

Application of SAN DIEGO GAS & ELECTRIC)
COMPANY for authority to update its gas and)
electric revenue requirement and base rates)
effective January 1, 2016 (U 902-M))

Application No. 14-11-____
Exhibit No.: (SDG&E-04-WP)

WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF FRANK B. AYALA
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

NOVEMBER 2014



**2016 General Rate Case - APP
INDEX OF WORKPAPERS**

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Overall Summary For Exhibit No. SDG&E-04-WP

Area:	GAS DISTRIBUTION
Witness:	Frank B. Ayala

Description	In 2013 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Non-Shared Services	18,383	19,288	21,635	21,692
Shared Services	0	0	0	0
Total	18,383	19,288	21,635	21,692

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala

Summary of Non-Shared Services Workpapers:

Description	In 2013 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
		2013	2014	2015
B. Field Operations & Maintenance	14,521	15,200	16,783	16,440
C. Asset Management	1,624	1,712	1,848	1,848
D. Operations Management & Training	2,238	2,376	3,004	3,404
Total	18,383	19,288	21,635	21,692

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Workpaper: VARIOUS

Summary for Category: B. Field Operations & Maintenance

	In 2013\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	11,210	11,897	13,232	12,997
Non-Labor	3,312	3,302	3,550	3,442
NSE	0	0	0	0
Total	14,522	15,199	16,782	16,439
FTE	147.4	158.0	177.7	174.1

Workpapers belonging to this Category:

1GD000.000 Field O&M - Other Services

Labor	58	63	63	63
Non-Labor	28	24	24	24
NSE	0	0	0	0
Total	86	87	87	87
FTE	0.8	0.9	0.9	0.9

1GD000.001 Field O&M - Leak Survey

Labor	1,049	1,096	1,096	1,096
Non-Labor	165	154	154	154
NSE	0	0	0	0
Total	1,214	1,250	1,250	1,250
FTE	15.3	15.6	15.6	15.6

1GD000.002 Field O&M - Locate & Mark

Labor	1,785	1,965	1,965	1,965
Non-Labor	753	540	540	540
NSE	0	0	0	0
Total	2,538	2,505	2,505	2,505
FTE	21.9	25.7	25.7	25.7

1GD000.003 Field O&M - Main Maintenance

Labor	1,257	1,257	1,257	1,257
Non-Labor	720	775	720	720
NSE	0	0	0	0
Total	1,977	2,032	1,977	1,977
FTE	15.8	15.8	15.8	15.8

1GD000.004 Field O&M - Service Maintenance

Labor	1,062	1,089	1,418	1,134
Non-Labor	121	98	192	110
NSE	0	0	0	0
Total	1,183	1,187	1,610	1,244
FTE	13.2	14.1	19.0	14.8

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Workpaper: VARIOUS

In 2013\$ (000) Incurred Costs			
Adjusted-Recorded	Adjusted-Forecast		
2013	2014	2015	2016

1GD000.005 Field O&M - Tools Fittings & Materials

Labor	2	6	6	6
Non-Labor	326	461	461	461
NSE	0	0	0	0
Total	328	467	467	467
FTE	0.0	0.1	0.1	0.1

1GD000.006 Field O&M - Electric Support

Labor	485	637	637	637
Non-Labor	121	100	100	100
NSE	0	0	0	0
Total	606	737	737	737
FTE	6.6	7.9	7.9	7.9

1GD000.007 Field O&M - Supervision & Training

Labor	2,296	2,465	2,634	2,634
Non-Labor	202	205	207	207
NSE	0	0	0	0
Total	2,498	2,670	2,841	2,841
FTE	31.1	33.7	36.3	36.3

1GD002.000 Measurement & Regulation

Labor	2,288	2,370	2,443	2,531
Non-Labor	770	834	888	933
NSE	0	0	0	0
Total	3,058	3,204	3,331	3,464
FTE	30.6	31.8	32.7	34.0

1GD003.000 Cathodic Protection

Labor	928	949	1,713	1,674
Non-Labor	106	111	264	193
NSE	0	0	0	0
Total	1,034	1,060	1,977	1,867
FTE	12.1	12.4	23.7	23.0

Note: Totals may include rounding differences.

Beginning of Workpaper
1GD000.000 - Field O&M - Other Services

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 1. Other Services
 Workpaper: 1GD000.000 - Field O&M - Other Services

Activity Description:

This group includes labor and non-labor expenses associated with support activities not captured in the other subgroups. Activities include inspection of customer's house lines, providing paving and street repair for Transmission facilities, and other support to Transmission pipelines.

Forecast Explanations:

Labor - 5-YR Average

This group captures the costs associated with support provided to a wide variety of activities not recorded in the other groups. Due to the wide range of activities included in this group, the costs fluctuate from year to year. Therefore, a five year average was selected to project future costs.

Non-Labor - 5-YR Average

This group captures the costs associated with support provided to a wide variety of activities not recorded in the other groups. Due to the wide range of activities included in this group, the costs fluctuate from year to year. Therefore, a five year average was selected to project future costs.

NSE - 5-YR Average

N/A

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2009	2010	2011	2012	2013	2014	2015	2016	
Labor		96	60	54	49	58	63	63	63	
Non-Labor		14	17	26	36	28	24	24	24	
NSE		0	0	0	0	0	0	0	0	
Total		109	77	81	85	86	88	88	88	
FTE		1.4	0.9	0.7	0.7	0.8	0.9	0.9	0.9	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 1. Other Services
 Workpaper: 1GD000.000 - Field O&M - Other Services

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	5-YR Average	63	63	63	0	0	0	63	63	63
Non-Labor	5-YR Average	24	24	24	0	0	0	24	24	24
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		88	88	88	0	0	0	88	88	88
FTE	5-YR Average	0.9	0.9	0.9	0.0	0.0	0.0	0.9	0.9	0.9

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 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Category-Sub: 1. Other Services
Workpaper: 1GD000.000 - Field O&M - Other Services

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	76	48	46	42	50
Non-Labor	12	16	25	36	28
NSE	0	0	0	0	0
Total	89	64	71	78	78
FTE	1.2	0.7	0.6	0.6	0.7
Adjustments (Nominal \$) **					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	76	48	46	42	50
Non-Labor	12	16	25	36	28
NSE	0	0	0	0	0
Total	89	64	71	78	78
FTE	1.2	0.7	0.6	0.6	0.7
Vacation & Sick (Nominal \$)					
Labor	12	8	7	6	8
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	12	8	7	6	8
FTE	0.2	0.1	0.1	0.1	0.1
Escalation to 2013\$					
Labor	8	4	2	1	0
Non-Labor	1	1	1	1	0
NSE	0	0	0	0	0
Total	9	5	3	2	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	96	60	54	49	58
Non-Labor	14	17	26	36	28
NSE	0	0	0	0	0
Total	109	77	81	85	86
FTE	1.4	0.8	0.7	0.7	0.8

* 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.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 1. Other Services
 Workpaper: 1GD000.000 - Field O&M - Other Services

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2009	2010	2011	2012	2013
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
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 Total	0	0	0	0.0			
2010 Total	0	0	0	0.0			
2011 Total	0	0	0	0.0			
2012 Total	0	0	0	0.0			
2013 Total	0	0	0	0.0			

Note: Totals may include rounding differences.

Beginning of Workpaper
1GD000.001 - Field O&M - Leak Survey

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 2. Leak Survey
 Workpaper: 1GD000.001 - Field O&M - Leak Survey

Activity Description:

This group includes labor and non-labor expenses associated with surveying the SDG&E gas distribution system for leaks. This includes the following surveys: residential gas lines and meter set assemblies (MSAs); atmospheric corrosion (ACOR); transmission lines; area odor complaints; and highway and railroad crossings. Also included in this group are special leak survey requests such as for slide areas and construction projects with blasting.

Forecast Explanations:

Labor - 5-YR Average

A 5 yr average methodology was chosen to forecast this group, as it captures annual survey requirements and provides for a normal amount of special requests.

Non-Labor - 5-YR Average

A 5 yr average methodology was chosen to forecast this group, as it captures annual survey requirements and provides for a normal amount of special requests.

NSE - 5-YR Average

N/A

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2009	2010	2011	2012	2013	2014	2015	2016	
Labor		1,140	980	1,121	1,191	1,049	1,096	1,096	1,096	
Non-Labor		145	107	162	192	165	154	154	154	
NSE		0	0	0	0	0	0	0	0	
Total		1,285	1,087	1,283	1,383	1,213	1,250	1,250	1,250	
FTE		16.2	14.5	15.3	16.8	15.3	15.6	15.6	15.6	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 2. Leak Survey
 Workpaper: 1GD000.001 - Field O&M - Leak Survey

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	5-YR Average	1,096	1,096	1,096	0	0	0	1,096	1,096	1,096
Non-Labor	5-YR Average	154	154	154	0	0	0	154	154	154
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		1,250	1,250	1,250	0	0	0	1,250	1,250	1,250
FTE	5-YR Average	15.6	15.6	15.6	0.0	0.0	0.0	15.6	15.6	15.6

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 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Category-Sub: 2. Leak Survey
Workpaper: 1GD000.001 - Field O&M - Leak Survey

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	910	795	927	1,019	712
Non-Labor	131	99	155	189	165
NSE	0	0	0	0	0
Total	1,041	894	1,083	1,208	877
FTE	13.9	12.3	13.2	14.5	10.1
Adjustments (Nominal \$) **					
Labor	0	0	11	-1	193
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	11	-1	193
FTE	0.0	0.0	0.0	0.0	2.9
Recorded-Adjusted (Nominal \$)					
Labor	910	795	939	1,018	905
Non-Labor	131	99	155	189	165
NSE	0	0	0	0	0
Total	1,041	894	1,094	1,207	1,070
FTE	13.9	12.3	13.2	14.5	13.0
Vacation & Sick (Nominal \$)					
Labor	140	127	138	148	144
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	140	127	138	148	144
FTE	2.3	2.1	2.2	2.3	2.3
Escalation to 2013\$					
Labor	90	58	44	25	0
Non-Labor	14	8	6	3	0
NSE	0	0	0	0	0
Total	104	66	50	28	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	1,140	980	1,121	1,191	1,049
Non-Labor	145	107	162	192	165
NSE	0	0	0	0	0
Total	1,285	1,087	1,283	1,383	1,213
FTE	16.2	14.4	15.4	16.8	15.3

* 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.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 2. Leak Survey
 Workpaper: 1GD000.001 - Field O&M - Leak Survey

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs						
Years	2009	2010	2011	2012	2013	
Labor	0	0	11	-0.872	193	
Non-Labor	0	0	0	0	0	
NSE	0	0	0	0	0	
Total	0	0	11	-0.872	193	
FTE	0.0	0.0	0.0	0.0	2.9	

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 Total	0	0	0	0.0			
2010 Total	0	0	0	0.0			
2011	11	0	0	0.0	1-Sided Adj	N/A	JREISTET201310 25113747383
\$200,826 2011 retroactive pay to be redistributed to Subgroups 1, 2, 3, 4, and 6 based on recorded labor. \$ 11,397 Subgrp 1 Leak Survey \$ 17,774 Subgrp 2 Locate and Mark \$ 62,218 Subgrp 3 Maintenance Mains \$ 52,948 Subgrp 4 Maintenance Services \$ 56,489 Subgrp 6 Electric Support -\$200,826 Subgrp 5 Tools No FTE impact.							
2011 Total	11	0	0	0.0			

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 2. Leak Survey
 Workpaper: 1GD000.001 - Field O&M - Leak Survey

<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	-0.872	0	0	0.0	1-Sided Adj	N/A	JREISTET201310 25115352630
\$21,839 2012 Accrual reversal for 2011 retroactive pay to be redistributed to Subgroups 1, 2, 3, 4, and 6 based on recorded labor. - \$ 872 Subgrp 1 Leak Survey -\$ 1,054 Subgrp 2 Locate and Mark -\$ 7,218 Subgrp 3 Maintenance Mains -\$ 6,142 Subgrp 4 Maintenance Services -\$ 6,553 Subgrp 6 Electric Support \$21,839 Subgrp 5 Tools No FTE impact.							
2012 Total	-0.872	0	0	0.0			

2013	193	0	0	2.9	1-Sided Adj	N/A	DBENTLEY20140 204172014473
Transfer charges to Leak Survey from mains services and electric support to be consistent with 2009-2012. Beginning in 2013, Plant Maintenance (PM) orders map to specific FERC. Prior to 2013 Leak Survey charged FG874.1. With the implementation of PM orders, the charges may be split to 874.1, 887.1 (leak on main), 892.1 (leak on a service) and others.							
2013 Total	193	0	0	2.9			

Note: Totals may include rounding differences.

Beginning of Workpaper
1GD000.002 - Field O&M - Locate & Mark

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 3. Locate & Mark
 Workpaper: 1GD000.002 - Field O&M - Locate & Mark

Activity Description:

This group includes labor and non-labor expenses to locate and mark out multiple underground facilities which include distribution and transmission gas facilities, secondary and primary electric underground, electric transmission and fiber optic.

Forecast Explanations:

Labor - 5-YR Average

The cumulative expense of labor and non-labor has remained consistent from 2009 -2013, therefore a 5-year-average forecast methodology is appropriate. Depending on availability of company locate and mark resources, contract resources are also utilized. Contract resource expenses are depicted as non-labor. The use of contract locate and mark labor has become more common in the last 5 years.

Non-Labor - 5-YR Average

The cumulative expense of labor and non-labor has remained consistent from 2009 -2013, therefore a 5-year-average forecast methodology is appropriate. Depending on availability of company locate and mark resources, contract resources are also utilized. Contract resource expenses are depicted as non-labor. The use of contract locate and mark labor has become more common in the last 5 years.

NSE - 5-YR Average

N/A

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2009	2010	2011	2012	2013	2014	2015	2016	
Labor		2,208	2,075	1,952	1,803	1,785	1,965	1,965	1,965	
Non-Labor		373	335	571	668	753	540	540	540	
NSE		0	0	0	0	0	0	0	0	
Total		2,581	2,410	2,523	2,471	2,538	2,505	2,505	2,505	
FTE		30.9	28.0	24.8	22.8	21.9	25.7	25.7	25.7	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 3. Locate & Mark
 Workpaper: 1GD000.002 - Field O&M - Locate & Mark

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	5-YR Average	1,965	1,965	1,965	0	0	0	1,965	1,965	1,965
Non-Labor	5-YR Average	540	540	540	0	0	0	540	540	540
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		2,505	2,505	2,505	0	0	0	2,505	2,505	2,505
FTE	5-YR Average	25.7	25.7	25.7	0.0	0.0	0.0	25.7	25.7	25.7

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 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Category-Sub: 3. Locate & Mark
Workpaper: 1GD000.002 - Field O&M - Locate & Mark

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	1,762	1,684	1,616	1,543	1,541
Non-Labor	338	310	549	656	753
NSE	0	0	0	0	0
Total	2,099	1,994	2,166	2,199	2,294
FTE	26.5	23.9	21.3	19.7	18.6
Adjustments (Nominal \$) **					
Labor	0	0	18	-1	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	18	-1	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	1,762	1,684	1,634	1,542	1,541
Non-Labor	338	310	549	656	753
NSE	0	0	0	0	0
Total	2,099	1,994	2,183	2,198	2,294
FTE	26.5	23.9	21.3	19.7	18.6
Vacation & Sick (Nominal \$)					
Labor	272	268	241	223	244
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	272	268	241	223	244
FTE	4.4	4.1	3.5	3.2	3.3
Escalation to 2013\$					
Labor	175	124	77	38	0
Non-Labor	35	25	22	12	0
NSE	0	0	0	0	0
Total	210	148	99	50	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	2,208	2,075	1,952	1,803	1,785
Non-Labor	373	335	571	668	753
NSE	0	0	0	0	0
Total	2,581	2,410	2,523	2,471	2,538
FTE	30.9	28.0	24.8	22.9	21.9

* 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.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 3. Locate & Mark
 Workpaper: 1GD000.002 - Field O&M - Locate & Mark

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2009	2010	2011	2012	2013
Labor	0	0	18	-1	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	18	-1	0
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 Total	0	0	0	0.0			
2010 Total	0	0	0	0.0			
2011	18	0	0	0.0	1-Sided Adj	N/A	JREISTET201310 25114547050
\$200,826 2011 retroactive pay to be redistributed to Subgroups 1, 2, 3, 4, and 6 based on recorded labor. \$ 11,397 Subgrp 1 Leak Survey \$ 17,774 Subgrp 2 Locate and Mark \$ 62,218 Subgrp 3 Maintenance Mains \$ 52,948 Subgrp 4 Maintenance Services \$ 56,489 Subgrp 6 Electric Support -\$200,826 Subgrp 5 Tools No FTE impact No FTE impact.							
2011 Total	18	0	0	0.0			

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 3. Locate & Mark
 Workpaper: 1GD000.002 - Field O&M - Locate & Mark

<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	-1	0	0	0.0	1-Sided Adj	N/A	JREISTET201310 25115412303

\$21,839 2012 Accrual reversal for 2011 retroactive pay to be redistributed to Subgroups 1, 2, 3, 4, and 6 based on recorded labor.
 - \$ 872 Subgrp 1 Leak Survey
 -\$ 1,054 Subgrp 2 Locate and Mark
 -\$ 7,218 Subgrp 3 Maintenance Mains
 -\$ 6,142 Subgrp 4 Maintenance Services
 -\$ 6,553 Subgrp 6 Electric Support
 \$21,839 Subgrp 5 Tools
 No FTE impact.

2012 Total	-1	0	0	0.0			
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2013 Total	0	0	0	0.0			
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Note: Totals may include rounding differences.

Beginning of Workpaper
1GD000.003 - Field O&M - Main Maintenance

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 4. Main Maintenance
 Workpaper: 1GD000.003 - Field O&M - Main Maintenance

Activity Description:

This group includes labor and non-labor expenses associated with investigating and repairing leaks in distribution mains as well as moving, lowering, and raising short sections of gas distribution mains, vaults, and related structures.

Forecast Explanations:

Labor - Base YR Rec

Labor and non-labor expenses increased between 2011 and 2013 due to increased traffic control requirements from municipalities, contractor performed bridge span repairs and maintenance, and code 1 leak repair policy change requiring code 1 leaks to be worked through to repair completion instead of performing temporary repairs. Due to these recent expense level changes, an historical average would not represent future resource needs. Therefore, the 2013 base was chosen as the base expense for future years. To this base are added incremental expenses. Incremental expenses are needed to outfit additional vehicles for after-hours emergency response.

Non-Labor - Base YR Rec

Labor and non-labor expenses increased between 2011 and 2013 due to increased traffic control requirements from municipalities, contractor performed bridge span repairs and maintenance, and code 1 leak repair policy change requiring code 1 leaks to be worked through to repair completion instead of performing temporary repairs. Due to these recent expense level changes, an historical average would not represent future resource needs. Therefore, the 2013 base was chosen as the base expense for future years. To this base are added incremental expenses. Incremental expenses are needed to outfit additional vehicles for after-hours emergency response.

NSE - Base YR Rec

N/A

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2009	2010	2011	2012	2013	2014	2015	2016	
Labor		784	801	1,003	1,046	1,257	1,257	1,257	1,257	
Non-Labor		379	337	443	606	720	775	720	720	
NSE		0	0	0	0	0	0	0	0	
Total		1,163	1,138	1,446	1,652	1,977	2,032	1,977	1,977	
FTE		10.2	9.7	11.4	13.5	15.8	15.8	15.8	15.8	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 4. Main Maintenance
 Workpaper: 1GD000.003 - Field O&M - Main Maintenance

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	Base YR Rec	1,257	1,257	1,257	0	0	0	1,257	1,257	1,257
Non-Labor	Base YR Rec	720	720	720	55	0	0	775	720	720
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		1,977	1,977	1,977	55	0	0	2,032	1,977	1,977
FTE	Base YR Rec	15.8	15.8	15.8	0.0	0.0	0.0	15.8	15.8	15.8

Forecast Adjustment Details:

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>
2014	0	55	0	55	0.0	1-Sided Adj

After Hours Emergency Response - Tools and equipment for 5 additional trucks, one in each operating district, to enhance after-hours response to emergencies. This is a one time only charge in 2014. Total expense = \$11K X 5 trucks = \$55K for 2014.

2014 Total	0	55	0	55	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Category-Sub: 4. Main Maintenance
Workpaper: 1GD000.003 - Field O&M - Main Maintenance

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	626	650	778	901	1,260
Non-Labor	343	312	426	545	720
NSE	0	0	0	0	0
Total	969	962	1,204	1,446	1,980
FTE	8.8	8.2	9.8	11.6	16.1
Adjustments (Nominal \$) **					
Labor	0	0	62	-7	-175
Non-Labor	0	0	0	51	0
NSE	0	0	0	0	0
Total	0	0	62	44	-175
FTE	0.0	0.0	0.0	0.0	-2.6
Recorded-Adjusted (Nominal \$)					
Labor	626	650	840	894	1,085
Non-Labor	343	312	426	595	720
NSE	0	0	0	0	0
Total	969	962	1,266	1,490	1,805
FTE	8.8	8.2	9.8	11.6	13.5
Vacation & Sick (Nominal \$)					
Labor	97	103	124	130	172
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	97	103	124	130	172
FTE	1.5	1.4	1.6	1.9	2.3
Escalation to 2013\$					
Labor	62	48	39	22	0
Non-Labor	36	25	17	11	0
NSE	0	0	0	0	0
Total	98	72	57	33	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	784	801	1,003	1,046	1,257
Non-Labor	379	337	443	606	720
NSE	0	0	0	0	0
Total	1,163	1,138	1,446	1,652	1,977
FTE	10.3	9.6	11.4	13.5	15.8

* 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.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 4. Main Maintenance
 Workpaper: 1GD000.003 - Field O&M - Main Maintenance

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2009	2010	2011	2012	2013
Labor	0	0	62	-7	-175
Non-Labor	0	0	0	51	0
NSE	0	0	0	0	0
Total	0	0	62	44	-175
FTE	0.0	0.0	0.0	0.0	-2.6

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 Total	0	0	0	0.0			
2010 Total	0	0	0	0.0			
2011	62	0	0	0.0	1-Sided Adj	N/A	JREISTET201310 25114627323
\$200,826 2011 retroactive pay to be redistributed to Subgroups 1, 2, 3, 4, and 6 based on recorded labor. \$ 11,397 Subgrp 1 Leak Survey \$ 17,774 Subgrp 2 Locate and Mark \$ 62,218 Subgrp 3 Maintenance Mains \$ 52,948 Subgrp 4 Maintenance Services \$ 56,489 Subgrp 6 Electric Support -\$200,826 Subgrp 5 Tools No FTE impact.							
2011 Total	62	0	0	0.0			

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 4. Main Maintenance
 Workpaper: 1GD000.003 - Field O&M - Main Maintenance

<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	-7	0	0	0.0	1-Sided Adj	N/A	JREISTET201310 25115434307
\$21,839 2012 Accrual reversal for 2011 retroactive pay to be redistributed to Subgroups 1, 2, 3, 4, and 6 based on recorded labor. - \$ 872 Subgrp 1 Leak Survey -\$ 1,054 Subgrp 2 Locate and Mark -\$ 7,218 Subgrp 3 Maintenance Mains -\$ 6,142 Subgrp 4 Maintenance Services -\$ 6,553 Subgrp 6 Electric Support \$21,839 Subgrp 5 Tools No FTE impact.							
2012	0	51	0	0.0	1-Sided Adj	N/A	JREISTET201310 25125933017
Bridge span maintenance by Bridge Masters Inc. moved from Group 1 to Group 000 Subgroup 3 to be consistent with current cost recording practices.							
2012 Total	-7	51	0	0.0			
2013	-175	0	0	-2.6	1-Sided Adj	N/A	DBENTLEY20140 204173629880
Transfer charges to Leak Survey from Mains Services and Electric Support to be consistent with 2009-2012. Beginning in 2013, Plant Maintenance (PM) orders map to specific FERC. Prior to 2013 Leak Survey charged FG874.1. With the implementation of PM orders, the charges may be split to 874.1, 887.1 (leak on main), 892.1 (leak on a service) and others.							
2013 Total	-175	0	0	-2.6			

Note: Totals may include rounding differences.

Beginning of Workpaper
1GD000.004 - Field O&M - Service Maintenance

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 5. Service Maintenance
 Workpaper: 1GD000.004 - Field O&M - Service Maintenance

Activity Description:

This group includes labor and non-labor expenses associated with investigating and repairing leaks in distribution services. This includes excavating to determine the source, changing service valves, checking the condition of coating at the MSA, testing service pipe for leaks, inspecting and testing service pipe after repairs have been made, and installing, maintaining and removing temporary feeds. Also included in this subgroup are expenses for moving, lowering, and raising sections of distribution services. Rearranging and changing the location of an existing service may be required due to alterations in buildings or grounds, and municipal improvements such as street widening or sewer and water system work.

Forecast Explanations:

Labor - 5-YR Average

Labor and non-labor service maintenance expenses vary from year to year primarily due to the unpredictability of customer and municipality driven relocations and modifications. Therefore, a 5-year-average methodology is appropriate for this group. To this 5-year-average base level of expense is added incremental funding for the Separately Protected Service Line project.

Non-Labor - 5-YR Average

Labor and non-labor service maintenance expenses vary from year to year primarily due to the unpredictability of customer and municipality driven relocations and modifications. Therefore, a 5-year-average methodology is appropriate for this group. To this 5-year-average base level of expense is added incremental funding for the Separately Protected Service Line project.

NSE - 5-YR Average

N/A

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2009	2010	2011	2012	2013	2014	2015	2016	
Labor		1,343	1,109	854	1,079	1,062	1,089	1,418	1,134	
Non-Labor		146	53	73	95	121	98	192	110	
NSE		0	0	0	0	0	0	0	0	
Total		1,489	1,162	927	1,174	1,183	1,187	1,610	1,244	
FTE		18.4	14.4	10.9	13.7	13.2	14.1	19.0	14.8	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 5. Service Maintenance
 Workpaper: 1GD000.004 - Field O&M - Service Maintenance

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	5-YR Average	1,089	1,089	1,089	0	329	45	1,089	1,418	1,134
Non-Labor	5-YR Average	98	98	98	0	94	12	98	192	110
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		1,187	1,187	1,187	0	423	57	1,187	1,610	1,244
FTE	5-YR Average	14.1	14.1	14.1	0.0	4.9	0.7	14.1	19.0	14.8

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 Total	0	0	0	0	0.0	

2015 168 32 0 200 2.1 1-Sided Adj

A. Riser Excavation for the Separately Protected Service Line Project – Remediation work will be performed on Separately Protected Service Line Project sites. This work represents riser excavation and restoration of CP by the construction crews. Work will begin in 2015 on an estimated 838 sites = \$168K Labor expense. An estimated 137 sites will be worked annually in 2016 and beyond for an annual labor expense of \$27K. Non-Labor costs are estimated to be \$32K in 2015; and \$5K in 2016 and thereafter.

2015 161 62 0 223 2.8 1-Sided Adj

B. Core-hole at Riser for Separately Protected Service Line Project - Remediation work will be performed on the Separately Protected Service line project sites. This work represents core-holing through concrete near the riser and adding a CP anode on riser locations by construction crews. Total labor cost for an estimated 1,815 sites = \$161K beginning in 2015. Work will continue with an estimated 206 sites = \$18K labor expense for 2016 and beyond. Non-Labor costs are estimated to be \$62K in 2015; and \$7K in 2016 and thereafter.

2015 Total	329	94	0	423	4.9	
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2016 27 5 0 32 0.4 1-Sided Adj

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 5. Service Maintenance
 Workpaper: 1GD000.004 - Field O&M - Service Maintenance

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adi Type</u>
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A. Riser Excavation for the Separately Protected Service Line Project – Remediation work will be performed on Separately Protected Service Line Project sites. This work represents riser excavation and restoration of CP by the construction crews. Work will begin in 2015 on an estimated 838 sites = \$168K Labor expense. An estimated 137 sites will be worked annually in 2016 and beyond for an annual labor expense of \$27K. Non-Labor costs are estimated to be \$32K in 2015; and \$5K in 2016 and thereafter.

2016	18	7	0	25	0.3	1-Sided Adj
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B. Core-hole at Riser for Separately Protected Service Line Project - Remediation work will be performed on the Separately Protected Service line project sites. This work represents core-holing through concrete near the riser and adding a CP anode on riser locations by construction crews. Total labor cost for an estimated 1,815 sites = \$161K beginning in 2015. Work will continue with an estimated 206 sites = \$18K labor expense for 2016 and beyond. Non-Labor costs are estimated to be \$62K in 2015; and \$7K in 2016 and thereafter.

2016 Total	45	12	0	57	0.7	
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Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Category-Sub: 5. Service Maintenance
Workpaper: 1GD000.004 - Field O&M - Service Maintenance

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	1,071	900	662	929	923
Non-Labor	132	49	71	93	121
NSE	0	0	0	0	0
Total	1,204	949	733	1,022	1,043
FTE	15.8	12.3	9.4	11.8	11.3
Adjustments (Nominal \$) **					
Labor	0	0	53	-6	-6
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	53	-6	-6
FTE	0.0	0.0	0.0	0.0	-0.1
Recorded-Adjusted (Nominal \$)					
Labor	1,071	900	715	923	916
Non-Labor	132	49	71	93	121
NSE	0	0	0	0	0
Total	1,204	949	786	1,016	1,037
FTE	15.8	12.3	9.4	11.8	11.2
Vacation & Sick (Nominal \$)					
Labor	165	143	105	134	145
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	165	143	105	134	145
FTE	2.6	2.1	1.5	1.9	2.0
Escalation to 2013\$					
Labor	106	66	34	23	0
Non-Labor	14	4	3	2	0
NSE	0	0	0	0	0
Total	120	70	36	24	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	1,343	1,109	854	1,079	1,062
Non-Labor	146	53	73	95	121
NSE	0	0	0	0	0
Total	1,489	1,162	927	1,174	1,183
FTE	18.4	14.4	10.9	13.7	13.2

* 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.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 5. Service Maintenance
 Workpaper: 1GD000.004 - Field O&M - Service Maintenance

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2009	2010	2011	2012	2013
Labor	0	0	53	-6	-6
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	53	-6	-6
FTE	0.0	0.0	0.0	0.0	-0.1

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 Total	0	0	0	0.0			
2010 Total	0	0	0	0.0			
2011	53	0	0	0.0	1-Sided Adj	N/A	JREISTET201310 25114658583
\$200,826 2011 retroactive pay to be redistributed to Subgroups 1, 2, 3, 4, and 6 based on recorded labor. \$ 11,397 Subgrp 1 Leak Survey \$ 17,774 Subgrp 2 Locate and Mark \$ 62,218 Subgrp 3 Maintenance Mains \$ 52,948 Subgrp 4 Maintenance Services \$ 56,489 Subgrp 6 Electric Support -\$200,826 Subgrp 5 Tools No FTE impact.							
2011 Total	53	0	0	0.0			

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 5. Service Maintenance
 Workpaper: 1GD000.004 - Field O&M - Service Maintenance

<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	-6	0	0	0.0	1-Sided Adj	N/A	JREISTET201310 25115500810
\$21,839 2012 Accrual reversal for 2011 retroactive pay to be redistributed to Subgroups 1, 2, 3, 4, and 6 based on recorded labor. - \$ 872 Subgrp 1 Leak Survey -\$ 1,054 Subgrp 2 Locate and Mark -\$ 7,218 Subgrp 3 Maintenance Mains -\$ 6,142 Subgrp 4 Maintenance Services -\$ 6,553 Supgrp 6 Electric Support \$21,839 Subgrp 5 Tools No FTE impact.							
2012 Total	-6	0	0	0.0			

2013	-6	0	0	-0.1	1-Sided Adj	N/A	DBENTLEY20140 204173737653
Transfer charges to Leak Survey from Mains Services and Electric Support to be consistent with 2009-2012. Beginning in 2013, Plant Maintenance (PM) orders map to specific FERC. Prior to 2013 Leak Survey charged FG874.1. With the implementation of PM orders, the charges may be split to 874.1, 887.1 (leak on main), 892.1 (leak on a service) and others.							
2013 Total	-6	0	0	-0.1			

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 1GD000.004

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

SDGE-FBA-O&M-SUP-001

San Diego Gas and Electric Company -- Gas Distribution -- Witness Frank Ayala

Supplemental Workpaper Calculations for incremental cost related to Separately Protected Service Line Project

Remediation Item A - Riser excavation through dirt or vegetation.

	[A]	[B]	[C] [B*.20]-372]	[D]	[E] [C/D]	[F]	[G] [E*F]	[H][G]/78300	[I]	[J]	[K] [I+J]
	Total Risers to Be Surveyed	Portion of risers not meeting criteria	Number of "Item A" remediation by Gas Crews (Dig up Tracer wire) per Year	Remediation capacity of Gas crew/day	Number of crew days required to remediate	Daily Labor\$/Gas Crew	Incremental Labor\$	Incremental FTEs	Vehicle Cost @ \$34.48/day	Materials cost of anodes @ \$27/each	Incremental NonLabor\$
2015	40,331	6,050	838	3	279	\$ 600	\$ 167,586	2.14	\$ 9,631	\$22,624	\$ 32,255
2016	34,281	686	137	3	46	\$ 600	\$ 27,425	0.35	\$ 1,576	\$ 3,702	\$ 5,278

Remediation Item B - Core hole through concrete/asphalt to install anode and return to 10-year survey

	[A]	[B]	[C] [B*.30]	[D]	[E] [C/D]	[F]	[G] [E*F]	[H][G]/58000	[I]	[J]	[K] [I+J]
	Total Risers to Be Surveyed	Portion of risers not meeting criteria	Number of "Item B" remediation by Street Repair Crews (Core Hole) per Year	Remediation capacity of SR crew/day	Number of crew days required to remediate	Daily Labor\$/Street Repair Crew	Incremental Labor\$	Incremental FTEs	Vehicle Cost @ \$34.48/day	Materials cost of anodes @ \$27/each	Incremental NonLabor\$
2015	40,331	6,050	1,815	5	363	\$ 444	\$ 161,322	2.78	\$ 12,516	\$49,002	\$ 61,518
2016	34,281	686	206	5	41	\$ 444	\$ 18,283	0.32	\$ 1,418	\$ 5,554	\$ 6,972

Assumptions:

- [A]: There are 40,331 risers to survey in 2015; surveys in subsequent years will be lessened by the quantity remediated* and returned to the 10-yr CP10 inspection cycle (*Assumed to be equal to the number that were down the previous year.)
- [B]: 15% of surveyed risers will not meet criteria in 2015; 2% of surveyed risers will not meet criteria in 2016 and each year after
- [C]: Of risers not meeting criteria, 20% will be remediated with "Remediation Item A," anodes installed after tracer wire is dug up and replaced by a 2-man gas crew, less 372 anticipated to need full service replacement. Of risers not meeting criteria, 30% will be remediated with "Remediation Item B," anodes installed through concrete or asphalt by a 2-man street repair crew.
- [D]: A two-man gas crew can remediate 3 sites per day and a two man street repair crew can remediate 5 site per day, according to SMEs.
- [E]: Calculation
- [F]: There are 261 working days in the year. The average annual cost of a 2-man gas crew is \$156,600, or \$600 per day. The average annual cost of a 2-man street repair crew is \$116,000, or \$444 per day.
- [G]: Calculation
- [H]: Annual labor cost for a gas crewman is \$78,300. The average annual labor cost for a street repair crewman is \$58,000.
- [I]: Each 2-man crew will require one vehicle @ \$34.48/day
- [J]: The cost of a single anode is \$27.00
- [K]: Calculation

Beginning of Workpaper
1GD000.005 - Field O&M - Tools Fittings & Materials

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 6. Tools Fittings & Materials
 Workpaper: 1GD000.005 - Field O&M - Tools Fittings & Materials

Activity Description:

This group includes labor and non-labor necessary for small tools, equipment, and supplies in support of pipeline operations cost centers. This also includes tool repair and maintenance.

Forecast Explanations:

Labor - 5-YR Average

Labor and non-labor expenses associated with activities in this group tend to fluctuate from year to year; therefore a 5 year average best represents the forecasted level of funding.

Non-Labor - 5-YR Average

Labor and non-labor expenses associated with activities in this group tend to fluctuate from year to year; therefore a 5 year average best represents the forecasted level of funding.

NSE - 5-YR Average

N/A

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2009	2010	2011	2012	2013	2014	2015	2016	
Labor		13	5	5	7	2	6	6	6	
Non-Labor		541	400	409	629	326	461	461	461	
NSE		0	0	0	0	0	0	0	0	
Total		554	404	414	636	328	467	467	467	
FTE		0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	

Note: Totals may include rounding differences.

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Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 6. Tools Fittings & Materials
 Workpaper: 1GD000.005 - Field O&M - Tools Fittings & Materials

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	5-YR Average	6	6	6	0	0	0	6	6	6
Non-Labor	5-YR Average	461	461	461	0	0	0	461	461	461
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		467	467	467	0	0	0	467	467	467
FTE	5-YR Average	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1

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 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

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Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Category-Sub: 6. Tools Fittings & Materials
Workpaper: 1GD000.005 - Field O&M - Tools Fittings & Materials

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	10	4	205	-16	2
Non-Labor	490	370	393	479	326
NSE	0	0	0	0	0
Total	500	374	598	463	328
FTE	0.2	0.1	0.1	0.1	0.0
Adjustments (Nominal \$) **					
Labor	0	0	-201	22	0
Non-Labor	0	0	0	139	0
NSE	0	0	0	0	0
Total	0	0	-201	161	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	10	4	4	6	2
Non-Labor	490	370	393	618	326
NSE	0	0	0	0	0
Total	500	374	398	624	328
FTE	0.2	0.1	0.1	0.1	0.0
Vacation & Sick (Nominal \$)					
Labor	2	1	1	1	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	2	1	1	1	0
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2013\$					
Labor	1	0	0	0	0
Non-Labor	51	29	16	11	0
NSE	0	0	0	0	0
Total	52	30	16	11	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	13	5	5	7	2
Non-Labor	541	400	409	629	326
NSE	0	0	0	0	0
Total	554	404	414	636	328
FTE	0.2	0.1	0.1	0.1	0.0

* 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.

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Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 6. Tools Fittings & Materials
 Workpaper: 1GD000.005 - Field O&M - Tools Fittings & Materials

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2009	2010	2011	2012	2013
Labor	0	0	-201	22	0
Non-Labor	0	0	0	139	0
NSE	0	0	0	0	0
Total	0	0	-201	161	0
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 Total	0	0	0	0.0			
2010 Total	0	0	0	0.0			
2011	-201	0	0	0.0	1-Sided Adj	N/A	JREISTET201310 25113626573
\$200,826 2011 Retroactive pay to be redistributed to Subgroups 1, 2, 3, 4, and 6 based on recorded labor. \$ 11,397 Subgrp 1 Leak Survey \$ 17,774 Subgrp 2 Locate and Mark \$ 62,218 Subgrp 3 Maintenance Mains \$ 52,948 Subgrp 4 Maintenance Services \$ 56,489 Subgrp 6 Electric Support -\$200,826 Subgrp 5 Tools No FTE impact.							
2011 Total	-201	0	0	0.0			

Note: Totals may include rounding differences.

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Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
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 Workpaper: 1GD000.005 - Field O&M - Tools Fittings & Materials

<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	22	0	0	0.0	1-Sided Adj	N/A	JREISTET201310 25115523137
\$21,839 2012 Accrual reversal for 2011 retroactive pay to be redistributed to Subgroups 1, 2, 3, 4, and 6 based on recorded labor. - \$ 872 Subgrp 1 Leak Survey -\$ 1,054 Subgrp 2 Locate and Mark -\$ 7,218 Subgrp 3 Maintenance Mains -\$ 6,142 Subgrp 4 Maintenance Services -\$ 6,553 Subgrp 6 Electric Support \$21,839 Subgrp 5 Tools No FTE impact.							
2012	0	139	0	0.0	1-Sided Adj	N/A	JREISTET201310 25123647277
District tools purchase was charged to 2100-3606 in Group 4; these charges should be included in Group 000, Subgroup 5. \$138,848 NL Group 000 Subgroup 5 -\$138,848 NL Group 4							
2012 Total	22	139	0	0.0			
2013 Total	0	0	0	0.0			

Note: Totals may include rounding differences.

Beginning of Workpaper
1GD000.006 - Field O&M - Electric Support

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 7. Electric Support
 Workpaper: 1GD000.006 - Field O&M - Electric Support

Activity Description:

Gas Distribution provides crew, traffic control, and street repair support to Electric Distribution primarily for the Corrective Maintenance Program (CMP), the Quality Control Repairs and Inspection Program, the restoration of outages, and transformer change outs.

Forecast Explanations:

Labor - 5-YR Average

Electric Distribution maintenance support expenses vary from year to year; therefore, a 5-year-average best represents future funding requirements.

Non-Labor - 5-YR Average

Electric Distribution maintenance support expenses vary from year to year; therefore, a 5-year-average best represents future funding requirements.

NSE - 5-YR Average

N/A

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2009	2010	2011	2012	2013	2014	2015	2016	
Labor		513	547	911	730	485	637	637	637	
Non-Labor		156	85	50	89	121	100	100	100	
NSE		0	0	0	0	0	0	0	0	
Total		668	632	961	819	606	737	737	737	
FTE		7.4	7.1	9.0	9.2	6.6	7.9	7.9	7.9	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 7. Electric Support
 Workpaper: 1GD000.006 - Field O&M - Electric Support

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	5-YR Average	637	637	637	0	0	0	637	637	637
Non-Labor	5-YR Average	100	100	100	0	0	0	100	100	100
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		737	737	737	0	0	0	737	737	737
FTE	5-YR Average	7.9	7.9	7.9	0.0	0.0	0.0	7.9	7.9	7.9

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 Total	0	0	0	0	0.0	
2015 Total	0	0	0	0	0.0	
2016 Total	0	0	0	0	0.0	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Category-Sub: 7. Electric Support
Workpaper: 1GD000.006 - Field O&M - Electric Support

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	409	444	706	630	430
Non-Labor	141	79	48	87	121
NSE	0	0	0	0	0
Total	550	522	755	718	551
FTE	6.3	6.1	7.7	8.0	5.8
Adjustments (Nominal \$) **					
Labor	0	0	56	-7	-12
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	56	-7	-12
FTE	0.0	0.0	0.0	0.0	-0.2
Recorded-Adjusted (Nominal \$)					
Labor	409	444	763	624	419
Non-Labor	141	79	48	87	121
NSE	0	0	0	0	0
Total	550	522	811	711	539
FTE	6.3	6.1	7.7	8.0	5.6
Vacation & Sick (Nominal \$)					
Labor	63	71	112	90	66
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	63	71	112	90	66
FTE	1.1	1.1	1.3	1.3	1.0
Escalation to 2013\$					
Labor	41	33	36	15	0
Non-Labor	15	6	2	2	0
NSE	0	0	0	0	0
Total	55	39	38	17	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	513	547	911	730	485
Non-Labor	156	85	50	89	121
NSE	0	0	0	0	0
Total	668	632	961	819	606
FTE	7.4	7.2	9.0	9.3	6.6

* 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.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 7. Electric Support
 Workpaper: 1GD000.006 - Field O&M - Electric Support

Summary of Adjustments to Recorded:

		In Nominal \$ (000) Incurred Costs				
Years	2009	2010	2011	2012	2013	
Labor	0	0	56	-7	-12	
Non-Labor	0	0	0	0	0	
NSE	0	0	0	0	0	
Total	0	0	56	-7	-12	
FTE	0.0	0.0	0.0	0.0	-0.2	

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 Total	0	0	0	0.0			
2010 Total	0	0	0	0.0			
2011	56	0	0	0.0	1-Sided Adj	N/A	JREISTET201310 25114733460
\$200,826 2011 retroactive pay to be redistributed to Subgroups 1, 2, 3, 4, and 6 based on recorded labor. \$ 11,397 Subgrp 1 Leak Survey \$ 17,774 Subgrp 2 Locate and Mark \$ 62,218 Subgrp 3 Maintenance Mains \$ 52,948 Subgrp 4 Maintenance Services \$ 56,489 Subgrp 6 Electric Support -\$200,826 Subgrp 5 Tools No FTE impact.							
2011 Total	56	0	0	0.0			

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 7. Electric Support
 Workpaper: 1GD000.006 - Field O&M - Electric Support

<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	-7	0	0	0.0	1-Sided Adj	N/A	JREISTET201310 25115600297
\$21,839 2012 Accrual reversal for 2011 retroactive pay to be redistributed to Subgroups 1, 2, 3, 4, and 6 based on recorded labor. - \$ 872 Subgrp 1 Leak Survey -\$ 1,054 Subgrp 2 Locate and Mark -\$ 7,218 Subgrp 3 Maintenance Mains -\$ 6,142 Subgrp 4 Maintenance Services -\$ 6,553 Supgrp 6 Electric Support \$21,839 Subgrp 5 Tools No FTE impact.							
2012 Total	-7	0	0	0.0			

2013	-12	0	0	-0.2	1-Sided Adj	N/A	DBENTLEY20140 204173828063
Transfer charges to Leak Survey from Mains Services and Electric Support to be consistent with 2009-2012 costs. Beginning in 2013, Plant Maintenance (PM) orders map to specific FERC. Prior to 2013 Leak Survey charged FG874.1. With the implementation of PM orders, the charges may be split to 874.1, 887.1 (leak on main), 892.1 (leak on a service) and others.							
2013 Total	-12	0	0	-0.2			

Note: Totals may include rounding differences.

Beginning of Workpaper
1GD000.007 - Field O&M - Supervision & Training

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 8. Supervision & Training
 Workpaper: 1GD000.007 - Field O&M - Supervision & Training

Activity Description:

This group includes labor and non-labor expenses for construction managers, construction supervisors, operations assistants and other clerical employees located at Construction and Operation (C&O) centers. Also included are charges for training gas employees within the C&O centers and in Gas Technical Services. Non-labor expenses include office supplies, telephone expenses, mileage expenses, employee uniforms, training expenses, and professional dues.

Forecast Explanations:

Labor - Base YR Rec

An increase in skills development and Operator Qualifications training began in 2013. This increase in activity is expected to continue. For this reason, 2013 base was selected as the base level of expense. In the forecast years, additional training activity associated with Operator Qualification, including an increase in the number of tasks and the frequency of qualifications, will cause costs in this group to increase above this base level of expense. Therefore, a 2013 base plus incremental additions was selected as the appropriate forecast methodology for this group.

Non-Labor - Base YR Rec

An increase in skills development and Operator Qualifications training began in 2013. This increase in activity is expected to continue. For this reason, 2013 base was selected as the base level of expense. In the forecast years, additional training activity associated with Operator Qualification, including an increase in the number of tasks and the frequency of qualifications, will cause costs in this group to increase above this base level of expense. Therefore, a 2013 base plus incremental additions was selected as the appropriate forecast methodology for this group.

NSE - Base YR Rec

N/A

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2009	2010	2011	2012	2013	2014	2015	2016	
Labor		2,098	1,801	2,024	2,027	2,296	2,465	2,634	2,634	
Non-Labor		365	226	235	220	202	205	207	207	
NSE		0	0	0	0	0	0	0	0	
Total		2,463	2,027	2,259	2,247	2,498	2,670	2,841	2,841	
FTE		27.1	21.2	26.9	27.7	31.1	33.7	36.3	36.3	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
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 Category: B. Field Operations & Maintenance
 Category-Sub: 8. Supervision & Training
 Workpaper: 1GD000.007 - Field O&M - Supervision & Training

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	Base YR Rec	2,296	2,296	2,296	169	338	338	2,465	2,634	2,634
Non-Labor	Base YR Rec	202	202	202	3	5	5	205	207	207
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		2,498	2,498	2,498	172	343	343	2,670	2,841	2,841
FTE	Base YR Rec	31.1	31.1	31.1	2.6	5.2	5.2	33.7	36.3	36.3

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	169	3	0	172	2.6	1-Sided Adj

Operator Qualification and Skills Training Increased Operator Qualification training due to an increase in tasks and change in qualification interval frequency. Forty training hours for 180 employees = \$338K labor expense. One half the classes will be completed in 2014 = .5 X \$338 = \$169K, full number of classes for 2015 and thereafter at \$338K. NL expense for training = \$3K in 2014 and \$5K for 2015 and thereafter.

2014 Total	169	3	0	172	2.6	
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2015	338	5	0	343	5.2	1-Sided Adj
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Operator Qualification and Skills Training Increased Operator Qualification training due to an increase in tasks and change in qualification interval frequency. Forty training hours for 180 employees = \$338K labor expense. One half the classes will be completed in 2014 = .5 X \$338 = \$169K, full number of classes for 2015 and thereafter at \$338K. NL expense for training = \$3K in 2014 and \$5K for 2015 and thereafter.

2015 Total	338	5	0	343	5.2	
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2016	338	5	0	343	5.2	1-Sided Adj
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Operator Qualification and Skills Training Increased Operator Qualification training due to an increase in tasks and change in qualification interval frequency. Forty training hours for 180 employees = \$338K labor expense. One half the classes will be completed in 2014 = .5 X \$338 = \$169K, full number of classes for 2015 and thereafter at \$338K. NL expense for training = \$3K in 2014 and \$5K for 2015 and thereafter.

Note: Totals may include rounding differences.

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Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Category-Sub: 8. Supervision & Training
Workpaper: 1GD000.007 - Field O&M - Supervision & Training

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adi Type</u>
2016 Total	338	5	0	343	5.2	

Note: Totals may include rounding differences.

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Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Category-Sub: 8. Supervision & Training
Workpaper: 1GD000.007 - Field O&M - Supervision & Training

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	1,674	1,461	1,695	1,733	1,981
Non-Labor	330	210	226	216	202
NSE	0	0	0	0	0
Total	2,004	1,671	1,920	1,949	2,183
FTE	23.2	18.1	23.1	23.9	26.4
Adjustments (Nominal \$) **					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	1,674	1,461	1,695	1,733	1,981
Non-Labor	330	210	226	216	202
NSE	0	0	0	0	0
Total	2,004	1,671	1,920	1,949	2,183
FTE	23.2	18.1	23.1	23.9	26.4
Vacation & Sick (Nominal \$)					
Labor	258	233	250	251	314
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	258	233	250	251	314
FTE	3.9	3.1	3.8	3.9	4.6
Escalation to 2013\$					
Labor	166	107	80	43	0
Non-Labor	35	17	9	4	0
NSE	0	0	0	0	0
Total	201	124	89	47	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	2,098	1,801	2,024	2,027	2,296
Non-Labor	365	226	235	220	202
NSE	0	0	0	0	0
Total	2,463	2,027	2,259	2,247	2,498
FTE	27.1	21.2	26.9	27.8	31.0

* 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.

San Diego Gas & Electric Company
2016 GRC - APP
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Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 8. Supervision & Training
 Workpaper: 1GD000.007 - Field O&M - Supervision & Training

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2009	2010	2011	2012	2013
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
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 Total	0	0	0	0.0			
2010 Total	0	0	0	0.0			
2011 Total	0	0	0	0.0			
2012 Total	0	0	0	0.0			
2013 Total	0	0	0	0.0			

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 1GD000.007

San Diego Gas & Electric Company
2016 GRC - APP
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SDGE-FBA-O&M-SUP-003

**San Diego Gas and Electric Company -- Gas Distribution -- Witness Frank Ayala
Supplemental Workpaper - Summary of Operator Qualification (OQ) Expenses**

The following is a summary of Operator Qualification expenses which appear in multiple workgroups in the O&M portion of the direct testimony

[A] Testimony Work Group	[B] Target Personnel	[C] Total Training Hours	\$(000) of \$2013					
			2014		2015		2016	
			[D] Labor	[E] Non-Labor	[F] Labor	[G] Non-Labor	[H] Labor	[I] Non-Labor
II. B.Field O&M 8. Supervision and Training, "Operator Qualification and Skills Training"	District Construction and Leak Survey	7,200	\$169 ²	\$3 ²	\$338	\$5	\$338	\$5
II. B.Field O&M 9. Measurement & Regulation, "Operator Qualification and Skills Training"	Pipeline Operations and Instrument Technicians	1,320	\$62	\$5	\$62	\$5	\$62	\$5
II. B.Field O&M 10. Cathodic Protection, "Operator Qualification and Skills Training"	Cathodic Protection Electricians	440	\$21	\$5	\$21	\$5	\$21	\$5
II. D. Operations Management & Training, "Pipeline Inspection and OQ Evaluation Personnel"	(N/A - OQ program evaluation labor)	--	\$0	\$0	\$190 ³	\$10 ³	\$190 ³	\$10 ³
II. D. Operations Management & Training, "OQ Program Design and Training Personnel Additions"	(N/A - OQ program design and training labor)	--	\$0	\$0	\$260	\$13	\$450	\$23
Total Forecast Operator Qualification Expense-->			\$252	\$13	\$871	\$38	\$1,061	\$48

Notes:

- 1/ Totals for each year are the total incremental increase for the training above the 2013 Base Year
- 2/ Training for 2014 is 1/2 total training hours = 3600 hours and 1/2 the expense forecast for TY2016
- 3/ This represents the OQ portion (OQ evaluators) of the incremental upward pressure "Pipeline Inspection and OQ Evaluation Personnel"

Beginning of Workpaper
1GD002.000 - Measurement & Regulation

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 9. Measurement & Regulation
 Workpaper: 1GD002.000 - Measurement & Regulation

Activity Description:

This group includes the cost of labor, materials used and expenses incurred in maintaining large meters, instruments, company CNG facilities, gas regulator stations and other equipment used in measuring and regulating gas in connection with gas distribution system operations other than the measurement of gas deliveries to customers.

Forecast Explanations:

Labor - Base YR Rec

Additional Regulator Technicians were added to the labor force in 2012 and continuing into 2013. As a result, 2013 level of labor expense was chosen as the base level and starting point for a forecast since it best represented the base level of labor resources required to support M&R maintenance activities into the forecast years. Forecast adjustments were then added to this base level of expense to account for the listed incremental activities including regulator station internal parts replacement, additional operator qualification and training, and instrument replacements and conversions.

Non-Labor - Base YR Rec

Non-labor costs for internal regulator parts and CNG facility maintenance parts have increased in the last two years. For this reason the 2013 base level of non-labor expense was chosen as the base level and starting point for a forecast since it best represents the level of non-labor resources required to support M&R maintenance activities into the forecast years. Forecast adjustments were then added to this base level of expense to account for the listed incremental activities including regulator station internal parts replacement, instrument replacements and conversions, and added security monitoring for the Borrego LNG facility.

NSE - Base YR Rec

N/A

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2009	2010	2011	2012	2013	2014	2015	2016	
Labor		2,094	1,949	2,000	2,242	2,288	2,370	2,443	2,531	
Non-Labor		586	494	477	596	770	834	888	933	
NSE		0	0	0	0	0	0	0	0	
Total		2,680	2,443	2,477	2,839	3,058	3,204	3,331	3,464	
FTE		28.9	26.5	27.4	30.9	30.6	31.8	32.7	34.0	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
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Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Category-Sub: 9. Measurement & Regulation
Workpaper: 1GD002.000 - Measurement & Regulation

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	Base YR Rec	2,288	2,288	2,288	82	155	243	2,370	2,443	2,531
Non-Labor	Base YR Rec	770	770	770	64	118	163	834	888	933
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		3,058	3,058	3,058	146	273	406	3,204	3,331	3,464
FTE	Base YR Rec	30.6	30.6	30.6	1.2	2.1	3.4	31.8	32.7	34.0

Forecast Adjustment Details:

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>
2014	0	7	0	7	0.0	1-Sided Adj

A. Tapping Equipment Factory Maintenance – Maintenance of all steel pipeline tapping and plugging equipment is critical for safe operation of the tool. Non-Labor expense of \$7K beginning in 2014 is required to send an additional machine to the manufacturer for refurbishment.

2014	0	21	0	21	0.0	1-Sided Adj
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B. Borrego LNG Facility Security Monitoring - To ensure the Borrego LNG facility, which is in a remote desert location, is adequately monitored for security a continuous monitoring system will be required beginning in 2014. The associated non-labor cost is \$21k.

2014	12	11	0	23	0.1	1-Sided Adj
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C. EPM Communication Network Conversions - A labor expense of \$12K and a non-labor expense of \$11K will be required to convert the existing EPMs from cell telephone based to an Internet IP based communication system. This is a one-time expense in 2014.

2014	62	5	0	67	1.0	1-Sided Adj
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F. Operator Qualification and Skills Training Increased Operator Qualification training due to an increase in tasks and change in qualification interval frequency. Forty training hours for 33 employees = \$62K labor expense beginning in 2014. NL expense for training = \$5K beginning in 2014

2014	8	20	0	28	0.1	1-Sided Adj
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G. Regulator Station Internal Parts Replacement - Applying preventative maintenance through replacement of internal parts of gas district regulator stations will require a labor expense of \$8K and a non-labor expense of \$20K for internal parts beginning in 2014 through 2015. In TY2016, labor expense will decrease to \$2K and Non-Labor expense will increase to \$30K.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 9. Measurement & Regulation
 Workpaper: 1GD002.000 - Measurement & Regulation

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adi Type</u>
2014 Total	82	64	0	146	1.2	
2015	0	7	0	7	0.0	1-Sided Adj
<p>A. Tapping Equipment Factory Maintenance – Maintenance of all steel pipeline tapping and plugging equipment is critical for safe operation of the tool. Non-Labor expense of \$7K beginning in 2014 is required to send an additional machine to the manufacturer for refurbishment.</p>						
2015	0	21	0	21	0.0	1-Sided Adj
<p>B. Borrego LNG Facility Security Monitoring - To ensure the Borrego LNG facility, which is in a remote desert location, is adequately monitored for security a continuous monitoring system will be required beginning in 2014. The associated non-labor cost is \$21k.</p>						
2015	0	20	0	20	0.0	1-Sided Adj
<p>D. Small Tools for Mueller Pressure Control Truck - An additional truck carrying gas pipeline plugging and tapping equipment will be added in 2015. A non-labor expense of \$20K will be required to outfit the truck with required maintenance tooling. This is a one-time expense in 2015.</p>						
2015	0	40	0	40	0.0	1-Sided Adj
<p>E. Electronic Corrector Replacements - SDG&E needs to replace these units with updated technology in order to maintain accurate billing to its customers in compliance with CPUC GO 58-A. An incremental non-labor expense of \$40K is required beginning in 2015 for the replacement of electronic correctors.</p>						
2015	62	5	0	67	1.0	1-Sided Adj
<p>F. Operator Qualification and Skills Training Increased Operator Qualification training due to an increase in tasks and change in qualification interval frequency. Forty training hours for 33 employees = \$62K labor expense beginning in 2014. NL expense for training =\$5K beginning in 2014</p>						
2015	8	20	0	28	0.1	1-Sided Adj
<p>G. Regulator Station Internal Parts Replacement - Applying preventative maintenance through replacement of internal parts of gas district regulator stations will require a labor expense of \$8K and a non-labor expense of \$20K for internal parts beginning in 2014 through 2015. In TY2016, labor expense will decrease to \$2K and Non-Labor expense will increase to \$30K.</p>						
2015	85	5	0	90	1.0	1-Sided Adj

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 9. Measurement & Regulation
 Workpaper: 1GD002.000 - Measurement & Regulation

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adi Type</u>
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G. Pipeline Operations Supervisor To provide additional field supervision and office support for GTS Miramar pipeline operations and compliance activities, A Pipeline Operations Supervisor will be added. One Pipeline Operations Supervisor = \$85K labor beginning in 2015. Non-labor expense supporting the supervisor is estimated to be \$5K, also beginning in 2015.

2015 Total	155	118	0	273	2.1	
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2016	0	7	0	7	0.0	1-Sided Adj
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A. Tapping Equipment Factory Maintenance Maintenance of all steel pipeline tapping and plugging equipment is critical for safe operation of the tool. Non-Labor expense of \$7K beginning in 2014 is required to send an additional machine to the manufacturer for refurbishment.

2016	0	21	0	21	0.0	1-Sided Adj
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B. Borrego LNG Facility Security Monitoring - To ensure the Borrego LNG facility, which is in a remote desert location, is adequately monitored for security a continuous monitoring system will be required beginning in 2014. The associated non-labor cost is \$21k.

2016	0	40	0	40	0.0	1-Sided Adj
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E. Electronic Corrector Replacements - SDG&E needs to replace these units with updated technology in order to maintain accurate billing to its customers in compliance with CPUC GO 58-A. An incremental non-labor expense of \$40K is required beginning in 2015 for the replacement of electronic correctors.

2016	62	5	0	67	1.0	1-Sided Adj
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F. Operator Qualification and Skills Training Increased Operator Qualification training due to 50% increase in tasks and change in qualification interval frequency. Forty training hours for 33 employees = \$62K labor expense beginning in 2014. NL expense for training =\$5K beginning in 2014

2016	2	30	0	32	0.0	1-Sided Adj
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G. Regulator Station Internal Parts Replacement - Applying preventative maintenance through replacement of internal parts of gas district regulator stations will require a labor expense of \$8K and a non-labor expense of \$20K for internal parts beginning in 2014 through 2015. In TY2016, labor expense will decrease to \$2K and Non-Labor expense will increase to \$30K.

2016	94	55	0	149	1.4	1-Sided Adj
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H. Enhanced Valve Maintenance - Providing maintenance for newly added valves will require a labor expense of \$94K and a non-labor expense of \$55K beginning in TY2016.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
 2016 GRC - APP
 Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 9. Measurement & Regulation
 Workpaper: 1GD002.000 - Measurement & Regulation

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adi Type</u>
2016	85	5	0	90	1.0	1-Sided Adj

G. Pipeline Operations Supervisor To provide additional field supervision and office support for GTS Miramar pipeline operations and compliance activities, A Pipeline Operations Supervisor will be added. One Pipeline Operations Supervisor = \$85K labor beginning in 2015. Non-labor expense supporting the supervisor is estimated to be \$5K, also beginning in 2015.

2016 Total	243	163	0	406	3.4	
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Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Category-Sub: 9. Measurement & Regulation
Workpaper: 1GD002.000 - Measurement & Regulation

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	1,671	1,581	1,675	1,920	1,974
Non-Labor	530	458	458	586	770
NSE	0	0	0	0	0
Total	2,201	2,039	2,133	2,505	2,745
FTE	24.8	22.6	23.6	26.6	26.0
Adjustments (Nominal \$) **					
Labor	0	0	0	-2	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	-2	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	1,671	1,581	1,675	1,917	1,974
Non-Labor	530	458	458	586	770
NSE	0	0	0	0	0
Total	2,201	2,039	2,133	2,503	2,745
FTE	24.8	22.6	23.6	26.6	26.0
Vacation & Sick (Nominal \$)					
Labor	258	252	247	278	313
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	258	252	247	278	313
FTE	4.2	3.9	3.9	4.3	4.6
Escalation to 2013\$					
Labor	166	116	79	47	0
Non-Labor	56	36	19	10	0
NSE	0	0	0	0	0
Total	221	152	97	58	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	2,094	1,949	2,000	2,242	2,288
Non-Labor	586	494	477	596	770
NSE	0	0	0	0	0
Total	2,680	2,443	2,477	2,839	3,058
FTE	29.0	26.5	27.5	30.9	30.6

* 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.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 9. Measurement & Regulation
 Workpaper: 1GD002.000 - Measurement & Regulation

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2009	2010	2011	2012	2013
Labor	0	0	0	-2	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	-2	0
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 Total	0	0	0	0.0			
2010 Total	0	0	0	0.0			
2011 Total	0	0	0	0.0			
2012	-2	0	0	0.0	1-Sided Adj	N/A	DBENTLEY20131 014123128293
SCG GBO Nonshared Services (Order 7004863)							
2012 Total	-2	0	0	0.0			
2013 Total	0	0	0	0.0			

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 1GD002.000

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers
SDGE-FBA-O&M-SUP-003

**San Diego Gas and Electric Company -- Gas Distribution -- Witness Frank Ayala
Supplemental Workpaper - Summary of Operator Qualification (OQ) Expenses**

The following is a summary of Operator Qualification expenses which appear in multiple workgroups in the O&M portion of the direct testimony

[A] Testimony Work Group	[B] Target Personnel	[C] Total Training Hours	\$(000) of \$2013					
			2014		2015		2016	
			[D] Labor	[E] Non-Labor	[F] Labor	[G] Non-Labor	[H] Labor	[I] Non-Labor
II. B.Field O&M 8. Supervision and Training, "Operator Qualification and Skills Training"	District Construction and Leak Survey	7,200	\$169 ²	\$3 ²	\$338	\$5	\$338	\$5
II. B.Field O&M 9. Measurement & Regulation, "Operator Qualification and Skills Training"	Pipeline Operations and Instrument Technicians	1,320	\$62	\$5	\$62	\$5	\$62	\$5
II. B.Field O&M 10. Cathodic Protection, "Operator Qualification and Skills Training"	Cathodic Protection Electricians	440	\$21	\$5	\$21	\$5	\$21	\$5
II. D. Operations Management & Training, "Pipeline Inspection and OQ Evaluation Personnel"	(N/A - OQ program evaluation labor)	--	\$0	\$0	\$190 ³	\$10 ³	\$190 ³	\$10 ³
II. D. Operations Management & Training, "OQ Program Design and Training Personnel Additions"	(N/A - OQ program design and training labor)	--	\$0	\$0	\$260	\$13	\$450	\$23
Total Forecast Operator Qualification Expense-->			\$252	\$13	\$871	\$38	\$1,061	\$48

Notes:

- 1/ Totals for each year are the total incremental increase for the training above the 2013 Base Year
- 2/ Training for 2014 is 1/2 total training hours = 3600 hours and 1/2 the expense forecast for TY2016
- 3/ This represents the OQ portion (OQ evaluators) of the incremental upward pressure "Pipeline Inspection and OQ Evaluation Personnel"

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

SDGE-FBA-O&M-SUP-004
San Diego Gas and Electric Company -- Gas Distribution -- Witness Frank Ayala
Supplemental Workpaper Calculations for Incremental Valve Maintenance
Field O&M - Measurement & Regulation (M&R) Workgroup

In their joint Pipeline Safety Enhancement Plan (PSEP), first filed in August 2011 in Rulemaking 11-02-019 (the Pipeline Safety Rulemaking), SDG&E and SoCalGas requested approval and recovery of the revenue requirements resulting from Capital and O&M forecasts of the PSEP for years 2011 through 2015, to coincide with SDG&E's and SoCalGas' anticipated next GRC cycles.

SDG&E and SoCalGas are approximately one year behind in their implementation of the PSEP proposed in August 2011. Therefore, associated Capital and O&M costs for the valve enhancement work have been offset by one calendar year or more and SDG&E and SoCalGas expect O&M costs previously forecast to be expended in year 2015 of the PSEP valve enhancement plan to be expended in 2016, rather than 2015. As a result, this 2016 forecast reflects the O&M costs previously forecast to be expended in year 2015 of the PSEP.

Assumptions: [A]: Labor forecast from R.11-02-019, Chapter IX-2 Valves, for SDG&E Gas Distribution O&M in the year 2015. This is in 2011 dollars with vacation and sick.

[B]: Non-Labor forecast from R.11-02-019, Chapter IX-2 Valves, for SDG&E Gas Distribution O&M in the year 2015. This is in 2011 dollars.

[C]: Average blended wage rate for project managers and M&R employees working on the valves, in 2011 dollars.

[E]: Escalation factor to convert 2011 labor dollars into 2013 labor dollars.

[F]: Escalation factor to convert 2011 non-labor dollars into 2013 non-labor dollars.

	2015 Forecast from PSEP Workpapers (2011\$ with V&S)		FTE Calculations (2011\$)			2011 - 2013 Escalation Rates		Resulting 2016 Forecast (2013\$ with V&S)		
	Labor	Non-Labor	Wage Rate	Hours / FTE	FTEs	Labor	Non-Labor	Labor	Non-Labor	Total
	[A]	[B]	[C]	[D]	[A]/([C]*[D])	[E]	[F]	[G]([A]/[E])	[H]([B]/[F])	[G]+[H]
Base Valve Work	\$ 6,008	\$ 10,582	\$31	2088	0.09	96.1%	96.1%	\$ 6,254	\$ 11,010	\$ 17,264
Backflow Prevention - Remote Control Capability	\$ 801	\$ 469	\$31	2088	0.01	96.1%	96.1%	\$ 834	\$ 488	\$ 1,322
Backflow Prevention - Regulator Station Control Piping	\$ 485	\$ 234	\$31	2088	0.01	96.1%	96.1%	\$ 505	\$ 243	\$ 748
Backflow Prevention - Check Valves	\$ 310	\$ 141	\$31	2088	0.00	96.1%	96.1%	\$ 323	\$ 147	\$ 469
Measurement Stations for Flow Analysis	\$ 1,075	\$ 469	\$31	2088	0.02	96.1%	96.1%	\$ 1,119	\$ 488	\$ 1,607
Radio System for Valve Communication	\$ 81,408	\$ 41,130	\$31	2088	1.26	96.1%	96.1%	\$ 84,738	\$ 42,795	\$ 127,533
Total Incremental Valve Maintenance	\$ 90,087	\$ 53,025			1.39			\$ 93,772	\$ 55,171	\$ 148,943

Beginning of Workpaper
1GD003.000 - Cathodic Protection

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 10. Cathodic Protection
 Workpaper: 1GD003.000 - Cathodic Protection

Activity Description:

This group includes labor and non-labor costs for Cathodic Protection Maintenance. This work includes monitoring CP system performance, troubleshooting for system shorts and interference; and CP rectifier and other code required inspections.

Forecast Explanations:

Labor - Base YR Rec

The 2013 base level methodology was chosen to forecast the base requirement for the Cathodic Protection group. The Base Year 2013 reflects incremental salary and associated non-labor costs due to the promotion of two Cathodic Protection Assistant-A, and the certification process for CP Electricians. Using a historic trend or average for this group would not be representative of required base funding level. Added to this base level are incremental funds for a CP Technical Advisor, CP Electrician promotions, a lead Electrician position, increased Operator Qualification training, and survey and remediation work to support the Separately Protected Service Line Project.

Non-Labor - Base YR Rec

The 2013 base level methodology was chosen to forecast the base requirement for the Cathodic Protection group. The Base Year 2013 reflects incremental salary and associated non-labor costs due to the promotion of two Cathodic Protection Assistant-A, and the certification process for CP Electricians. Using a historic trend or average for this group would not be representative of required base funding level. Added to this base level are incremental funds for a CP Technical Advisor, CP Electrician promotions, a lead Electrician position, increased Operator Qualification training, and survey and remediation work to support the Separately Protected Service Line Project.

NSE - Base YR Rec

Not Applicable

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2009	2010	2011	2012	2013	2014	2015	2016	
Labor		870	852	871	853	928	949	1,713	1,674	
Non-Labor		47	78	87	145	106	111	264	193	
NSE		0	0	0	0	0	0	0	0	
Total		917	931	958	997	1,034	1,060	1,977	1,867	
FTE		11.6	11.3	11.1	11.4	12.1	12.4	23.7	23.0	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Category-Sub: 10. Cathodic Protection
Workpaper: 1GD003.000 - Cathodic Protection

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	Base YR Rec	928	928	928	21	785	746	949	1,713	1,674
Non-Labor	Base YR Rec	106	106	106	5	158	87	111	264	193
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		1,034	1,034	1,034	26	943	833	1,060	1,977	1,867
FTE	Base YR Rec	12.1	12.1	12.1	0.3	11.6	10.9	12.4	23.7	23.0

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	21	5	0	26	0.3	1-Sided Adj

B. Operator Qualification and Skills Training - Increased Operator Qualification training due to an increase in covered elements and change in qualification interval frequency. Forty training hours for 11 employees = \$21K in labor expense beginning in 2014. Non-labor expense for training = \$5K beginning in 2014.

2014 Total	21	5	0	26	0.3	
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2015	44	80	0	124	0.8	1-Sided Adj
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A. Remediation work performed by an Electrician for the Separately Protected Service Line Project – Remediation work will be performed to isolate service lines. This cost represents work done at riser locations by an Electrician to insure these sites are protected with an individual CP anode. Work on an estimated 2723 sites = \$44K labor expense beginning in 2015. 309 sites will be worked in 2016 and beyond at an annual labor expense of \$5K. Non-Labor costs are estimated to be \$80K in 2015; and \$9K in 2016 and thereafter.

2015	21	5	0	26	0.3	1-Sided Adj
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B. Operator Qualification and Skills Training - Increased Operator Qualification training due to an increase in covered elements and change in qualification interval frequency. Forty training hours for 11 employees = \$21K in labor expense beginning in 2014. Non-labor expense for training = \$5K beginning in 2014.

2015	196	14	0	210	2.0	1-Sided Adj
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Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 10. Cathodic Protection
 Workpaper: 1GD003.000 - Cathodic Protection

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>
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C. CP Workforce Development - The addition of a lead Electrician is needed to support CP work. This represents a cost of \$86K, beginning in 2015. A CP Technical Advisor will be added to provide technical oversight for CP system maintenance and inspections = \$95K labor expense and \$5K associated non-labor, beginning in 2015. In addition, expenses for job promotions within the electrician represented staff = \$15K in 2015. Total Labor expense = \$86K+\$15K+95K = \$196K beginning in 2015. Non-Labor expense totals \$14K beginning in 2015.

2015	524	59	0	583	8.5	1-Sided Adj
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D. Project and survey personnel for the Separately Protected Service Line Project - Lead and administrative personnel (Project Lead Team) will be required to implement the Separately Protected Service Line Project. Total expenses by year are as follows:
 One Project leader and 1 Technical Support Assistant = (1 X \$80K + 1 X \$60K) = \$140K.
 Project leader and Technical Support Assistant expense to end at the end of 2016. Annual survey work accomplished in 2015 and thereafter will require 6.5 CP Assistant Cs for the year = (6.5 X \$59K) = \$384K. Total combined labor for team lead and survey work will be (\$140K + \$384K) = \$524K in 2015 and 2016. Non-labor expense is estimated to be \$59K for 2015 and 2016.

2015 Total	785	158	0	943	11.6	
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2016	5	9	0	14	0.1	1-Sided Adj
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A. Remediation work performed by an Electrician for the Separately Protected Service Line Project – Remediation work will be performed to isolate service lines. This cost represents work done at riser locations by an Electrician to insure these sites are protected with an individual CP anode. Work on an estimated 2723 sites = \$44K labor expense beginning in 2015. 309 sites will be worked in 2016 and beyond at an annual labor expense of \$5K. Non-Labor costs are estimated to be \$80K in 2015; and \$9K in 2016 and thereafter.

2016	21	5	0	26	0.3	1-Sided Adj
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B. Operator Qualification and Skills Training - Increased Operator Qualification training due to an increase in covered elements and change in qualification interval frequency. Forty training hours for 11 employees = \$21K in labor expense beginning in 2014. Non-labor expense for training = \$5K beginning in 2014.

2016	196	14	0	210	2.0	1-Sided Adj
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Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 10. Cathodic Protection
 Workpaper: 1GD003.000 - Cathodic Protection

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adi Type</u>
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C. CP Workforce Development - The addition of a lead Electrician is needed to support CP work. This represents a cost of \$86K, beginning in 2015. A CP Technical Advisor will be added to provide technical oversight for CP system maintenance and inspections = \$95K labor expense and \$5K associated non-labor, beginning in 2015. In addition, expenses for job promotions within the electrician represented staff = \$15K in 2015. Total Labor expense = \$86K+\$15K+95K = \$196K beginning in 2015. Non-Labor expense totals \$14K beginning in 2015.

2016	524	59	0	583	8.5	1-Sided Adj
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D. Project and survey personnel for the Separately Protected Service Line Project - Lead and administrative personnel (Project Lead Team) will be required to implement the Separately Protected Service Line Project. Total expenses by year are as follows:
 One Project leader and 1 Technical Support Assistant = (1 X \$80K + 1 X \$60K) = \$140K.
 Project leader and Technical Support Assistant expense to end at the end of 2016. Annual survey work accomplished in 2015 and thereafter will require 6.5 CP Assistant Cs for the year = (6.5 X \$59K) = \$384K. Total combined labor for team lead and survey work will be (\$140K + \$384K) = \$524K in 2015 and 2016. Non-labor expense is estimated to be \$59K for 2015 and 2016.

2016 Total	746	87	0	833	10.9	
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Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: B. Field Operations & Maintenance
Category-Sub: 10. Cathodic Protection
Workpaper: 1GD003.000 - Cathodic Protection

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	694	691	729	729	801
Non-Labor	43	73	84	142	106
NSE	0	0	0	0	0
Total	736	764	813	871	907
FTE	9.9	9.6	9.5	9.8	10.3
Adjustments (Nominal \$) **					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	694	691	729	729	801
Non-Labor	43	73	84	142	106
NSE	0	0	0	0	0
Total	736	764	813	871	907
FTE	9.9	9.6	9.5	9.8	10.3
Vacation & Sick (Nominal \$)					
Labor	107	110	107	106	127
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	107	110	107	106	127
FTE	1.7	1.7	1.6	1.6	1.8
Escalation to 2013\$					
Labor	69	51	34	18	0
Non-Labor	4	6	3	3	0
NSE	0	0	0	0	0
Total	73	57	38	21	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	870	852	871	853	928
Non-Labor	47	78	87	145	106
NSE	0	0	0	0	0
Total	917	931	958	997	1,034
FTE	11.6	11.3	11.1	11.4	12.1

* 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.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: B. Field Operations & Maintenance
 Category-Sub: 10. Cathodic Protection
 Workpaper: 1GD003.000 - Cathodic Protection

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2009	2010	2011	2012	2013
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	0	0	0	0	0
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 Total	0	0	0	0.0			
2010 Total	0	0	0	0.0			
2011 Total	0	0	0	0.0			
2012 Total	0	0	0	0.0			
2013 Total	0	0	0	0.0			

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 1GD003.000

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

SDGE-FBA-O&M-SUP-002

San Diego Gas and Electric Company -- Gas Distribution -- Witness Frank Ayala

Supplemental Workpaper Calculations for incremental cost related to Separately Protected Service Line Project

Remediation Item A - Install anode through vegetation or dirt where tracer wire is exposed.

	[A]	[B]	[C] [B]*.45	[D]	[E] [C/D]	[F]	[G] [E]*F	[H] [G]/59000	[I]	[J]	[K] [I+J]
	Total Risers to Be Surveyed	Portion of risers not meeting criteria	Number of "Item A" remediation by Electricians (Install anode through dirt or excavation) per Year	Remediation capacity of Electrician/day	Number of Electrician days required to remediate	Daily Labor\$/Gas Crew	Incremental Labor\$	Incremental FTEs	Vehicle Cost @ \$34.48/day	Materials cost of anodes @ \$27/each	Incremental NonLabor\$
2015	40,331	6,050	2,722	14	194	\$ 226	\$ 43,956	0.75	\$ 6,705	\$73,503	\$ 80,208
2016	34,281	686	309	14	22	\$ 226	\$ 4,982	0.08	\$ 760	\$ 8,330	\$ 9,090

Assumptions:

[A]: There are 40,331 risers to survey in 2015; surveys in subsequent years will be lessened by the quantity remediated* and returned to the 10-yr CP10 inspection cycle (*Assumed to be equal to the number that were down the previous year.)

[B]: 15% of surveyed risers will not meet criteria in 2015; 2% of surveyed risers will not meet criteria in 2016 and each year after

[C]: Of risers not meeting criteria, 45% will be remediated with "Remediation Item A," anodes installed through dirt or vegetation where tracer wire is exposed.

[D]: An electrician can install 14 magnesium anodes a day, according to SMEs.

[E]: Calculation

[F]: There are 261 working days in the year. The average annual labor cost of an electrician "C" is \$49,000, or \$226.05 per day.

[G]: Calculation

[H]: Annual labor cost for an Electrician "C" is \$59,000.

[I]: Each electrician will require one vehicle @\$34.48/day

[J]: The cost of a single anode is \$27.00

[K]: Calculation

Project and Survey Personnel Item D - Project Lead Team

	[A]	[B]	[C] [A]+[B]
	Project Leader Labor Expense	Technical Support Assistant Labor Expense	Incremental Labor for Team Leadership
2015	\$80,000	\$ 60,000	\$ 140,000
2016	\$80,000	\$ 60,000	\$ 140,000

Assumptions:

[A]: 1 FTE

[B]: 1 FTE

Project and Survey Personnel Item D - Electrician Survey Work

	[A]	[B]	[C] [A]/[B]	[D]	[E] [C]/[B]	[F]	[D]*[E]	
	Total Risers to Be Surveyed	Number or Risers Surveyed per Day	Number of Survey Days Required	Incremental FTEs	Electrician C Average Annual Labor Expense	Incremental Labor for Electrician Survey	Vehicle Cost /day	Incremental NonLabor
2015	40,331	23.5	1,716	6.5	\$ 59,000	\$ 383,500	\$ 34.48	\$ 59,175
2016	40,308	23.5	1,715	6.5	\$ 59,000	\$ 383,500	\$ 34.48	\$ 59,141

Assumptions:

[A]: There are 40,331 risers to survey in 2015; surveys in subsequent years will be lessened by the quantity remediated* and returned to the 10-yr CP10 inspection cycle (*Assumed to be equal to the number that were down the previous year.)

[B]: One Electrician "C" can survey 23-24 risers per day.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers
SDGE-FBA-O&M-SUP-003

**San Diego Gas and Electric Company -- Gas Distribution -- Witness Frank Ayala
Supplemental Workpaper - Summary of Operator Qualification (OQ) Expenses**

The following is a summary of Operator Qualification expenses which appear in multiple workgroups in the O&M portion of the direct testimony

[A] Testimony Work Group	[B] Target Personnel	[C] Total Training Hours	\$(000) of \$2013					
			2014		2015		2016	
			[D] Labor	[E] Non-Labor	[F] Labor	[G] Non-Labor	[H] Labor	[I] Non-Labor
II. B.Field O&M 8. Supervision and Training, "Operator Qualification and Skills Training"	District Construction and Leak Survey	7,200	\$169 ²	\$3 ²	\$338	\$5	\$338	\$5
II. B.Field O&M 9. Measurement & Regulation, "Operator Qualification and Skills Training"	Pipeline Operations and Instrument Technicians	1,320	\$62	\$5	\$62	\$5	\$62	\$5
II. B.Field O&M 10. Cathodic Protection, "Operator Qualification and Skills Training"	Cathodic Protection Electricians	440	\$21	\$5	\$21	\$5	\$21	\$5
II. D. Operations Management & Training, "Pipeline Inspection and OQ Evaluation Personnel"	(N/A - OQ program evaluation labor)	--	\$0	\$0	\$190 ³	\$10 ³	\$190 ³	\$10 ³
II. D. Operations Management & Training, "OQ Program Design and Training Personnel Additions"	(N/A - OQ program design and training labor)	--	\$0	\$0	\$260	\$13	\$450	\$23
Total Forecast Operator Qualification Expense-->			\$252	\$13	\$871	\$38	\$1,061	\$48

Notes:

- 1/ Totals for each year are the total incremental increase for the training above the 2013 Base Year
- 2/ Training for 2014 is 1/2 total training hours = 3600 hours and 1/2 the expense forecast for TY2016
- 3/ This represents the OQ portion (OQ evaluators) of the incremental upward pressure "Pipeline Inspection and OQ Evaluation Personnel"

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: C. Asset Management
Workpaper: 1GD001.000

Summary for Category: C. Asset Management

	In 2013\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	1,228	1,243	1,400	1,400
Non-Labor	397	470	449	449
NSE	0	0	0	0
Total	1,625	1,713	1,849	1,849
FTE	20.0	19.9	22.8	22.8

Workpapers belonging to this Category:

1GD001.000 Asset Management

Labor	1,228	1,243	1,400	1,400
Non-Labor	397	470	449	449
NSE	0	0	0	0
Total	1,625	1,713	1,849	1,849
FTE	20.0	19.9	22.8	22.8

Note: Totals may include rounding differences.

Beginning of Workpaper
1GD001.000 - Asset Management

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: C. Asset Management
Category-Sub: 1. Asset Management
Workpaper: 1GD001.000 - Asset Management

Activity Description:

This group includes the cost of labor and non-labor associated with preparing and updating a documented record of the installed gas pipeline system; processing as-built drawings from the field to create a final record of pipeline system additions and changes; designing and installing gas distribution system upgrades, repairs, and relocations; forecasting system growth and planning improvements to ensure adequate gas pressure for SDG&E's service territory; managing, designing and providing financial responsibility for major gas system pipeline projects from start to completion.

Forecast Explanations:

Labor - 5-YR Average

Staffing in this group has remained generally constant in recent history. As a result, a five year average was selected as the base level of labor resources required to support Asset Management activities. Incremental forecast adjustments were added to this base level of expense to account for changes in activities and the organization over the forecast period.

Non-Labor - 5-YR Average

Non-labor expenses in this group have remained fairly level in recent history. As a result, a five year average was selected as the base level of non-labor resources required to support Asset Management activities. Incremental forecast adjustments were added to this base level of expense to account for changes in non-labor requirements over the forecast period.

NSE - 5-YR Average

N/A

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years	2009	2010	2011	2012	2013	2014	2015	2016		
Labor	1,261	1,099	1,154	1,402	1,228	1,243	1,400	1,400		
Non-Labor	393	463	426	460	397	470	449	449		
NSE	0	0	0	0	0	0	0	0		
Total	1,653	1,562	1,580	1,863	1,624	1,712	1,848	1,848		
FTE	19.6	17.5	18.9	22.3	20.0	19.9	22.8	22.8		

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: C. Asset Management
 Category-Sub: 1. Asset Management
 Workpaper: 1GD001.000 - Asset Management

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	5-YR Average	1,229	1,229	1,229	14	171	171	1,243	1,400	1,400
Non-Labor	5-YR Average	428	428	428	42	21	21	470	449	449
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		1,656	1,656	1,656	56	192	192	1,712	1,848	1,848
FTE	5-YR Average	19.6	19.6	19.6	0.3	3.2	3.2	19.9	22.8	22.8

Forecast Adjustment Details:

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>
2014	14	0	0	14	0.3	1-Sided Adj

A. Mapping and GIS Group Restructuring - Restructuring of the Mapping group organization to accommodate the new roles associated with the GIS based system will begin in 2014. Positions, titles and skills that correspond to the GIS technology will be incorporated. Labor expense for position upgrades is estimated to be \$14K beginning in 2014, then increasing by \$61K with a total of \$75K in 2015, TY2016 and thereafter.

2014	0	32	0	32	0.0	1-Sided Adj
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C. Tablet Mounts for Field Utility Specialist (FUS) Vehicles - Beginning in 2014, the vehicles used by the FUSs will be outfitted with mobile tablets. This will require laptop mounts in their vehicles. Non-labor expense = \$1.8K/vehicle X 18 vehicles = \$32K. This is a one-time expense in 2014 only.

2014	0	10	0	10	0.0	1-Sided Adj
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D. Wireless Fees for Field Utility Specialist Tablets - Beginning in 2014, the vehicles used by the Field Utility Specialists will be outfitted with mobile tablets. This will require the addition of wireless service to provide network connectivity. This will be billed on a monthly basis. Non-labor expense = \$46/month X 18 vehicles X 12 months = \$10K (annual fee) beginning in 2014

2014 Total	14	42	0	56	0.3	
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2015	75	0	0	75	1.4	1-Sided Adj
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Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: C. Asset Management
Category-Sub: 1. Asset Management
Workpaper: 1GD001.000 - Asset Management

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>
<p>A. Mapping and GIS Group Restructuring - Restructuring of the Mapping group organization to accommodate the new roles associated with the GIS based system will begin in 2014. Positions, titles and skills that correspond to the GIS technology will be incorporated. Labor expense for position upgrades is estimated to be \$14K beginning in 2014, then increasing by \$61K with a total of \$75K in 2015, TY2016 and thereafter.</p>						
2015	14	1	0	15	0.2	1-Sided Adj
<p>G. High Pressure Pipeline QC Manager - To manage the quality control process for high pressure pipeline design, construction and documentation, one Quality Control Manager will be added beginning in 2015. This position will charge 15% of the time to O&M. Labor expense is estimated to be \$95K X .15 = \$14K beginning in 2015. The O&M portion of non-labor expense to support this position is \$1K beginning in 2015.</p>						
2015	8	1	0	9	0.2	1-Sided Adj
<p>H. High Pressure Pipeline Material Expeditor - Beginning in 2015, a Material Expeditor to control material receiving, storage and documentation will be added. This position will charge 15% of the time to O&M. Labor expense is estimated to be \$50K X .15 = \$8K beginning in 2015. The O&M portion of non-labor expense to support this position is \$1K beginning in 2015.</p>						
2015	46	6	0	52	1.0	1-Sided Adj
<p>B. Region Engineering Development Program - Add two Intern Engineers for 1/2 year beginning in 2015. Two Interns @\$46K/year for 1/2 year = \$46K X 2 X .5 = \$46K beginning 2015. Non-labor expense is estimated to be \$6K also beginning in 2015.</p>						
2015	0	10	0	10	0.0	1-Sided Adj
<p>D. Wireless Fees for Field Utility Specialist Tablets Beginning in 2014, the vehicles used by the Field Utility Specialists will be outfitted with mobile tablets. This will require the addition of wireless service to provide network connectivity. This will be billed on a monthly basis. Non-labor expense = \$46/month X 18 vehicles X 12 months = \$10K (annual fee) beginning in 2014</p>						
2015	28	3	0	31	0.4	1-Sided Adj
<p>E. Addition of Field Utility Specialists (FUS) - Growth in new business and system relocation work over the forecast years will require the addition of 2 FUSs beginning in 2015. FUS charges 20% to O&M. Labor costs = 2 X \$70K X 0.2 (percent O&M) = \$28K beginning in 2015. Associated non-labor expense is estimated to be \$3K also beginning in 2015.</p>						
2015 Total	171	21	0	192	3.2	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: C. Asset Management
Category-Sub: 1. Asset Management
Workpaper: 1GD001.000 - Asset Management

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adi Type</u>
2016	75	0	0	75	1.4	1-Sided Adj

A. Mapping and GIS Group Restructuring - Restructuring of the Mapping group organization to accommodate the new roles associated with the GIS based system will begin in 2014. Positions, titles and skills that correspond to the GIS technology will be incorporated. Labor expense for position upgrades is estimated to be \$14K beginning in 2014, then increasing by \$61K with a total of \$75K in 2015, TY2016 and thereafter.

2016	14	1	0	15	0.2	1-Sided Adj
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G. High Pressure Pipeline QC Manager - To manage the quality control process for high pressure pipeline design, construction and documentation, one Quality Control Manager will be added beginning in 2015. This position will charge 15% of the time to O&M. Labor expense is estimated to be \$95K X .15 = \$14K beginning in 2015. The O&M portion of non-labor expense to support this position is \$1K beginning in 2015.

2016	8	1	0	9	0.2	1-Sided Adj
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H. High Pressure Pipeline Material Expeditor - Beginning in 2014 a Material Expeditor to control material receiving, storage and documentation will be added. This position will charge 15% of the time to O&M. Labor expense is estimated to be \$50K X .15 = \$8K beginning in 2014. The O&M portion of non-labor expense to support this position is \$1K beginning in 2014.

2016	46	6	0	52	1.0	1-Sided Adj
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B. Region Engineering Development Program - Add two Intern Engineers for 1/2 year beginning in 2015. Two Interns @\$46K/year for 1/2 year = \$46K X 2 X .5 = \$46K beginning 2015. Non-labor expense is estimated to be \$6K also beginning in 2015.

2016	0	10	0	10	0.0	1-Sided Adj
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D. Wireless Fees for Field Utility Specialist Tablets Beginning in 2014, the vehicles used by the Field Utility Specialists will be outfitted with mobile tablets. This will require the addition of wireless service to provide network connectivity. This will be billed on a monthly basis. Non-labor expense = \$46/month X 18 vehicles X 12 months = \$10K (annual fee) beginning in 2014

2016	28	3	0	31	0.4	1-Sided Adj
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E. Addition of Field Utility Specialists (FUS) - Growth in new business and system relocation work over the forecast years will require the addition of 2 FUSs beginning in 2015. FUS charges 20% to O&M. Labor costs = 2 X \$70K X 0.2 (percent O&M) = \$28K beginning in 2015. Associated non-labor expense is estimated to be \$3K also beginning in 2015.

2016 Total	171	21	0	192	3.2	
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Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: C. Asset Management
Category-Sub: 1. Asset Management
Workpaper: 1GD001.000 - Asset Management

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	1,006	891	967	1,199	1,060
Non-Labor	355	429	409	503	397
NSE	0	0	0	0	0
Total	1,361	1,320	1,376	1,702	1,456
FTE	16.8	14.9	16.3	19.2	17.0
Adjustments (Nominal \$) **					
Labor	0	0	0	0	0
Non-Labor	0	0	0	-51	0
NSE	0	0	0	0	0
Total	0	0	0	-51	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal \$)					
Labor	1,006	891	967	1,199	1,060
Non-Labor	355	429	409	452	397
NSE	0	0	0	0	0
Total	1,361	1,320	1,376	1,652	1,456
FTE	16.8	14.9	16.3	19.2	17.0
Vacation & Sick (Nominal \$)					
Labor	155	142	142	174	168
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	155	142	142	174	168
FTE	2.8	2.6	2.7	3.1	3.0
Escalation to 2013\$					
Labor	100	65	45	30	0
Non-Labor	37	34	17	8	0
NSE	0	0	0	0	0
Total	137	99	62	38	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	1,261	1,099	1,154	1,402	1,228
Non-Labor	393	463	426	460	397
NSE	0	0	0	0	0
Total	1,653	1,562	1,580	1,863	1,624
FTE	19.6	17.5	19.0	22.3	20.0

* 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.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: C. Asset Management
 Category-Sub: 1. Asset Management
 Workpaper: 1GD001.000 - Asset Management

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2009	2010	2011	2012	2013
Labor	0	0	0	0	0
Non-Labor	0	0	0	-51	0
NSE	0	0	0	0	0
Total	0	0	0	-51	0
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 Total	0	0	0	0.0			
2010 Total	0	0	0	0.0			
2011 Total	0	0	0	0.0			
2012	0	-51	0	0.0	1-Sided Adj	N/A	JREISTET201310 25125806133
Bridge span maintenance by Bridgemasters moved from Group 1 to Group 000 Subgroup 3 to be consistent with current charging.							
2012 Total	0	-51	0	0.0			
2013 Total	0	0	0	0.0			

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: D. Operations Management & Training
Workpaper: 1GD004.000

Summary for Category: D. Operations Management & Training

	In 2013\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2013	2014	2015	2016
Labor	1,722	1,850	2,440	2,820
Non-Labor	516	526	564	584
NSE	0	0	0	0
Total	2,238	2,376	3,004	3,404
FTE	18.3	19.9	26.6	30.6

Workpapers belonging to this Category:

1GD004.000 Operations Management & Training

Labor	1,722	1,850	2,440	2,820
Non-Labor	516	526	564	584
NSE	0	0	0	0
Total	2,238	2,376	3,004	3,404
FTE	18.3	19.9	26.6	30.6

Note: Totals may include rounding differences.

Beginning of Workpaper
1GD004.000 - Operations Management & Training

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: D. Operations Management & Training
 Category-Sub: 1. Operations Management & Training
 Workpaper: 1GD004.000 - Operations Management & Training

Activity Description:

This group includes labor and non-labor expenses for Gas Technical Services supervision, management and staff support. Work completed within this group includes developing and maintaining gas distribution construction and operating standards; evaluating new field technologies; development of field training materials and assisting with training; providing code required welder testing, training and welding inspection; and managing the Operator Qualification (OQ) Program.

Forecast Explanations:

Labor - Base YR Rec

Increases have occurred in labor expenses since 2011 including the addition of a Field Operations Manager to this group. For this reason, the 2013 base level of expense is the most appropriate choice for forecasting future labor expenses. To this base level of expense were added incremental increases in labor expense for Welding Inspection, Skills Training, workforce additions to support the expanding OQ program, and quality control and compliance assurance workforce additions.

Non-Labor - Base YR Rec

Increases have occurred in non-labor expenses since 2011 including the addition of contract Technical Writers and Instructional Designers for the development of training modules and operator qualification materials. In addition, there has been an increase in pipe materials used for welding training. For this reason, the 2013 base level of expense is the most appropriate choice for forecasting future non-labor expenses. To this base level of expense have been added incremental additions in non-labor expense to support the Welding Inspection, Skills Training, expanding OQ program, and quality control and compliance assurance workforce additions.

NSE - Base YR Rec

N/A

Summary of Results:

		In 2013\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2009	2010	2011	2012	2013	2014	2015	2016	
Labor		1,414	1,278	1,605	1,589	1,722	1,850	2,440	2,820	
Non-Labor		184	169	385	485	516	526	564	584	
NSE		0	0	0	0	0	0	0	0	
Total		1,598	1,447	1,991	2,073	2,238	2,376	3,004	3,404	
FTE		14.7	13.6	18.1	17.7	18.3	19.9	26.6	30.6	

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: D. Operations Management & Training
 Category-Sub: 1. Operations Management & Training
 Workpaper: 1GD004.000 - Operations Management & Training

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	Base YR Rec	1,722	1,722	1,722	128	718	1,098	1,850	2,440	2,820
Non-Labor	Base YR Rec	516	516	516	10	48	68	526	564	584
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		2,238	2,238	2,238	138	766	1,166	2,376	3,004	3,404
FTE	Base YR Rec	18.3	18.3	18.3	1.6	8.3	12.3	19.9	26.6	30.6

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	128	10	0	138	1.6	1-Sided Adj

C. Annual Welding Training - New annual training for company welders for new welding processes will begin in 2014. Six students for 360 class-time hours in the Welding School = \$128K labor expense beginning in 2014. Additional non-labor expense to support the training will be \$10K beginning in 2014.

2014 Total	128	10	0	138	1.6	
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2015	190	10	0	200	2.0	1-Sided Adj
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A. Pipeline Inspection and Operator Qualification Evaluation Personnel Additions - Two Operator Qualification Evaluators will be added in 2015. One Welding Inspector will be added beginning in 2016. Total labor expense is as follows: 2 Operator Qualification Evaluators = (2 X \$95K = \$190K) beginning in 2015. Add to that, 1 Welding Inspector @ \$95K in 2016 = \$190K + (1X\$95K) = \$285K total beginning in 2016 and thereafter. Non-labor expense will be \$10K in 2015, with an additional \$5K beginning in 2016. (\$10K + \$5K) = \$15K for 2016 and thereafter.

2015	260	13	0	273	2.7	1-Sided Adj
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B. OQ Program Design and Training Personnel Additions - Resources will be added to provide training support and training module maintenance, One Training Instructor will be added in 2015 and one additional Training Instructor will be added in 2016. Three Instructional Designers will be added, two in 2015 and one in 2016. Two Instructional Designers have 13% of their time in the base year with 87% of their time expensed to a refundable program in that year. 100% of their time will be from the refundable program in 2014. Total labor expense is as follows: Beginning in 2015, 2 Instructional Designers and 1 Training Instructor = (2 X .87% X \$95K + 1 X \$95K) = \$260K beginning in 2015. And beginning in 2016, add to that one more Instructional Designer and one additional Training Instructor = (2 X \$95K) + \$260K = \$450K. Non-labor expenses are estimated to be \$13K for 2015, add to that \$10K in 2016 = \$23K for 2016 and thereafter to support these positions.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: D. Operations Management & Training
 Category-Sub: 1. Operations Management & Training
 Workpaper: 1GD004.000 - Operations Management & Training

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adi Type</u>
2015	128	10	0	138	1.6	1-Sided Adj

C. Annual Welding Training - New annual training for company welders for new welding processes will begin in 2014. Six students for 360 class-time hours in the Welding School = \$128K labor expense beginning in 2014. Additional non-labor expense to support the training will be \$10K beginning in 2014.

2015	95	5	0	100	1.0	1-Sided Adj
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D. Leak Survey & CP Quality Assurance Specialist A higher level of quality control inspection of leak survey and CP compliance activities will be added beginning in 2015. Added labor expense will be a QC inspector @ \$95K = \$95K. In addition, non-labor expense to support this position = \$5K beginning in 2015.

2015	45	10	0	55	1.0	1-Sided Adj
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E. Technical Services Assistant - To provide additional data maintenance and analysis for GTS Miramar operations and compliance activities, a Technical Services Assistant will be added. One Technical Services Assistant = \$45K labor expense beginning in 2015. Non-labor expense supporting the analyst is estimated to be \$10K, also beginning in 2015.

2015 Total	718	48	0	766	8.3	
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2016	285	15	0	300	3.0	1-Sided Adj
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A. Pipeline Inspection and Operator Qualification Evaluation Personnel Additions - Two Operator Qualification Evaluators will be added in 2015. One Welding Inspector will be added beginning in 2016. Total labor expense is as follows: 2 Operator Qualification Evaluators = (2 X \$95K = \$190K) beginning in 2015. Add to that, 1 Welding Inspector @ \$95K in 2016 = \$190K + (1X\$95K) = \$285K total beginning in 2016 and thereafter. Non-labor expense will be \$10K in 2015, with an additional \$5K beginning in 2016. (\$10K + \$5K) = \$15K for 2016 and thereafter.

2016	450	23	0	473	4.7	1-Sided Adj
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B. OQ Program Design and Training Personnel Additions - Resources will be added to provide training support and training module maintenance, One Training Instructor will be added in 2015 and one additional Training Instructor will be added in 2016. Three Instructional Designers will be added, two in 2015 and one in 2016. Two Instructional Designers have 13% of their time in the base year with 87% of their time expensed to a refundable program in that year. 100% of their time will be from the refundable program in 2014. Total labor expense is as follows: Beginning in 2015, 2 Instructional Designers and 1 Training Instructor = (2 X .87% X \$95K + 1 X \$95K) = \$260K beginning in 2015. And beginning in 2016, add to that one more Instructional Designer and one additional Training Instructor = (2 X \$95K) + \$260K = \$450K. Non-labor expenses are estimated to be \$13K for 2015, add to that \$10K in 2016 = \$23K for 2016 and thereafter to support these positions.

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: D. Operations Management & Training
 Category-Sub: 1. Operations Management & Training
 Workpaper: 1GD004.000 - Operations Management & Training

<u>Year/Expl.</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adi Type</u>
2016	128	10	0	138	1.6	1-Sided Adj

C. Annual Welding Training - New annual training for company welders for new welding processes will begin in 2014. Six students for 360 class-time hours in the Welding School = \$128K labor expense beginning in 2014. Additional non-labor expense to support the training will be \$10K beginning in 2014.

2016	95	5	0	100	1.0	1-Sided Adj
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D. Leak Survey & CP Quality Assurance Specialist A higher level of quality control inspection of leak survey and CP compliance activities will be added beginning in 2015. Added labor expense will be a QC inspector @ \$95K = \$95K. In addition, non-labor expense to support this position = \$5K beginning in 2015.

2016	45	10	0	55	1.0	1-Sided Adj
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E. Technical Services Assistant - To provide additional data maintenance and analysis for GTS Miramar operations and compliance activities, a Technical Services Assistant will be added. One Technical Services Assistant = \$45K labor expense beginning in 2015. Non-labor expense supporting the analyst is estimated to be \$10K, also beginning in 2015.

2016	95	5	0	100	1.0	1-Sided Adj
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F. Compliance Assurance Technical Advisor - To provide inspection and review of operations maintenance compliance activities one Compliance Assurance Inspector @ \$95K will be added beginning in 2016. Added labor = \$95K beginning in 2016. Associated non-labor expense is estimated to be \$5K also beginning in 2016.

2016 Total	1,098	68	0	1,166	12.3	
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Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala
Category: D. Operations Management & Training
Category-Sub: 1. Operations Management & Training
Workpaper: 1GD004.000 - Operations Management & Training

Determination of Adjusted-Recorded (Incurred Costs):

	2009 (\$000)	2010 (\$000)	2011 (\$000)	2012 (\$000)	2013 (\$000)
Recorded (Nominal \$)*					
Labor	1,290	1,097	1,425	1,453	1,438
Non-Labor	179	161	370	614	516
NSE	0	0	0	0	0
Total	1,470	1,258	1,795	2,067	1,954
FTE	14.5	12.1	16.3	16.2	14.8
Adjustments (Nominal \$) **					
Labor	-162	-60	-81	-96	48
Non-Labor	-13	-4	0	-138	0
NSE	0	0	0	0	0
Total	-175	-65	-81	-233	48
FTE	-1.9	-0.5	-0.8	-0.9	0.8
Recorded-Adjusted (Nominal \$)					
Labor	1,128	1,037	1,344	1,358	1,486
Non-Labor	166	157	370	476	516
NSE	0	0	0	0	0
Total	1,295	1,193	1,714	1,834	2,002
FTE	12.6	11.6	15.5	15.3	15.6
Vacation & Sick (Nominal \$)					
Labor	174	166	199	197	236
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	174	166	199	197	236
FTE	2.1	2.0	2.5	2.5	2.7
Escalation to 2013\$					
Labor	112	76	63	34	0
Non-Labor	17	12	15	8	0
NSE	0	0	0	0	0
Total	129	89	78	42	0
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2013\$)					
Labor	1,414	1,278	1,605	1,589	1,722
Non-Labor	184	169	385	485	516
NSE	0	0	0	0	0
Total	1,598	1,447	1,991	2,073	2,238
FTE	14.7	13.6	18.0	17.8	18.3

* 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.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: D. Operations Management & Training
 Category-Sub: 1. Operations Management & Training
 Workpaper: 1GD004.000 - Operations Management & Training

Summary of Adjustments to Recorded:

In Nominal \$ (000) Incurred Costs					
Years	2009	2010	2011	2012	2013
Labor	-162	-60	-81	-96	48
Non-Labor	-13	-4	0.010	-138	0.120
NSE	0	0	0	0	0
Total	-175	-65	-81	-233	48
FTE	-1.9	-0.5	-0.8	-0.9	0.8

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	-137	-10	0	-1.7	1-Sided Adj	N/A	DBENTLEY20131 018113012910
2100-3600 Tech Services Support Redlands is no longer a shared service cost center. These activities and their costs are now covered by SGC.							
2009	-25	-3	0	-0.2	1-Sided Adj	N/A	DBENTLEY20131 018121045480
2100-3630 Pacific Coast DOM Sta Ana and A Viejo is no longer a shared service cost center. These activities and their costs are now covered by SGC.							

2009 Total	-162	-13	0	-1.9			
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2010	-95	-4	0	-1.1	1-Sided Adj	N/A	DBENTLEY20131 018121229267
2100-3600 Tech Services Support Redlands is no longer a shared service cost center. These activities and their costs are now covered by SGC.							
2010	34	0	0	0.6	CCTR Transf	From 2200-2145.000	TPKAJ201312031 53453977
Transfer of Technical Services Admin Associate labor and non-labor expense from USS cost center 2200-2145 SDGE Eastern DOM to NSS cost center 2100-3402 Gas Tech Svcs Miramar Staff, in order to align the history with the forecast							

2010 Total	-60	-4	0	-0.5			
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2011	-14	-0.863	0	-0.2	1-Sided Adj	N/A	DBENTLEY20131 018121423653
2100-3600 Tech Services Support Redlands is no longer a shared service cost center. These activities and their costs are now covered by SGC.							

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: D. Operations Management & Training
 Category-Sub: 1. Operations Management & Training
 Workpaper: 1GD004.000 - Operations Management & Training

<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	-116	0	0	-1.5	CCTR Transf	To 2100-3889.000	JREISTET201310 30110659283
Transfer labor for two Safety Advisors to 2100-3889 Field Services Safety Support in order to align historical costs with the workgroup in which the activity will be forecasted							
2011	49	0.873	0	0.9	CCTR Transf	From 2200-2145.000	TPKAJ201312031 53640850
Transfer of Technical Services Admin Associate labor and non-labor expense from USS cost center 2200-2145 SDGE Eastern DOM to NSS cost center 2100-3402 Gas Tech Svcs Miramar, in order to align the history with the forecast.							
2011 Total	-81	0.010	0	-0.8			
2012	0	-139	0	0.0	1-Sided Adj	N/A	JREISTET201310 25122429363
District tools purchase was charged to 2100-3606 in Group 4; these charges should be included in Group 000, Subgroup 5. \$138,848 NL Group 000 Subgroup 5 -\$138,848 NL Group 4							
2012	-144	0	0	-1.7	CCTR Transf	To 2100-3889.000	JREISTET201310 30110832760
Transfer labor expense for two Safety Advisors to 2100-3889 Field Services Safety Support in order to align historical costs with the workgroup in which the activity will be forecasted							
2012	-47	-1	0	-0.8	CCTR Transf	From 2200-2145.000	TPKAJ201312031 42609073
Transfer of Technical Services Admin Associate labor and non-labor expense from USS cost center 2200-2145 SDGE Eastern DOM to NSS cost center 2100-3402 Gas Tech Svcs Miramar, in order to align the history with the forecast.							
2012	-1	0	0	0.0	CCTR Transf	From 2200-2145.000	TPKAJ201312031 42643723
Transfer of Technical Services Admin Associate (retained) labor expense from USS cost center 2200-2145 SDGE Eastern DOM to NSS cost center 2100-3402 Gas Tech Svcs Miramar, in order to align the history with the forecast.							
2012	95	2	0	1.6	CCTR Transf	From 2200-2145.000	TPKAJ201312031 55030370
Second adjustment to correct original adjustment with positive/negative signage error. Transfer of Technical Services Admin Associate labor and non-labor expense from USS cost center 2200-2145 SDGE Eastern DOM to NSS cost center 2100-3402 Gas Tech Svcs Miramar, in order to align the history with the forecast.							

Note: Totals may include rounding differences.

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
 Witness: Frank B. Ayala
 Category: D. Operations Management & Training
 Category-Sub: 1. Operations Management & Training
 Workpaper: 1GD004.000 - Operations Management & Training

<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	2	0	0	0.0	CCTR Transf	From 2200-2145.000	TPKAJ201312031 55100820
Second adjustment to correct original adjustment with postive/negative signage error. Transfer of Technical Services Admin Associate labor and non-labor expense from USS cost center 2200-2145 SDGE Eastern DOM to NSS cost center 2100-3402 Gas Tech Svcs Miramar, in order to align the history with the forecast.							
2012 Total	-96	-138	0	-0.9			

2013	0.278	0	0	0.0	CCTR Transf	From 2200-2145.000	CTRINH2014040 4122212880
Transfer of Technical Services Admin Associate labor and non-labor expense from USS cost center 2200-2145 SDGE Eastern DOM to NSS cost center 2100-3402 Gas Technical Services Miramar, in order to align the history with the forecast.							
2013	47	0.120	0	0.8	CCTR Transf	From 2200-2145.000	CTRINH2014040 4122256847
Transfer of Technical Services Admin Associate labor and non-labor expense from USS cost center 2200-2145 SDGE Eastern DOM to NSS cost center 2100-3402 Gas Technical Services Miramar, in order to align the history with the forecast.							
2013 Total	48	0.120	0	0.8			

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 1GD004.000

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers
SDGE-FBA-O&M-SUP-003

**San Diego Gas and Electric Company -- Gas Distribution -- Witness Frank Ayala
Supplemental Workpaper - Summary of Operator Qualification (OQ) Expenses**

The following is a summary of Operator Qualification expenses which appear in multiple workgroups in the O&M portion of the direct testimony

[A] Testimony Work Group	[B] Target Personnel	[C] Total Training Hours	\$(000) of \$2013					
			2014		2015		2016	
			[D] Labor	[E] Non-Labor	[F] Labor	[G] Non-Labor	[H] Labor	[I] Non-Labor
II. B.Field O&M 8. Supervision and Training, "Operator Qualification and Skills Training"	District Construction and Leak Survey	7,200	\$169 ²	\$3 ²	\$338	\$5	\$338	\$5
II. B.Field O&M 9. Measurement & Regulation, "Operator Qualification and Skills Training"	Pipeline Operations and Instrument Technicians	1,320	\$62	\$5	\$62	\$5	\$62	\$5
II. B.Field O&M 10. Cathodic Protection, "Operator Qualification and Skills Training"	Cathodic Protection Electricians	440	\$21	\$5	\$21	\$5	\$21	\$5
II. D. Operations Management & Training, "Pipeline Inspection and OQ Evaluation Personnel"	(N/A - OQ program evaluation labor)	--	\$0	\$0	\$190 ³	\$10 ³	\$190 ³	\$10 ³
II. D. Operations Management & Training, "OQ Program Design and Training Personnel Additions"	(N/A - OQ program design and training labor)	--	\$0	\$0	\$260	\$13	\$450	\$23
Total Forecast Operator Qualification Expense-->			\$252	\$13	\$871	\$38	\$1,061	\$48

Notes:

- 1/ Totals for each year are the total incremental increase for the training above the 2013 Base Year
- 2/ Training for 2014 is 1/2 total training hours = 3600 hours and 1/2 the expense forecast for TY2016
- 3/ This represents the OQ portion (OQ evaluators) of the incremental upward pressure "Pipeline Inspection and OQ Evaluation Personnel"

San Diego Gas & Electric Company
2016 GRC - APP
Non-Shared Service Workpapers

Area: GAS DISTRIBUTION
Witness: Frank B. Ayala

Appendix A: List of Non-Shared Cost Centers

Cost Center	Sub	Description
2100-0079	000	METRO C&O GAS
2100-0081	000	METRO C&O-STREET REPAIR
2100-0087	000	NORTH COAST C&O CENTER GAS
2100-0093	000	NORTHEAST C&O-GAS
2100-0094	000	NORTHEAST C&O STREET REPAIR
2100-0102	000	BEACH CITIES C&O CENTER GAS
2100-0107	000	EASTERN C&O CENTER GAS
2100-0171	000	PIPELINE OPERATIONS
2100-0174	000	M&R/SYSTEM PROTECTION SUPERVISOR
2100-0176	000	GAS INSTRUMENT SHOP
2100-0177	000	GAS ENGINEERING
2100-0182	000	GAS MAPPING
2100-0183	000	TECHNICAL SUPPORT - SD SOUTH
2100-0637	000	CATHODIC PROTECTION
2100-0654	000	GAS WORK METHODS
2100-0716	000	WELDING TRAINING & INSPECTION
2100-0738	000	C&O SUPPORT MANAGER GAS DISTRIBUTION
2100-3402	000	GAS TECHNICAL SERVICES MIRAMAR STAFF
2100-3405	000	CNG MAINTENANCE
2100-3417	000	SVP GAS TRANS & DISTR-NSS
2100-3567	000	GAS DESIGN
2100-3568	000	TECHNICAL SUPPORT - SD NORTH
2100-3586	000	SOUTH INLAND FIELD OPERATIONS MANAGER
2100-3600	000	TECH SERVICES SUPPORT REDLANDS
2100-3606	000	SOUTH INLAND REGION SUPPORT
2100-3625	000	LEAKAGE MITIGATION
2100-3630	000	PACIFIC COAST DOM STA ANA AND A VIEJO
2100-3678	000	CONSTRUCTION RESOURCE MGMT
2100-3720	000	NC C&O STREET REPAIR
2100-3721	000	EA C&O STREET REPAIR
2100-3722	000	BC C&O STREET REPAIR
2100-3723	000	OC GAS DISTRIBUTION
2100-3728	000	EA C&O STREET REPAIR
2100-3729	000	BC C&O STREET REPAIR
2100-3730	000	GAS, LOCATORS, PROJECT MANAGEMENT
2100-3734	000	OPERATIONS TRAINING MANAGER
2100-3767	000	LOCATE & MARK-NORTH
2100-3768	000	LOCATE & MARK-SOUTH
2100-3769	000	LOCATE & MARK-COASTL
2100-3815	000	MAINTENANCE PROCESS MANAGER