Total
Year 2014	100,000	24	100		
	\$820,000	\$151,258	\$600,000	\$700,000	\$2,271,258
Year 2015	28,983	60	125		
	\$237,661	\$378,144	\$750,000	\$724,500	\$2,090,305
Year 2016	0	200	100		
	\$0	\$1,260,480	\$600,000	\$1,165,000	\$3,025,480

Sewer Lateral Inspection Project (SLIP) O&M Workpaper - SoCalGas

Business Purpose

PHMSA published a final rule that amended the federal pipeline safety regulations to require operators of gas distribution pipelines to develop and implement a pipeline integrity management program by August 2, 2011. On December 4, 2009, the Distribution Integrity Management Program (DIMP) rule was posted as: Pipeline Safety: Final Rule, 74 Fed. Reg. 63,906-63,936 (codified 49 C.F.R. 192). PHMSA's purpose for DIMP is to enhance pipeline safety by having operators identify and reduce pipeline integrity risks specifically for distribution pipelines. As noted by PHMSA, DIMP requires activities beyond those required by traditional regulation. SoCalGas therefore has created individualized DIMP activities such as the Sewer Lateral Inspection Project (SLIP) that are above and beyond its core regulatory requirements.

Physical Description

SLIP is intended to aggressively search, identify, and clear the system of sewer lateral conflicts and mitigate risk. The project is to address this facility conflict issue by:

- Developing and maintaining a communication plan to educate plumbing contractors, equipment rental companies and municipalities;
- Establishing a locate and mark process for plumbers;
- Performing an extensive records review to identify locations where plastic gas lines were installed by trenchless methods, and locations where sewer cross-bores are not an issue
- Performing on-site-site inspections to clear potential facility conflicts as dictated by the records review
- Documenting the results of all record reviews and physical inspections
- Updating Company practices and documentation to reflect new processes
- Adjust the project as needed to address new issues that emerge from the knowledge gained.

Project Justification

SLIP will address situations where the integrity of the system is compromised when a trenchless pipeline installation accidentally penetrates through all or a portion of a sewer lateral. This condition may eventually cause a blockage from root intrusions or other materials congregating in the sewer line. Plumbers or property owners may pierce through and cause damage to the gas pipeline when trying to clean out the blockage. When this occurs, breached gas can leak into the sewer line or elsewhere, creating the potential for significantly high consequences to both persons and property.

PHMSA FAQ located on the U.S Department of Transportation's Distribution Integrity Management website: <http://primis.phmsa.dot.gov/dimp/faqs.htm>

C.4.b.3 - The DIMP requirements include knowing the condition of facilities that are at risk for potential damage from external sources. Cross bores of gas lines in sewers have been reported at 2-3 per mile in high risk areas – predominately where trenchless installation methods were used for gas line installs and where sewers and gas lines are

in the proximity of each other. Does the potential for cross bore of sewers resulting in gas lines intersecting with sewers need to be determined?

Yes, the threat of excavation damage includes consideration of potential or existing cross bore of sewers which have resulted in gas lines intersecting with sewers. Pursuant to § 192.1007(a) (2), the operator must consider information gained from past design, operations, and maintenance. If operators used trenchless technologies without taking measures to locate sewer laterals and other unmarked facilities during construction, there may be a risk that their facilities were installed through the foreign facility. If this excavation damage threat applies to the operator, they must evaluate its risk to their system. Depending on the results of the risk evaluation, they may need to identify and implement measures to reduce this risk to existing and future facilities.

United States Incidents:

- February 16, 2002 - A natural gas explosion occurred at a mobile home park from a gas line bisecting the clay sewer pipe. A plumbing contractor was removing tree roots from a sanitary sewer line in the 127-unit mobile home park when the intruding gas line was struck.
- May 8, 2004 - Incident in Phoenix, AZ - A natural gas explosion occurred at a mobile home park when a plumbing contractor was clearing a clogged sewer lateral.
- March 13, 2006 - Middletown, Ohio - Gas in sewer cross bore connection ruptured during drain cleaning.
- February 1, 2010 - St. Paul, MN — A contractor cut a natural gas line while attempting to unclog a sewer pipe in the basement of a residence. The plumber was seriously injured and the fire destroyed the home.

Forecast Methodology

Forecasts are based on currently available data but may vary greatly based on additional research and field inspections. The historical average is \$168 per field inspection and includes records review, field inspection and conflict repair.

Task	Avg Cost		
Field Inspection/Records Review/ Conflict Repair	\$168		
	2014	2015	2016
Field Inspection sites	22,000	22,000	50,000
Field Inspection	\$3,696,000	\$3,696,000	\$8,400,000
Labor	\$1,706,213	\$1,765,930	\$1,827,738
Total	\$5,402,213	\$5,461,930	\$10,227,738

Southern California Gas Company
2016 GRC - APP
Non-Shared Service Workpapers
**Distribution Riser Inspection Project –
Anodeless Riser Inspection and Replacement Projects (DRIP)
– SoCalGas O&M Workpaper**

Business Purpose

PHMSA published a final rule that amended the federal pipeline safety regulations to require operators of gas distribution pipelines to develop and implement a pipeline integrity management program by August 2, 2011. On December 4, 2009, the Distribution Integrity Management Program (DIMP) rule was posted as: Pipeline Safety: Final Rule, 74 Fed. Reg. 63,906-63,936 (codified 49 C.F.R. 192). PHMSA's purpose for DIMP is to enhance pipeline safety by having operators identify and reduce pipeline integrity risks specifically for distribution pipelines. As noted by PHMSA, DIMP requires activities beyond those required by traditional regulation. SoCalGas therefore has created individualized DIMP activities such as the Distribution Riser Inspection Project (DRIP) that are above and beyond its core regulatory requirements.

Physical Description

Research has been underway to develop an effective means of mitigating the above ground and ground level corrosion on anodeless risers (ALR's). The effort has led to development of a solution using Trenton Wax Tape, which provides the protection of the above ground section of the riser in the severe environmental conditions that are typical of riser installations. This program will consist of dedicated crew of trained employees to expose, inspect and apply improved coating systems to all ALR's in service. All risers discovered that are leaking or that do not pass the inspection criteria will be replaced with new risers.

Project Justification

ALR's are a service line component that has shown a propensity to fail before the end of its useful life. The consequence of this component failing can be significant in that ALR's are attached to the meter set assembly (MSA), which is usually located next to a residence. There are approximately 2,500,000 ALR's that have the potential to be an integrity threat due to premature failure. Such failure can be induced in at least one of three ways. The first is from above-ground leakage due to atmospheric corrosion – ALR's have a demonstrated propensity toward atmospheric corrosion just below the stopcock in the gas carrying steel nipple portion of the assembly. The root cause of such corrosion is usually environmental conditions that result in a constant or frequent presence of moisture. The second cause of accelerated failure is a compromised MSA installation from loss of structural integrity of riser casing. This can result in movement of the MSA, loosening threaded connections, and thus causing possible thread leaks. Although the risk is considered to be low, the consequence can be high. The third cause of accelerated failure is below-ground leakage due to corrosion from low-set risers. A riser may be low-set if the MSA is installed at a height that causes the riser to be buried. The low-set riser should be buried in such a way as to keep the exposed, gas-carrying steel section above ground level, thus avoiding the need for cathodic protection. Risers may become incorrectly buried over time due to a myriad of landscaping and other homeowner-driven activities. When these situations occur, the corrosion threat must be mitigated by replacing the riser.

Forecast Methodology

Non-Shared Service Workpapers

We based our projections on actual average costs incurred during the first quarter of 2014 for Site Mitigation - DRIP and Site Mitigation – CSF referrals.

Task	Avg Cost
Site Mitigation - DRIP	\$80
Site Mitigation - CSF Referral	\$120

	Site Mitigations DRIP	Site Mitigations DRIP	Labor	Total
Year 2014	54,000	24,400		
	\$4,320,000	\$2,928,000	\$1,866,129	\$9,114,129
Year 2015	37,500	12,000		
	\$3,000,000	\$1,440,000	\$1,931,444	\$6,371,444
Year 2016	225,000	6,000		
	\$18,000,000	\$720,000	\$1,999,044	\$20,719,044

Southern California Gas Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: TIMP & DIMP
Witness: Maria T. Martinez

Appendix A: List of Non-Shared Cost Centers

Cost Center	Sub	Description
2200-0256	000	SPECIAL PROJECTS MANAGER
2200-0319	000	MATERIALS/CORROSION
2200-0320	000	MATERIALS & QUALITY-SHARED
2200-0801	000	MGR OPERATIONS SUPPORT
2200-1177	000	GIS-NORTH
2200-2108	000	PIPELINE INTEGRITY MANAGER
2200-2109	000	PIPELINE INTEGRITY TECHNICAL SUPPORT
2200-2203	000	SOCAL GAS PIPELINE INTEGRITY EVALUATIONS
2200-2290	000	PIPELINE INTEGRITY MGR-NONSHARED
2200-2291	000	ASSESSMENT PLANNING-SHARED
2200-2292	000	ASSESSMENT PLANNING-NONSHARED
2200-2293	000	PREVENTATIVE & MITIGATION-SHARED
2200-2294	000	PREVENTATIVE & MITIGATION-NONSHARED
2200-2295	000	DIMP & SPECIAL PROJECTS-SHARED
2200-2296	000	DIMP & SPECIAL PROJECTS
2200-2297	000	DATA MGMT & GPS-SHARED
2200-2298	000	DATA MGMT & GPS-NONSHARED
2200-2299	000	ILI & METALLURGY-NONSHARED
2200-2300	000	MATERIALS & QUALITY-NONSHARED
2200-2325	000	PIPELINE INTEG - OPS TECH - SHARED
2200-2357	000	PROJ MGR-GAS INFRASTRUCTURE PROTN PROGRM
2200-2358	000	PROJ MGR-SEWER LATERAL INSPECTN PROGM
2200-2407	000	PIPELINE RECORDS & DATA VALIDATION
2200-2471	000	Proj Mgr-Anodeless Riser Program
2200-2484	000	GOS DIMP Projects
2200-2499	000	GIS STRATEGY & APPS TIMP/DIMP