

Application of SOUTHERN CALIFORNIA GAS )  
COMPANY for authority to update its gas revenue )  
requirement and base rates )  
effective January 1, 2019 (U 904-G) )

Application No. 17-10-008

Exhibit No.: (SCG-10-WP-R)

REVISED WORKPAPERS TO  
PREPARED DIRECT TESTIMONY  
OF NEIL P. NAVIN  
ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA

DECEMBER 2017



**2019 General Rate Case - REVISED  
INDEX OF WORKPAPERS**

**Exhibit SCG-10-WP-R - UNDERGROUND STORAGE**

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**Overall Summary For Exhibit No. SCG-10-WP-R**

<b>Area:</b>	<b>UNDERGROUND STORAGE</b>
<b>Witness:</b>	<b>Neil P. Navin</b>

Description	In 2016 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
<b>Non-Shared Services</b>	45,853	59,521	61,082	59,640
<b>Shared Services</b>	455	434	434	434
<b>Total</b>	<b>46,308</b>	<b>59,955</b>	<b>61,516</b>	<b>60,074</b>

*Note: Totals may include rounding differences.*

Southern California Gas Company  
 2019 GRC - REVISED  
 Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin

**Summary of Non-Shared Services Workpapers:**

Description	In 2016 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
A. Underground Storage and Aboveground Storage	33,323	36,250	37,585	38,699
B. Storage Risk Management - Non-Refundable	479	2,031	2,031	2,031
C. Underground Storage - RSIMP	12,051	21,240	21,466	18,910
<b>Total</b>	<b>45,853</b>	<b>59,521</b>	<b>61,082</b>	<b>59,640</b>

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: A. Underground Storage and Aboveground Storage  
 Workpaper: 2US000.000

**Summary for Category: A. Underground Storage and Aboveground Storage**

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	15,200	16,911	18,401	19,546
Non-Labor	18,123	19,339	19,184	19,153
NSE	0	0	0	0
<b>Total</b>	<b>33,323</b>	<b>36,250</b>	<b>37,585</b>	<b>38,699</b>
FTE	144.5	161.4	178.9	190.6

**Workpapers belonging to this Category:**

**2US000.000 Underground Storage**

Labor	15,200	16,911	18,401	19,546
Non-Labor	18,123	19,339	19,184	19,153
NSE	0	0	0	0
<b>Total</b>	<b>33,323</b>	<b>36,250</b>	<b>37,585</b>	<b>38,699</b>
FTE	144.5	161.4	178.9	190.6

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2US000.000 - Underground Storage**

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: A. Underground Storage and Aboveground Storage  
 Category-Sub: 1. Underground Storage  
 Workpaper: 2US000.000 - Underground Storage

**Activity Description:**

Storage Operations is responsible for the safe, efficient, and economical operation of the underground natural gas storage facilities for SoCalGas. This work paper covers the supervision, engineering, and operational costs associated with the operation of the underground storage fields. Activities associated with these costs include: reservoir engineering studies; well testing and pressure surveys; turning wells on and off; activities associated with maintaining and patrolling storage pipelines, valves, drips, measurement and regulation equipment, wells, wellheads and well cellars; operating and maintaining compressor station equipment; purifying, dehydrating and conditioning natural gas processed through the storage operations; royalty payments associated with well and field locations; supervisory and engineering expense; compliance to environmental and air quality regulations; ongoing safety and technical training for operations personnel.

**Forecast Explanations:**

**Labor - 5-YR Linear**

As the foundation for future labor expense requirements, the 5 year trend was initially chosen as a baseline for the forecast. Incremental personnel requirements were added as separate adjustments to the baseline 5 year forecast. The nature of the 5 year historical costs along with new cost associated to increasing requirements and regulations associated with the activities in Underground Storage, UGS, and Aboveground Storage, AGS, were determined to be the best indicator of future labor requirements.

**Non-Labor - Base YR Rec**

As the foundation of future non-labor expense requirements, the Base Year Recorded Costs was initially chosen as a baseline for the forecast. Incremental costs associated to new requirements were added to the initial forecast. The nature of actual spending in 2016 combined with known changes to non-labor spending in future years were determined to be the best indicator of future costs.

**NSE - Base YR Rec**

There are no non-standard escalation expenses in Underground Storage for UGS and AGS.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		14,893	14,654	15,161	15,447	15,200	16,912	18,401	19,545	
Non-Labor		17,967	17,276	15,983	15,605	18,123	19,339	19,184	19,153	
NSE		0	-2	0	0	0	0	0	0	
<b>Total</b>		<b>32,859</b>	<b>31,928</b>	<b>31,144</b>	<b>31,052</b>	<b>33,323</b>	<b>36,251</b>	<b>37,585</b>	<b>38,698</b>	
FTE		146.2	142.3	146.5	148.7	144.5	161.5	178.9	190.6	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: A. Underground Storage and Aboveground Storage  
 Category-Sub: 1. Underground Storage  
 Workpaper: 2US000.000 - Underground Storage

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	5-YR Linear	15,493	15,634	15,775	1,418	2,767	3,771	16,911	18,401	19,546
Non-Labor	Base YR Rec	18,123	18,123	18,123	1,216	1,061	1,030	19,339	19,184	19,153
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>33,616</b>	<b>33,757</b>	<b>33,898</b>	<b>2,634</b>	<b>3,828</b>	<b>4,801</b>	<b>36,250</b>	<b>37,585</b>	<b>38,699</b>
FTE	5-YR Linear	146.5	146.9	147.2	14.9	32.0	43.4	161.4	178.9	190.6

**Forecast Adjustment Details:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID	
2017	Other	627	0	0	627	5.2	1-Sided Adj	TP1LFH20161205134824030	
<b>Explanation:</b>		Resumption of routine workload from temporary assignment excluded from historical costs.							
2017	Other	78	0	0	78	0.8	1-Sided Adj	TP1LFH20161205164142297	
<b>Explanation:</b>		New Well Work - Engineering 2200-0279. O&M component of 1 Gas Storage Specialist and 2 Senior Gas Storage Specialists							
2017	Other	182	0	0	182	1.8	1-Sided Adj	TP1LFH20161205164731550	
<b>Explanation:</b>		New Tech Services Work - Tech Services 2200-0288. O&M component of 1 Technical Advisor/NDE Inspector; 1 Material Coordinator, and 1 Technical Advisor - Corrosion							
2017	Other	37	0	0	37	0.4	1-Sided Adj	TP1LFH20161205165356903	
<b>Explanation:</b>		New Lateral Lines Work - AGS Laterals 2200-2600. O&M component of 1 Project Manager I and 1 Project Specialist							
2017	Other	512	46	0	558	7.0	1-Sided Adj	TP1LFH20161205174241617	
<b>Explanation:</b>		Special Leak Survey (AC) - Incremental costs associated to adding seven (7) Station Assistants for additional work resulting from the Order of Abatement, Condition 8 with the AQMD. Item is related to FOF idea #1212 savings from shifting work from a level 5 to a level 4 employee. Labor is planned in this forecast adjustment at the lower pay rate, therefore the FOF idea savings impact was eliminated from the FOF Adjustment Group.							
2017	Other	0	778	0	778	0.0	1-Sided Adj	TP1LFH20161205175451063	
<b>Explanation:</b>		DOGGR Gas Storage Assessment Fee AND DOT Pipeline Safety User Fee Assessment - 2/3 of the DOGGR fee is embedded in the 2016 Base Year Recorded Costs. Adjustment represents the other 1/3 of the DOGGR fee and \$154 (100%) of the new PHMSA/DOT Safety Fee.							
2017	Other	0	918	0	918	0.0	1-Sided Adj	TP1LFH20170309120807137	

Note: Totals may include rounding differences.

SCG/UNDERGROUND STORAGE/Exh No:SCG-10-WP-R/Witness: N. Navin

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
Witness: Neil P. Navin  
Category: A. Underground Storage and Aboveground Storage  
Category-Sub: 1. Underground Storage  
Workpaper: 2US000.000 - Underground Storage

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID
<b>Explanation:</b> Noise & Temperature (NT) Surveys - represents costs of NT surveys resulting from new DOGGR regulations requiring annual surveys in the in-service wells and semi-annual surveys in the isolated wells. Prior to 2016 only temp surveys were required and were performed on slickline at a cost of \$800 - \$1,000/well; new regulations require noise and temp surveys which are performed on electric line requiring more sophisticated and costly equipment at a costs of \$4,500/well. Additionally, the 2016 NT costs were in SIMP; 2017 and beyond the NT costs will occur in routine O&M. Costs represents NT surveys for 204 wells (154 in-service; 50 isolated) @ \$4,500/well. (Costs in this explanation are in whole dollars)								
2017	Other	509	50	0	559	6.0	1-Sided Adj	TP1LFH20161205172948107
<b>Explanation:</b> DA Settlement - Incremental costs associated to adding five (5) Station Operations Specialists and one (1) Instrument Specialist resulting from new regulations to monitor methane concentrations at the perimeter of Aliso Canyon Storage Field. Non-labor represents monitor maintenance and miscellaneous replacement accessories. This adjustment was subsequently removed in adjustment "Remove DA Settlement" and revised for the period after the DA Settlement in the 2019 forecast adjustment "Ambient Methane Monitoring (AC)".								
2017	Other	-509	-50	0	-559	-6.0	1-Sided Adj	TP1LFH20170511175709923
<b>Explanation:</b> REMOVE DA Settlement - This adjustment REMOVES the incremental costs added in forecast adjustment "DA Settlement"								
2017	FOF-Ongoing	33	-54	0	-21	-0.1	1-Sided Adj	TP1LFH20170309113618797
<b>Explanation:</b> FOF - Includes FOF Ideas #350 360 1213-1214 1217-1220. Excludes FOF ideas #70 and #80 which represent future avoided costs that are neither included in historical spending or any other incremental forecasted cost. Also excludes FOF idea #1212 since the savings from that idea is included in the 2017 O&M budget and GRID forecast adjustment explanation "Special Leak Survey" as the employees were planned/forecasted at the lower level 4 rate.								
2017	RAMP Incremental	0	461	0	461	0.0	1-Sided Adj	TP1LFH20170511174133130
<b>Explanation:</b> RAMP-Contract Security (RAMP Chapter 06) This adjustment represents the RAMP incremental costs for Physical Security of Critical Gas Infrastructure in Storage - Risk Assessment Mitigation Phase Chapter 06 (SCG-06-WP) line 2. 2016 Historical Costs = \$616; 2017 Forecast = \$1,077								
2017	Other	0	-918	0	-918	0.0	1-Sided Adj	TP1JMY20171114153323203
<b>Explanation:</b> NT Costs were duplicated in SIMP 2US002.000.								
2017	Other	-51	-15	0	-66	-0.2	1-Sided Adj	KHART20171211145806030
<b>Explanation:</b> Adjustment to reconcile corrected Aliso cost removal on behalf of WP 2US002.								
<b>2017 Total</b>		<b>1,418</b>	<b>1,216</b>	<b>0</b>	<b>2,634</b>	<b>14.9</b>		

Note: Totals may include rounding differences.

SCG/UNDERGROUND STORAGE/Exh No:SCG-10-WP-R/Witness: N. Navin

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: A. Underground Storage and Aboveground Storage  
 Category-Sub: 1. Underground Storage  
 Workpaper: 2US000.000 - Underground Storage

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj_Type</u>	<u>RefID</u>
2018	Other	627	0	0	627	5.2	1-Sided Adj	TP1LFH20161205135543207
<b>Explanation:</b>		Resumption of routine workload from temporary assignment exluded from historical costs.						
2018	Other	78	0	0	78	0.8	1-Sided Adj	TP1LFH20161205164301527
<b>Explanation:</b>		New Well Work - Engineering 2200-0279. O&M component of 1 Gas Storage Specialist and 2 Senior Gas Storage Specialists						
2018	Other	182	0	0	182	1.8	1-Sided Adj	TP1LFH20161205164924353
<b>Explanation:</b>		New Tech Services Work - Tech Services 2200-0288. O&M component of 1 Technical Advisor/NDE Inspector; 1 Material Coordinator, and 1 Techincal Advisor - Corrosion						
2018	Other	37	0	0	37	0.4	1-Sided Adj	TP1LFH20161205165535840
<b>Explanation:</b>		New Lateral Lines Work - AGS Laterals 2200-2600. O&M component of 1 Project Manager I and 1 Project Specialist						
2018	Other	512	46	0	558	7.0	1-Sided Adj	TP1LFH20161205174446037
<b>Explanation:</b>		Special Leak Survey (AC) - Incremental costs associated to adding seven (7) Station Assistants for additional work resulting from the Order of Abatement, Condition 8 with the AQMD. Item is related to FOF idea #1212 savings from shifting work from a level 5 to a level 4 employee. Labor is planned in this forecast adjustment at the lower pay rate, therefore the FOF idea savings impact was eliminated from the FOF Adjustment Group.						
2018	Other	698	48	0	746	9.0	1-Sided Adj	TP1LFH20161205181915260
<b>Explanation:</b>		Special Leak Survey (HR PDR GOL)- Incremental costs associated to adding eight (8) Station Assistants (two (2) at PDR; two (2) at GOL; four (4) at HR), and one (1) Instrument Specialist at HR for additional work resulting from the Order of Abatement, Condition 8 with the AQMD. Item is related to FOF idea #1212 savings from shifting work from a level 5 to a level 4 employee. Labor is forecasted in this adjustment at the lower rate, therefore the FOF idea savings impact was eliminated from the FOF Adjustment Group.						
2018	Other	0	778	0	778	0.0	1-Sided Adj	TP1LFH20161205175237760
<b>Explanation:</b>		DOGGR Gas Storage Assessment Fee AND DOT Pipeline Safety User Fee Assessment - 2/3 of the DOGGR fee is embedded in the 2016 Base Year Recorded Costs. Adjustment represents the other 1/3 of the DOGGR fee and \$154 (100%) of the new PHMSA/DOT Safety Fee.						
2018	Other	0	783	0	783	0.0	1-Sided Adj	TP1LFH20170309121450420

Note: Totals may include rounding differences.

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 Category: A. Underground Storage and Aboveground Storage  
 Category-Sub: 1. Underground Storage  
 Workpaper: 2US000.000 - Underground Storage

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID
<b>Explanation:</b> Noise & Temperature (NT) Surveys - represents costs of NT surveys resulting from new DOGGR regulations requiring annual surveys in the in-service wells and semi-annual surveys in the isolated wells. Prior to 2016 only temp surveys were required and were performed on slickline at a cost of \$800 - \$1,000/well; new regulations require noise and temp surveys which are performed on electric line requiring more sophisticated and costly equipment at a costs of \$4,500/well. Additionally, the 2016 NT costs were in SIMP; 2017 and beyond the NT costs will occur in routine O&M. Costs represents NT surveys for 174 wells (174 in-service; 0 isolated) @ \$4,500/well. NT Surveys move back tom SIMP in 2019. (Costs in this explanation are in whole dollars)								
2018	Other	509	50	0	559	6.0	1-Sided Adj	TP1LFH20161205173151330
<b>Explanation:</b> DA Settlement - Incremental costs associated to adding five (5) Station Operations Specialists and one (1) Instrument Specialist resulting from new regulations to monitor methane concentrations at the perimeter of Aliso Canyon Storage Field. Non-labor represents monitor maintenance and miscellaneous replacement accessories. This adjustment was subsequently removed in adjustment "Remove DA Settlement" and revised for the period after the DA Settlement in the 2019 forecast adjustment "Ambient Methane Monitoring (AC)".								
2018	Other	-509	-50	0	-559	-6.0	1-Sided Adj	TP1LFH20170511175824990
<b>Explanation:</b> REMOVE DA Settlement - This adjustment REMOVES the incremental costs added in forecast adjustment "DA Settlement"								
2018	Other	510	150	0	660	6.0	1-Sided Adj	TP1LFH20170309130910890
<b>Explanation:</b> Ambient Methane Monitoring (HR PDR GOL) - costs associated to expanding the methane monitoring regulation in force AC to PDR, HR, and GOL. Costs include adding 2 SOS's at each field (PDR, HR, GOL) for a total of 6 personnel, and \$50 non-labor at each field for equipment maintenance and replacement accessories.								
2018	FOF-Ongoing	-200	-514	0	-714	-2.8	1-Sided Adj	TP1LFH20170309122838837
<b>Explanation:</b> FOF - Includes FOF Ideas #350 360 1213-1214 1217-1220 230, 860, 1060. Excludes FOF ideas #70 and #80 which represent future avoided costs that are neither included in historical spending or any other incremental forecasted cost. Also excludes FOF idea #1212 since the savings from that idea is included in the 2017 O&M budget and GRID forecast adjustment explanation "Special Leak Survey" as the employees were planned/forecasted at the lower level 4 rate.								
2018	FOF-Ongoing	387	0	0	387	5.0	1-Sided Adj	TP1LFH20161205180801650
<b>Explanation:</b> FOF - Related to FOF Idea #1060. The financial impact on the idea list represents only the savings; the additional 10 personnel necessary to achieve the savings were inadvertently included in capital, however the associated savings were split 50/50 between O&M and Capital. O&M savings will occur if the personnel are assigned to O&M work. This adjustment accounts for 50% of the costs of the additional personnel to achieve the savings: loaded costs of \$1,020.4/1.32 = unloaded costs \$773 * 50% = \$387 O&M costs for 5 FTE's (1/2 of 10 personnel).								

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Area: UNDERGROUND STORAGE  
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 Category: A. Underground Storage and Aboveground Storage  
 Category-Sub: 1. Underground Storage  
 Workpaper: 2US000.000 - Underground Storage

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj_Type</u>	<u>RefID</u>
2018	RAMP Incremental	0	568	0	568	0.0	1-Sided Adj	TP1LFH20170511175014457
<b>Explanation:</b>		RAMP - Contract Security (RAMP Chapter 06) This adjustment represents the RAMP incremental costs for Physical Security of Critical Gas Infrastructure in Storage - Risk Assessment Mitigation Phase Chapter 06 (SCG-06-WP) line 2. 2016 Historical Costs = \$616; 2018 Forecast = \$1,184						
2018	Other	0	-783	0	-783	0.0	1-Sided Adj	TP1JMY20171114153439143
<b>Explanation:</b>		NT Costs were duplicated in SIMP 2US002.000.						
2018	Other	-64	-15	0	-79	-0.4	1-Sided Adj	KHART20171211150010353
<b>Explanation:</b>		Adjustment to reconcile corrected Aliso cost removal on behalf of WP 2US002.						
<b>2018 Total</b>		<b>2,767</b>	<b>1,061</b>	<b>0</b>	<b>3,828</b>	<b>32.0</b>		

2019	Other	627	0	0	627	5.2	1-Sided Adj	TP1LFH20161205135633197
<b>Explanation:</b>		Resumption of routine workload from temporary assignment exluded from historical costs.						
2019	Other	78	0	0	78	0.8	1-Sided Adj	TP1LFH20161205164400153
<b>Explanation:</b>		New Well Work - Engineering 2200-0279. O&M component of 1 Gas Storage Specialist and 2 Senior Gas Storage Specialists						
2019	Other	182	0	0	182	1.8	1-Sided Adj	TP1LFH20161205165059870
<b>Explanation:</b>		New Tech Services Work - Tech Services 2200-0288. O&M component of 1 Technical Advisor/NDE Inspector; 1 Material Coordinator, and 1 Technical Advisor - Corrosion						
2019	Other	37	0	0	37	0.4	1-Sided Adj	TP1LFH20161205165642147
<b>Explanation:</b>		New Lateral Lines Work - AGS Laterals 2200-2600. O&M component of 1 Project Manager I and 1 Project Specialist						
2019	Other	512	46	0	558	7.0	1-Sided Adj	TP1LFH20161205174638283
<b>Explanation:</b>		Special Leak Survey (AC) - Incremental costs associated to adding seven (7) Station Assistants for additional work resulting from the Order of Abatement, Condition 8 with the AQMD. Item is related to FOF idea #1212 savings from shifting work from a level 5 to a level 4 employee. Labor is planned in this forecast adjustment at the lower pay rate, therefore the FOF idea savings impact was eliminated from the FOF Adjustment Group.						
2019	Other	698	48	0	746	9.0	1-Sided Adj	TP1LFH20161205182130813

Note: Totals may include rounding differences.

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2019 GRC - REVISED  
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Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: A. Underground Storage and Aboveground Storage  
 Category-Sub: 1. Underground Storage  
 Workpaper: 2US000.000 - Underground Storage

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID
<b>Explanation:</b> Special Leak Survey (HR PDR GOL)- Incremental costs associated to adding eight (8) Station Assistants (two (2) at PDR; two (2) at GOL; four (4) at HR), and one (1) Instrument Specialist at HR for additional work resulting from the Order of Abatement, Condition 8 with the AQMD. Item is related to FOF idea #1212 savings from shifting work from a level 5 to a level 4 employee. Labor is forecasted in this adjustment at the lower rate, therefore the FOF idea savings impact was eliminated from the FOF Adjustment Group.								
2019	Other	0	778	0	778	0.0	1-Sided Adj	TP1LFH20161205175800437
<b>Explanation:</b> DOGGR Gas Storage Assessment Fee AND DOT Pipeline Safety User Fee Assessment - 2/3 of the DOGGR fee is embedded in the 2016 Base Year Recorded Costs. Adjustment represents the other 1/3 of the DOGGR fee and \$154 (100%) of the new PHMSA/DOT Safety Fee.								
2019	Other	509	50	0	559	6.0	1-Sided Adj	TP1LFH20161205173345187
<b>Explanation:</b> DA Settlement - Incremental costs associated to adding five (5) Station Operations Specialists and one (1) Instrument Specialist resulting from new regulations to monitor methane concentrations at the perimeter of Aliso Canyon Storage Field. Non-labor represents monitor maintenance and miscellaneous replacement accessories. This adjustment was subsequently removed in adjustment "Remove DA Settlement" and revised for the period after the DA Settlement in the 2019 forecast adjustment "Ambient Methane Monitoring ( AC)"								
2019	Other	-509	-50	0	-559	-6.0	1-Sided Adj	TP1LFH20170511175917840
<b>Explanation:</b> REMOVE DA Settlement - This adjustment REMOVES the incremental costs added in forecast adjustment "DA Settlement"								
2019	Other	309	29	0	338	3.5	1-Sided Adj	TP1LFH20170628155815570
<b>Explanation:</b> Ambient Methane Monitoring (AC) - represents 1/3 of the cost associated to methane monitoring at AC for the period beginning three (3) years after designated titles were hired as a result of the DA Settlement through December 31, 2021.								
2019	Other	1,373	150	0	1,523	16.0	1-Sided Adj	TP1LFH20170309141603030
<b>Explanation:</b> Ambient Methane Monitoring (HR PDR GOL) - costs associated to expanding the methane monitoring regulation in force at AC to PDR, HR, and GOL. Costs include adding 5 SOS's at each field (PDR, HR, GOL) and 1 Instrument Specialist at AC for a total of 16 personnel, and \$50 non-labor each at PDR, HR, and GOL field for equipment maintenance and replacement accessories.								
2019	FOF-Ongoing	-200	-514	0	-714	-2.8	1-Sided Adj	TP1LFH20170309123014557
<b>Explanation:</b> FOF - Includes FOF Ideas #350 360 1213-1214 1217-1220 230, 860, 1060. Excludes FOF ideas #70 and #80 which represent future avoided costs that are neither included in historical spending or any other incremental forecasted cost. Also excludes FOF idea #1212 since the savings from that idea is included in the 2017 O&M budget and GRID forecast adjustment explanation "Special Leak Survey" as the employees were planned/forecasted at the lower level 4 rate.								

Note: Totals may include rounding differences.

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Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: A. Underground Storage and Aboveground Storage  
 Category-Sub: 1. Underground Storage  
 Workpaper: 2US000.000 - Underground Storage

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj_Type</u>	<u>RefID</u>	
2019	FOF-Ongoing	387	0	0	387	5.0	1-Sided Adj	TP1LFH20161205181213607	
<b>Explanation:</b>		FOF - Related to FOF Idea #1060. The financial impact on the idea list represents only the savings; the additional 10 personnel necessary to achieve the savings were inadvertently included in capital, however the associated savings were split 50/50 between O&M and Capital. O&M savings will occur if the personnel are assigned to O&M work. This adjustment accounts for 50% of the costs of the additional personnel to achieve the savings: loaded costs of \$1,020.4/1.32 = unloaded costs \$773 * 50% = \$387 O&M costs for 5 FTE's (1/2 of 10 personnel).							
2019	RAMP Incremental	0	687	0	687	0.0	1-Sided Adj	TP1LFH20170310162352103	
<b>Explanation:</b>		RAMP - Contract Security (RAMP Chapter 06) This adjustment represents the RAMP incremental costs for Physical Security of Critical Gas Infrastructure in Storage - Risk Assessment Mitigation Phase Chapter 06 (SCG-06-WP) line 2. 2016 Historical Costs = \$616; 2019 Forecast = \$1,303							
2019	Other	-155	-179	0	-334	-2.0	1-Sided Adj	MPACHECO20170831144311740	
<b>Explanation:</b>		Aliso Canyon Turbine Replacement (ACTR) - Underground Storage projected O&M costs savings. Includes 3rd Party O&M, Direct Labor O&M, and Air Emissions Fees, less SoCalGas AFA Cost Increase.							
2019	Other	-77	-15	0	-92	-0.5	1-Sided Adj	KHART20171211150030913	
<b>Explanation:</b>		Adjustment to reconcile corrected Aliso cost removal on behalf of WP 2US002.							
<b>2019 Total</b>		<b>3,771</b>	<b>1,030</b>	<b>0</b>	<b>4,801</b>	<b>43.4</b>			

Note: Totals may include rounding differences.

SCG/UNDERGROUND STORAGE/Exh No:SCG-10-WP-R/Witness: N. Navin

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Area: UNDERGROUND STORAGE  
Witness: Neil P. Navin  
Category: A. Underground Storage and Aboveground Storage  
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Workpaper: 2US000.000 - Underground Storage

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	11,822	11,840	12,543	13,009	14,293
Non-Labor	18,003	17,446	16,608	17,803	107,475
NSE	0	0	0	0	0
<b>Total</b>	<b>29,825</b>	<b>29,285</b>	<b>29,151</b>	<b>30,812</b>	<b>121,768</b>
FTE	126.7	123.0	126.6	127.7	133.9
<b>Adjustments (Nominal \$) **</b>					
Labor	-132	-122	-113	-31	-1,243
Non-Labor	-541	-383	-572	-2,239	-89,352
NSE	0	0	0	0	0
<b>Total</b>	<b>-673</b>	<b>-505</b>	<b>-686</b>	<b>-2,270</b>	<b>-90,595</b>
FTE	-1.3	-1.3	-1.2	-0.4	-10.3
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	11,690	11,719	12,429	12,978	13,050
Non-Labor	17,462	17,063	16,036	15,564	18,123
NSE	0	-2	0	0	0
<b>Total</b>	<b>29,152</b>	<b>28,780</b>	<b>28,465</b>	<b>28,542</b>	<b>31,173</b>
FTE	125.4	121.7	125.4	127.3	123.6
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	1,872	1,948	2,028	2,100	2,149
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>1,872</b>	<b>1,948</b>	<b>2,028</b>	<b>2,100</b>	<b>2,149</b>
FTE	20.8	20.6	21.0	21.4	20.9
<b>Escalation to 2016\$</b>					
Labor	1,331	988	703	369	0
Non-Labor	505	212	-53	41	0
NSE	0	0	0	0	0
<b>Total</b>	<b>1,836</b>	<b>1,200</b>	<b>651</b>	<b>410</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	14,893	14,654	15,161	15,447	15,200
Non-Labor	17,967	17,276	15,983	15,605	18,123
NSE	0	-2	0	0	0
<b>Total</b>	<b>32,859</b>	<b>31,928</b>	<b>31,144</b>	<b>31,052</b>	<b>33,323</b>
FTE	146.2	142.3	146.4	148.7	144.5

\* 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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Area: UNDERGROUND STORAGE  
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 Category-Sub: 1. Underground Storage  
 Workpaper: 2US000.000 - Underground Storage

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	-132	-122	-113	-31	-1,243
Non-Labor	-541	-383	-572	-2,239	-89,352
NSE	0	0	0	0	0
<b>Total</b>	<b>-673</b>	<b>-505</b>	<b>-686</b>	<b>-2,270</b>	<b>-90,595</b>
FTE	-1.3	-1.3	-1.2	-0.4	-10.3

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
2012	Other	0	-4	0	0.0	1-Sided Adj	TP1LFH20161117151510580
<b>Explanation:</b> Remove electricity costs - Storage electricity is balanced beginning in 2016							
2012	Other	0	-5	0	0.0	CCTR Transf From 2100-0170.000	TP2RXL20161125202049477
<b>Explanation:</b> SoCal Gas Playa Del Rey Station SCAQMD expense incorrectly charged to SDG&E							
2012	Other	0	5	0	0.0	CCTR Transf From 2100-0170.000	TP2RXL20161130065605700
<b>Explanation:</b> To correct (reverse) original transfer due to \$ value having been incorrectly entered as a credit instead of a debit.							
2012	Other	0	5	0	0.0	CCTR Transf From 2100-0170.000	TP2RXL20161130065952847
<b>Explanation:</b> SoCal Gas Playa Del Rey Compressor Station SCAQMD expense incorrectly charged to SDG&E's Moreno Compressor Station							
2012	Other	-2	-542	0	0.0	1-Sided Adj	TP1LFH20161126114720307
<b>Explanation:</b> Remove costs charged to refundable program FHPMA							
2012	Other	-70	0	0	-0.7	CCTR Transf To 2200-2475.007	TP1LFH20161130130918003
<b>Explanation:</b> Transfer Environmental Personnel to Environmental Services to be consistent with 2016 Base Year							
2012	Other	-60	0	0	-0.6	CCTR Transf To 2200-2475.007	TP1LFH20161130131046500
<b>Explanation:</b> Transfer environmental personnel cost to Environmental Services to be consistent with 2016 Base Year							
2012	Other	70	0	0	0.7	CCTR Transf To 2200-2475.007	TP1LFH20161203105550877
<b>Explanation:</b> Reverse Transfer Environmental Personnel to 2200-2475.007 (should be 2200-2588)							
2012	Other	-70	0	0	-0.7	CCTR Transf To 2200-2588.000	TP1LFH20161203105748290
<b>Explanation:</b> Transfer environmental personnel labor to 2200-2588 to be consistent with 2016 base year							

*Note: Totals may include rounding differences.*

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Area: UNDERGROUND STORAGE  
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 Workpaper: 2US000.000 - Underground Storage

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
2012	Other	-60	0	0	-0.6	CCTR Transf To 2200-2588.000	TP1LFH20161203110124050
<b>Explanation:</b> Transfer environmental personnel to 2200-2588 to be consistent with 2016 base year.							
2012	Other	60	0	0	0.6	CCTR Transf To 2200-2475.007	TP1LFH20161203110733643
<b>Explanation:</b> Reverse transfer environmental personnel to 2200-2475.007 (should be to 2200-2588)							
<b>2012 Total</b>		<b>-132</b>	<b>-541</b>	<b>0</b>	<b>-1.3</b>		
2013	Other	0	-385	0	0.0	1-Sided Adj	TP1LFH20161117151618153
<b>Explanation:</b> Remove electricity costs - Storage electricity is balanced beginning in 2016							
2013	Other	0	2	0	0.0	1-Sided Adj	TP1LFH20161126114839620
<b>Explanation:</b> Remove credits related to refundable program FHPMA							
2013	Other	-74	0	0	-0.8	CCTR Transf To 2200-2588.000	TP1LFH20161203111139153
<b>Explanation:</b> Transfer environmental personnel to 2200-2588 to be consistent with 2016 base year							
2013	Other	-48	0	0	-0.5	CCTR Transf To 2200-2588.000	TP1LFH20161203111327347
<b>Explanation:</b> Transfer environmental personnel to 2200-2588 to be consistent with 2016 base year							
<b>2013 Total</b>		<b>-122</b>	<b>-383</b>	<b>0</b>	<b>-1.3</b>		
2014	Other	0	-564	0	0.0	1-Sided Adj	TP1LFH20161117151716960
<b>Explanation:</b> Remove electricity costs - all Storage electricity is balanced beginning in 2016							
2014	Other	-27	-8	0	-0.3	1-Sided Adj	TP1LFH20170215150943427
<b>Explanation:</b> Remove cost charged to MTB O&M Projects IO 300751468							
2014	Other	-70	0	0	-0.7	CCTR Transf To 2200-2588.000	TP1LFH20161203111538660
<b>Explanation:</b> Transfer environmental personnel from 2200-0289 to 2200-2588 to be consistent with 2016 base year							
2014	Other	-17	0	0	-0.2	CCTR Transf To 2200-2588.000	TP1LFH20161203111818427
<b>Explanation:</b> Transfer environmental personnel from 2200-0298 to 2200-2588 to be consistent with 2016 base year							
<b>2014 Total</b>		<b>-113</b>	<b>-572</b>	<b>0</b>	<b>-1.2</b>		
2015	Aliso	0	-1,457	0	0.0	1-Sided Adj	HEPETRIZ20161108111021850
<b>Explanation:</b> ALISO Canyon Incident - Exclude costs & associated FTEs. 300775156, Wellhead leak							

Note: Totals may include rounding differences.

Southern California Gas Company  
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Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
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 Category-Sub: 1. Underground Storage  
 Workpaper: 2US000.000 - Underground Storage

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
2015	Aliso	-10	-5	0	-0.1	1-Sided Adj	HEPETRIZ20161108112225720
<b>Explanation:</b> ALISO Canyon Incident - Exclude costs & associated FTEs. 300775156, Wellhead leak							
2015	Other	0	-827	0	0.0	1-Sided Adj	TP1LFH20161117151818990
<b>Explanation:</b> Remove electricity costs - all Storage electricity is balanced beginning in 2016							
2015	Other	-25	0	0	-0.3	1-Sided Adj	TP1LFH20170215151122240
<b>Explanation:</b> Remove cost charged to MTB O&M Projects IO 300751468							
2015	Other	1	51	0	0.0	1-Sided Adj	TP1LFH20161127161657860
<b>Explanation:</b> Transfer BC 415 Lead Abatement to O&M							
2015	Other	4	0	0	0.0	CCTR Transf To 2200-2588.000	TP1LFH20161203112315270
<b>Explanation:</b> Transfer environmental personnel from 2200-0289 to 2200-2588 to be consistent with 2016 base year (2015 costs have a credit balance)							
<b>2015 Total</b>		<b>-31</b>	<b>-2,239</b>	<b>0</b>	<b>-0.4</b>		
2016	Aliso	-836	-89,183	0	-6.2	1-Sided Adj	TP1LFH20170215134913607
<b>Explanation:</b> Aliso Canyon - remove costs related to SS25 and RCA							
2016	Other	-395	-19	0	-4.0	1-Sided Adj	TP1LFH20170215135126690
<b>Explanation:</b> Transfer Storage Risk Management department to work paper 2US001.000							
2016	Other	0	-141	0	0.0	1-Sided Adj	TP1LFH20170215140856520
<b>Explanation:</b> Transfer AECOM invoice #37839389 dated Nov 22 2016 charged to 2200-2602 FG814 to AC DOGGR ER IO 300777376 (SIMP)							
2016	Other	0	0	0	0.0	1-Sided Adj	TP1LFH20170215150101280
<b>Explanation:</b> Remove costs charged to MTB O&M Projects 300751468							
2016	Other	0	-10	0	0.0	1-Sided Adj	TP1LFH20170215150207890
<b>Explanation:</b> Remove costs charged to MTB DOGGR Emergency Reg IO s 300777451 and 300777452							
2016	Other	-7	0	0	-0.1	1-Sided Adj	TP1LFH20170215150336847
<b>Explanation:</b> Remove costs charged to MTB O&M Projects 300751468							
2016	Other	-5	0	0	0.0	1-Sided Adj	TP1LFH20170215150505283
<b>Explanation:</b> Remove cost charged to MTB O&M Projects 300751468							

Note: Totals may include rounding differences.

Southern California Gas Company  
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Area: UNDERGROUND STORAGE  
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 Category-Sub: 1. Underground Storage  
 Workpaper: 2US000.000 - Underground Storage

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
<b>2016 Total</b>		<b>-1,243</b>	<b>-89,352</b>	<b>0</b>	<b>-10.3</b>		

*Note: Totals may include rounding differences.*

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 Workpaper: 2US000.000 - Underground Storage

**RAMP Item # 1**

Ref ID: TP1LFH20170511150518497

RAMP Chapter: SCG-11

Program Name: Routine Well Work

Program Description: Addresses failed components such as tubing, casing, valves, pumps, and other equipment on existing wells

**Risk/Mitigation:**

Risk: Catastrophic Event Related to Storage Well Integri

Mitigation: Maintenance work performed on gas storage wells

**Forecast CPUC Cost Estimates (\$000)**

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	3,306	3,306	3,306
High	3,654	3,654	3,654

Funding Source: CPUC-GRC

Forecast Method: Average

Work Type: Mandated

Work Type Citation: Pending

**Historical Embedded Cost Estimates (\$000)**

Embedded Costs: 4112

Explanation: F816000G and F832000GLabor \$938; Nonlabor \$3,174

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Category-Sub: 1. Underground Storage  
Workpaper: 2US000.000 - Underground Storage

**RAMP Item # 2**

Ref ID: TP1LFH20170511174133130

RAMP Chapter: SCG-6

Program Name: Contract Security

Program Description: Security Guard Staffing

**Risk/Mitigation:**

Risk: Physical Security of Critical Infrastructure

Mitigation: Contract Security

**Forecast CPUC Cost Estimates (\$000)**

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	1,050	1,155	1,271
High	1,124	1,236	1,360

Funding Source: CPUC-GRC

Forecast Method: Other

Work Type: Non-Mandated

Work Type Citation: TBD

**Historical Embedded Cost Estimates (\$000)**

Embedded Costs: 616

Explanation: CE 6220190 for UGS

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Workpaper: 2US000.000 - Underground Storage

**RAMP Item # 3**

Ref ID: TP1LFH20170512150159423

RAMP Chapter: SCG-4

Program Name: Maintenance of High Pressure Storage Lines

Program Description: Maintenance of High Pressure Storage Lines

**Risk/Mitigation:**

Risk: Catastrophic Damage Involving High Pressure Pipeli

Mitigation: Maintenance

**Forecast CPUC Cost Estimates (\$000)**

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	2,752	2,752	2,752
High	3,042	3,042	3,042

Funding Source: CPUC-GRC

Forecast Method: Other

Work Type: Mandated

Work Type Citation: DOT

**Historical Embedded Cost Estimates (\$000)**

Embedded Costs: 2752

Explanation: Based on support provided by Joe Rose, Fercs 830, 833, 837, 863, 867, 887: Labor \$739 (27%);  
Nonlabor \$2,013 (73%).

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 Category-Sub: 1. Underground Storage  
 Workpaper: 2US000.000 - Underground Storage

**RAMP Item # 4**

Ref ID: TP1LFH20170512151919357

RAMP Chapter: SCG-4

Program Name: Condition Based Maximo Work Orders

Program Description: Maintain Compliance through Maximo Work Order Tracking

**Risk/Mitigation:**

Risk: Catastrophic Damage involving High Pressure Pipeli

Mitigation: Maintenance

**Forecast CPUC Cost Estimates (\$000)**

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	596	596	596
High	659	659	659

Funding Source: CPUC-GRC

Forecast Method: Other

Work Type: Mandated

Work Type Citation: TBD

**Historical Embedded Cost Estimates (\$000)**

Embedded Costs: 0

Explanation: \$0 O&M incurred by Storage in 2016; \$3K incurred in 2015 (<1% of the total costs). Most of the 2015\$ are related to a capital IO charged outside of the Storage organization (2200-0306/0307 ESS Prod Support; IO 300772857)

Southern California Gas Company  
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Area: UNDERGROUND STORAGE  
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 Category: A. Underground Storage and Aboveground Storage  
 Category-Sub: 1. Underground Storage  
 Workpaper: 2US000.000 - Underground Storage

**RAMP Item # 5**

Ref ID: TP1LFH20170512153806357

RAMP Chapter: SCG-4

Program Name: Internal Corrosion Consultants

Program Description: Internal Corrosion Enhancement

**Risk/Mitigation:**

Risk: Catastrophic Damage involving High Pressure Pipeli

Mitigation: Internal Corrosion Plan

**Forecast CPUC Cost Estimates (\$000)**

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	300	300	300
High	900	900	900

Funding Source: CPUC-GRC

Forecast Method: Zero-Based

Work Type: Mandated

Work Type Citation: TBD

**Historical Embedded Cost Estimates (\$000)**

Embedded Costs: 555

Explanation: IO 300777671, 300780318

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Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: B. Storage Risk Management - Non-Refundable  
 Workpaper: 2US001.000

**Summary for Category: B. Storage Risk Management - Non-Refundable**

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	460	1,923	1,923	1,923
Non-Labor	19	108	108	108
NSE	0	0	0	0
<b>Total</b>	<b>479</b>	<b>2,031</b>	<b>2,031</b>	<b>2,031</b>
FTE	4.7	18.0	18.0	18.0

**Workpapers belonging to this Category:**

**2US001.000 Storage Risk Management**

Labor	460	1,923	1,923	1,923
Non-Labor	19	108	108	108
NSE	0	0	0	0
<b>Total</b>	<b>479</b>	<b>2,031</b>	<b>2,031</b>	<b>2,031</b>
FTE	4.7	18.0	18.0	18.0

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2US001.000 - Storage Risk Management**

Southern California Gas Company  
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Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: B. Storage Risk Management - Non-Refundable  
 Category-Sub: 1. Storage Risk Management  
 Workpaper: 2US001.000 - Storage Risk Management

**Activity Description:**

The Storage Risk Management Team consists of Facilities Data, Systems and Compliance, along with Storage Integrity Management Program, Underground Data Management, Regulatory and Policy Management. The workpaper covers the labor and nonlabor associated with supporting above ground monitoring, data management, compliance and audit support at the storage fields. The group is organized and resourced to address the implementation requirements of CARB, DOGGR and PHMSA regulations.

**Forecast Explanations:**

**Labor - Base YR Rec**

Base Year recorded plus incremental costs associated to representing the annual costs for a fully staffed department in 2017 and beyond.

**Non-Labor - Base YR Rec**

Base Year recorded plus incremental costs associated to representing the annual costs for a fully staffed department in 2017 and beyond.

**NSE - Base YR Rec**

There are no non-standard escalation expenses in Storage Risk Management.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		0	0	0	0	460	1,923	1,923	1,923	
Non-Labor		0	0	0	0	19	108	108	108	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>479</b>	<b>2,031</b>	<b>2,031</b>	<b>2,031</b>	
FTE		0.0	0.0	0.0	0.0	4.7	18.0	18.0	18.0	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
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 Witness: Neil P. Navin  
 Category: B. Storage Risk Management - Non-Refundable  
 Category-Sub: 1. Storage Risk Management  
 Workpaper: 2US001.000 - Storage Risk Management

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	Base YR Rec	460	460	460	1,463	1,463	1,463	1,923	1,923	1,923
Non-Labor	Base YR Rec	19	19	19	89	89	89	108	108	108
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>479</b>	<b>479</b>	<b>479</b>	<b>1,552</b>	<b>1,552</b>	<b>1,552</b>	<b>2,031</b>	<b>2,031</b>	<b>2,031</b>
FTE	Base YR Rec	4.7	4.7	4.7	13.3	13.3	13.3	18.0	18.0	18.0

**Forecast Adjustment Details:**

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>	
2017	Other	1,083	0	0	1,083	10.0	1-Sided Adj	TP1LFH20170310115418313	
<b>Explanation:</b>		This adjustment accounts for the non-refundable O&M portion of the fully staffed new Storage Risk Management Department.							
2017	Other	156	0	0	156	0.8	1-Sided Adj	TP1LFH20170310115836150	
<b>Explanation:</b>		Resumption of routine workload from temporary assignment excluded from historical costs.							
2017	Other	224	89	0	313	2.5	1-Sided Adj	TP1LFH20170310120229727	
<b>Explanation:</b>		True-up base year forecast to account for mid-year start-up in 2016							
<b>2017 Total</b>		<b>1,463</b>	<b>89</b>	<b>0</b>	<b>1,552</b>	<b>13.3</b>			
2018	Other	1,083	0	0	1,083	10.0	1-Sided Adj	TP1LFH20170310115613527	
<b>Explanation:</b>		This adjustment accounts for the non-refundable O&M portion of the fully staffed new Storage Risk Management Department.							
2018	Other	156	0	0	156	0.8	1-Sided Adj	TP1LFH20170310115858860	
<b>Explanation:</b>		Resumption of routine workload from temporary assignment excluded from historical costs.							
2018	Other	224	89	0	313	2.5	1-Sided Adj	TP1LFH20170310120440287	
<b>Explanation:</b>		True-up base year forecast to account for mid-year start-up in 2016							
<b>2018 Total</b>		<b>1,463</b>	<b>89</b>	<b>0</b>	<b>1,552</b>	<b>13.3</b>			
2019	Other	1,083	0	0	1,083	10.0	1-Sided Adj	TP1LFH20170310115630943	

Note: Totals may include rounding differences.

SCG/UNDERGROUND STORAGE/Exh No:SCG-10-WP-R/Witness: N. Navin

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: B. Storage Risk Management - Non-Refundable  
 Category-Sub: 1. Storage Risk Management  
 Workpaper: 2US001.000 - Storage Risk Management

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj Type</u>	<u>RefID</u>
<b>Explanation:</b>		This adjustment accounts for the non-refundable O&M portion of the fully staffed new Storage Risk Management Department.						
2019	Other	156	0	0	156	0.8	1-Sided Adj	TP1LFH20170310115915007
<b>Explanation:</b>		Resumption of routine workload from temporary assignment exluded from historical costs.						
2019	Other	224	89	0	313	2.5	1-Sided Adj	TP1LFH20170310120501017
<b>Explanation:</b>		True-up base year forecast to account for mid-year start-up in 2016						
<b>2019 Total</b>		<b>1,463</b>	<b>89</b>	<b>0</b>	<b>1,552</b>	<b>13.3</b>		

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
Witness: Neil P. Navin  
Category: B. Storage Risk Management - Non-Refundable  
Category-Sub: 1. Storage Risk Management  
Workpaper: 2US001.000 - Storage Risk Management

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	395
Non-Labor	0	0	0	0	19
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>414</b>
FTE	0.0	0.0	0.0	0.0	4.0
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	0	0	0	0	395
Non-Labor	0	0	0	0	19
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>414</b>
FTE	0.0	0.0	0.0	0.0	4.0
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	0	0	0	0	65
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>65</b>
FTE	0.0	0.0	0.0	0.0	0.7
<b>Escalation to 2016\$</b>					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	0	0	0	0	460
Non-Labor	0	0	0	0	19
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>479</b>
FTE	0.0	0.0	0.0	0.0	4.7

\* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: B. Storage Risk Management - Non-Refundable  
 Category-Sub: 1. Storage Risk Management  
 Workpaper: 2US001.000 - Storage Risk Management

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	395
Non-Labor	0	0	0	0	19
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>414</b>
FTE	0.0	0.0	0.0	0.0	4.0

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
<b>2012 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2013 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2014 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2015 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
2016	Other	395	19	0	4.0	1-Sided Adj	TP1LFH20161127152300807
<b>Explanation:</b>		Transfer Storage Risk Managemt Outlook from work paper 2US000.000					
<b>2016 Total</b>		<b>395</b>	<b>19</b>	<b>0</b>	<b>4.0</b>		

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
Witness: Neil P. Navin  
Category: C. Underground Storage - RSIMP  
Workpaper: 2US002.000

**Summary for Category: C. Underground Storage - RSIMP**

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	1,719	3,304	3,207	3,207
Non-Labor	10,332	17,936	18,259	15,703
NSE	0	0	0	0
<b>Total</b>	<b>12,051</b>	<b>21,240</b>	<b>21,466</b>	<b>18,910</b>
FTE	13.9	41.0	40.1	40.1

**Workpapers belonging to this Category:**

**2US002.000 Underground Storage - RSIMP**

Labor	1,719	3,304	3,207	3,207
Non-Labor	10,332	17,936	18,259	15,703
NSE	0	0	0	0
<b>Total</b>	<b>12,051</b>	<b>21,240</b>	<b>21,466</b>	<b>18,910</b>
FTE	13.9	41.0	40.1	40.1

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2US002.000 - Underground Storage - RSIMP**

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: C. Underground Storage - RSIMP  
 Category-Sub: 1. Underground Storage - RSIMP  
 Workpaper: 2US002.000 - Underground Storage - RSIMP

**Activity Description:**

The Storage Integrity Management Program (SIMP) O&M work consists of physical well inspection, risk management, and data management of the activities of the Underground Gas Storage. See supplemental workpapers for detail.

**Forecast Explanations:**

**Labor - Zero-Based**

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

**Non-Labor - Zero-Based**

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

**NSE - Zero-Based**

None.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		0	0	0	0	1,719	3,304	3,207	3,207	
Non-Labor		0	0	0	0	10,332	17,936	18,259	15,703	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12,051</b>	<b>21,240</b>	<b>21,466</b>	<b>18,910</b>	
FTE		0.0	0.0	0.0	0.0	14.0	41.0	40.1	40.1	

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: C. Underground Storage - RSIMP  
 Category-Sub: 1. Underground Storage - RSIMP  
 Workpaper: 2US002.000 - Underground Storage - RSIMP

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	Zero-Based	0	0	0	3,304	3,207	3,207	3,304	3,207	3,207
Non-Labor	Zero-Based	0	0	0	17,936	18,259	15,703	17,936	18,259	15,703
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>21,240</b>	<b>21,466</b>	<b>18,910</b>	<b>21,240</b>	<b>21,466</b>	<b>18,910</b>
FTE	Zero-Based	0.0	0.0	0.0	41.0	40.1	40.1	41.0	40.1	40.1

**Forecast Adjustment Details:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID	
2017	RAMP Incremental	1,585	7,604	0	9,189	27.1	1-Sided Adj	HEPETRIZ20161205173021297	
<b>Explanation:</b>		RAMP Chapter 11. This adjustment is to map the relationship to RAMP Workpaper SCG 11, DOGGR and PHMSA new regulations							
2017	RAMP Base	1,719	10,332	0	12,051	13.9	1-Sided Adj	HEPETRIZ20170310150601040	
<b>Explanation:</b>		RAMP Chapter 11. This adjustment is to map the relationship to RAMP Workpaper SCG 11, DOGGR and PHMSA new regulations							
<b>2017 Total</b>		<b>3,304</b>	<b>17,936</b>	<b>0</b>	<b>21,240</b>	<b>41.0</b>			
2018	RAMP Incremental	1,488	7,927	0	9,415	26.2	1-Sided Adj	HEPETRIZ20161205173148127	
<b>Explanation:</b>		RAMP Chapter 11. This adjustment is to map the relationship to RAMP Workpaper SCG 11, DOGGR and PHMSA new regulations							
2018	RAMP Base	1,719	10,332	0	12,051	13.9	1-Sided Adj	KHART20171211140318220	
<b>Explanation:</b>		RAMP Chapter 11. This adjustment is to map the relationship to RAMP Workpaper SCG 11, DOGGR and PHMSA new regulations							
<b>2018 Total</b>		<b>3,207</b>	<b>18,259</b>	<b>0</b>	<b>21,466</b>	<b>40.1</b>			
2019	RAMP Incremental	1,488	5,371	0	6,859	26.2	1-Sided Adj	HEPETRIZ20161205173445003	
<b>Explanation:</b>		RAMP Chapter 11. This adjustment is to map the relationship to RAMP Workpaper SCG 11, DOGGR and PHMSA new regulations							
2019	RAMP Base	1,719	10,332	0	12,051	13.9	1-Sided Adj	KHART20171211140518877	

Note: Totals may include rounding differences.

SCG/UNDERGROUND STORAGE/Exh No:SCG-10-WP-R/Witness: N. Navin

Southern California Gas Company  
 2019 GRC - REVISED  
 Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: C. Underground Storage - RSIMP  
 Category-Sub: 1. Underground Storage - RSIMP  
 Workpaper: 2US002.000 - Underground Storage - RSIMP

<u>Year</u>	<u>Adj Group</u>	<u>Labor</u>	<u>NLbr</u>	<u>NSE</u>	<u>Total</u>	<u>FTE</u>	<u>Adj_Type</u>	<u>RefID</u>
<b>Explanation:</b>		RAMP Chapter 11. This adjustment is to map the relationship to RAMP Workpaper SCG 11, DOGGR and PHMSA new regulations						
<b>2019 Total</b>		<b>3,207</b>	<b>15,703</b>	<b>0</b>	<b>18,910</b>	<b>40.1</b>		

*Note: Totals may include rounding differences.*

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
Witness: Neil P. Navin  
Category: C. Underground Storage - RSIMP  
Category-Sub: 1. Underground Storage - RSIMP  
Workpaper: 2US002.000 - Underground Storage - RSIMP

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	0	0	0	0	40
Non-Labor	0	0	0	0	100
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>140</b>
FTE	0.0	0.0	0.0	0.0	0.5
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	1,436
Non-Labor	0	0	0	0	10,232
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11,668</b>
FTE	0.0	0.0	0.0	0.0	11.4
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	0	0	0	0	1,476
Non-Labor	0	0	0	0	10,332
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11,808</b>
FTE	0.0	0.0	0.0	0.0	11.9
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	0	0	0	0	243
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>243</b>
FTE	0.0	0.0	0.0	0.0	2.0
<b>Escalation to 2016\$</b>					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	0	0	0	0	1,719
Non-Labor	0	0	0	0	10,332
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12,051</b>
FTE	0.0	0.0	0.0	0.0	13.9

\* After company-wide exclusions of Non-GRC costs

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

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: C. Underground Storage - RSIMP  
 Category-Sub: 1. Underground Storage - RSIMP  
 Workpaper: 2US002.000 - Underground Storage - RSIMP

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	1,436
Non-Labor	0	0	0	0	10,232
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11,668</b>
FTE	0.0	0.0	0.0	0.0	11.4

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
<b>2012 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2013 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2014 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2015 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
2016	Other	1,491	10,106	0	11.9	1-Sided Adj	HEPETRIZ20161201085017840
<b>Explanation:</b> SIMP Actual Jan-Dec; Program Cost DOGGR Emergency Regulations, Risk Management							
2016	Other	0	141	0	0.0	1-Sided Adj	TP1LFH20170215141014270
<b>Explanation:</b> Transfer AECOM Invoice #37839389 dated Nov 22 2016 charged to 2200-2602 FG814 to AC DOGGR ER IO 300777376 (SIMP) in WP 2US002.							
2016	Aliso	-55	-15	0	-0.5	1-Sided Adj	KHART20171211134417517
<b>Explanation:</b> Aliso Canyon - Remove costs related to SS25 and RCA.							
<b>2016 Total</b>		<b>1,436</b>	<b>10,232</b>	<b>0</b>	<b>11.4</b>		

Note: Totals may include rounding differences.

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: C. Underground Storage - RSIMP  
 Category-Sub: 1. Underground Storage - RSIMP  
 Workpaper: 2US002.000 - Underground Storage - RSIMP

**RAMP Item # 1**

Ref ID: HEPETRIZ20161205173021297

RAMP Chapter: SCG-11

Program Name: Initial SIMP to inspect/modernize all wells will be accelerated from 6 years to 4 years.

Program Description: The SIMP is intended to proactively identify, diagnose, and mitigate potential safety and/or integrity problems associated with gas storage wells. This work will include inspection, data collection, analysis, management and reporting. In addition the replacement or repair work may include: wellhead valve replacements, well tubing replacements, wellhead leak repairs, and well inner-string replacements.

**Risk/Mitigation:**

Risk: P1

Mitigation: Complete SIMP in 4 years instead of 6

**Forecast CPUC Cost Estimates (\$000)**

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	0	0	0
High	0	0	0

Funding Source: CPUC-GRC

Forecast Method: Zero-Based

Work Type: Mandated

Work Type Citation: Regulatory

**Historical Embedded Cost Estimates (\$000)**

Embedded Costs: 0

Explanation: 2016 RAMP Base costs incurred are shown in RAMP item #1.

Southern California Gas Company  
2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: C. Underground Storage - RSIMP  
 Category-Sub: 1. Underground Storage - RSIMP  
 Workpaper: 2US002.000 - Underground Storage - RSIMP

**RAMP Item # 2**

Ref ID: HEPETRIZ20170310150601040

RAMP Chapter: SCG-11

Program Name: Initial SIMP to inspect/modernize all wells will be accelerated from 6 years to 4 years.

Program Description: The SIMP is intended to proactively identify, diagnose, and mitigate potential safety and/or integrity problems associated with gas storage wells. This work will include inspection, data collection, analysis, management, and reporting. In addition the replacement or repair work may include: wellhead valve replacements, well tubing replacements, wellhead leak repairs, and well inner-string replacements.

**Risk/Mitigation:**

Risk: P1

Mitigation: Complete

**Forecast CPUC Cost Estimates (\$000)**

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Low	0	0	0
High	0	0	0

Funding Source: CPUC-GRC

Forecast Method: Zero-Based

Work Type: Mandated

Work Type Citation: Regulatory

**Historical Embedded Cost Estimates (\$000)**

Embedded Costs: 12051

Explanation: 2016 RAMP mitigation costs incurred.

**Supplemental Workpapers for Workpaper 2US002.000**

## SoCalGas SIMP Underground Storage Regulatory Implementation O&M Non Labor Supplemental Workpaper

### Business Purpose

On December 23, 2016, Pipeline and Hazardous Materials Safety Administration (PHMSA) Interim Final Rule (IFR) §192.12 on Pipeline Safety: Safety of Underground Natural Gas Storage Facilities was published. The new federal requirement states that each underground gas storage operator must meet the recommendations and requirements states in American Petroleum Institute (API) Recommended Practice (RP) 1171. The IFR states that operators of underground gas storage facilities must establish and follow written procedures for operations, maintenance, and emergencies implementing the requirements of API 1171. In addition, with respect to the incorporation by reference of API 1171, the non-mandatory provisions (i.e., provisions containing the word “should” or other non-mandatory language) are adopted as mandatory provisions under the authority of the pipeline safety laws.

In addition to the PHMSA IFR §192.12, the Division of Oil, Gas, & Geothermal Resources (DOGGR) issued on May 19<sup>th</sup>, 2017 text of proposed regulations to Requirements for California Underground Gas Storage Projects. The regulations have several requirements that include, but are not limited to: project data updates, risk management plan development, well construction requirements, mechanical integrity testing, monitoring requirements, and emergency response plan.

### Physical Description & Project Justification

To implemented the new and proposed regulations, support from industry experts and technical writers are needed to create procedures for Underground Storage operations, maintenance, and emergencies and the written risk management plan. Once these procedures are developed training and training plans will need to be developed and implemented. In addition, annual review and updates are needed for all new regulatory requirements. Finally, consultants will be used to develop and maintain the threat identification and risk model portion or the risk management plan. All of these new activities will increase safety, reduce risk, and meet compliance with the new and proposed regulations.

### Forecast Methodology

<b>BudgetCode</b>	2US002.000			
<b>Description:</b>	Underground Storage Regulatory Implementation			
	<b>Method Selected</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Labor</b>	Zero-Based	0	0	0
<b>Non-Labor</b>	Zero-Based	500	500	500
<b>NSE</b>	Zero-Based	0	0	0
	<b>Total:</b>	<b>0</b>	<b>0</b>	
<b>FTE</b>	Zero-Based	0	0	0

## **SoCalGas SIMP Inspections**

### **O&M Non Labor Supplemental Workpaper**

#### **Business Purpose**

DOGGR Requirements for California Underground Gas Storage Projects text of proposed regulations issued May 19<sup>th</sup>, 2017 states the following:

1726.6. Mechanical Integrity Testing. (a) The operator shall, at a minimum, conduct the following mechanical integrity testing on each gas storage well and every other well that penetrates the gas storage reservoir of the operator's underground gas storage project, with the exception of wells that have been plugged and abandoned in accordance with Public Resources Code section 3208: (2) A casing wall thickness inspection, employing such methods as magnetic flux and ultrasonic technologies, shall be performed at once least[sic] every 24 months.

(b) A newly constructed gas storage well, or a reworked gas storage well that has had its existing production casing modified from its previous condition during rework activities, shall be tested as per subdivision (a).

#### **Physical Description & Project Justification**

Baseline, Full, and Partial Inspections of SCG Gas Storage wells as required by DOGGR. Forecast 71 Full Inspections and 3 Partial Inspections in 2017; 31 Full Inspections and 4 Baseline Inspections in 2018; and 7 Full Inspections in 2019. Casing inspection logs include the UltraSonic Imager Tool (USIT), Magnetic Flux tool, Cement Bond Log (CBL), and Caliper log. These are run on wireline along the full length of the well to assess casing conditions. The well must be taken out of service and tubing must be pulled prior to logging. Per a two year interval of reinspection, it is anticipated 46 wells will undergo a second cycle of inspections in 2018; and 68 wells will undergo a second cycle of inspections in 2019.

Reinspections are required per regulations, while the interval is not yet confirmed, this activity is required for safety, risk reduction, and compliance.

#### **Forecast Methodology**

One round of inspection logging is \$80K. Any well that undergoes modification after logging (during workover) such as installation of an inner string, or placing a metal skin liner "patch" over a section of the well, must be inspected again. In the case of an inner string liner, all 4 logs are required for repeat, whereas a patch only requires a repeated caliper log. Because of the requirement to undergo a second inspection upon remediation, the forecast per well is \$110K. This equates to 1/3 of the wells requiring a second round of inspection after remediation, consistent with 2016 activity.

One round of re-inspection logging is \$80K. At a two-year reinspection interval, a majority of the reinspected wells are not anticipated to require a second set of logs because they are not expected to require remediation.

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Lateral Inspections are included in this forecast for 2017 and 2018. These are inspected to fall under pipeline integrity in 2019. Based on work in 2016 and 2017, expected lateral inspection costs are as follows:

- Playa Del Rey: \$2K per inspection, 19 inspections
- La Goleta: \$2K per inspection, 16 inspections
- Honor Rancho: \$7.56K per inspection, 35 inspections
- Aliso Canyon: \$7.56K per inspection, 33 inspections

<b>BudgetCode</b>	2US002.000			
<b>Description:</b>	Inspections			
	Method Selected	2017	2018	2019
Labor	Zero-Based	0	0	0
Non-Labor	Zero-Based	7504	7951	5931
NSE	Zero-Based	0	0	0
	<b>Total:</b>	<b>7504</b>	<b>7951</b>	<b>5931</b>
FTE	Zero-Based	0	0	0

## **SoCalGas SIMP Data Management O&M Non Labor Supplemental Workpaper**

### **Business Purpose**

Enhance Underground Storage (UGS) Data and Records Management systems to comply with new and upcoming State and Federal Regulations such as PHMSA Interim Final Rule (IFR) §192.12 which mandates the implementation of API 1171, and proposed DOGGR regulations section 1726.4.2 Records Management Plan.

### **Physical Description & Project Justification**

Storage Risk Management is developing and implementing a robust Well Integrity Management Solution (WIMS) to improve data collection, accessibility, analyses, and regulatory reporting. In addition, consolidation and integration of key Underground Storage Operation Data Systems into this enterprise solution allows for maintenance, monitoring, and improvements of the existing data systems and future expansions to absorb industry changes.

Moreover, Storage Risk Management is establishing a records management plan to consolidate underground storage records into an electronic central repository to enhance documentation accessibility. Preparation efforts to move into the new digitized environment includes: system requirements gathering, document generation workflows, creation of new processes and procedures, training, document scanning, standard naming methodology, and establishment of a filing structure and storage strategy to ensure records are accessible and protected against environmental damage in the various formats of the record(s) while complying with records retention requirements.

Expected activities and work products includes:

- Implementation of WIMS
- Standardized data collection and data entry into existing and future systems
- Enhanced Data and Records Management processes and procedures
- Electronic well file system (scanning and digitization)
- Implementation of upgraded document filing and storage (Paper and Digital)
- Training for new software systems, processes, and procedures

### **Forecast Methodology**

Forecasted annual maintenance and fees will vary amongst the ranges below. A majority of costs are expected to decrease in 2019 after initial implementation and processes are established. These items represent the majority of non-Labor costs; labor is included in the Personnel SIMP O&M Supplemental Workpaper.

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Project Description	Budget Range	Data / Records Management
WellView Maintenance Fees and Services	\$100,000 to \$300,000	Data Management
Document Management System Maintenance Fees and Services	\$150,000 to \$300,000	Records Management
Well Integrity Management Solution Software (2018 Implementation)	\$300,000 to \$500,000	Data Management
Records Scanning and Digitization	\$200,000 to \$700,000	Records Management
Document Management System Requirements Gathering	\$200,000 to \$700,000	Records Management
Data Management System Data Quality, Maintenance, and Mapping	\$500,000	Data Management
Data Entry and Training	\$700,000 to \$1,400,000	Data and Records Management

**BudgetCode** 2US002.00

**Description:** Data Management

	Method Selected	2017	2018	2019
Labor	Zero-Based	0	0	0
Non-Labor	Zero-Based	3230	3800	2533
NSE	Zero-Based	0	0	0
	<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	Zero-Based	0	0	0

## SoCalGas SIMP Noise and Temperature Surveys O&M Supplemental Workpaper

### Business Purpose

Noise and Temperature logs are a tool to test well mechanical integrity. DOGGR proposed Requirements for California Underground Gas Storage Projects states:

1726.6. Mechanical Integrity Testing: a) The operator shall, at a minimum, conduct the following mechanical integrity testing on each gas storage well and every other well that penetrates the gas storage reservoir of the operator’s underground gas storage project, with the exception of wells that have been plugged and abandoned in accordance with Public Resources Code section 3208: (1) A temperature and noise log shall be conducted at least annually to ensure integrity.

### Physical Description & Project Justification

Noise and temperature surveys will be completed on approximately two hundred and thirty three(233) wells in 2017, approximately one hundred and fifty (150) wells in 2018, and approximately one hundred fifty five (155) wells in 2019. Deviations on Temperature Surveys from the earths’ temperature gradient and recorded noise in a well may indicate integrity issue, particularly if not attributable to other sources. Noise and temperature logs have been run annually as a part of routine O&M. These costs are in SIMP O&M because they are part of the SIMP inspection logging program.

### Forecast Methodology

\$4.5K per survey

<b>BudgetCode</b>	2US002.000			
<b>Description:</b>	Noise and Temperature Surveys			
	Method Selected	2017	2018	2019
Labor	Zero-Based	0	0	0
Non-Labor	Zero-Based	1049	675	738
NSE	Zero-Based	0	0	0
	<b>Total:</b>	<b>0</b>	<b>0</b>	<b>738</b>
FTE	Zero-Based	0	0	0

## SoCalGas SIMP Emerging Regulations O&M Supplemental Workpaper

### Business Purpose

Regulations affecting underground gas storage projects have been in an evolving state since 2016. The California Division of Oil, Gas, and Geothermal Resources (DOGGR) and Pipeline and Hazardous Materials Safety Administration (PHMSA) are examples of two regulatory groups with recent updates. On July 8, 2016 DOGGR released pre-rulemaking draft regulations updating Requirements for California Underground Gas Storage Projects. On May 19th, 2017, text of proposed regulations was released with updates to the July 8<sup>th</sup>, 2016 discussion draft. The DOGGR Underground Injection Control (UIC) regulations have also been issued as discussion drafts version 1 and 2 in 2016 and 2017, respectively. PHMSA issued an Interim Final Ruling (IFR) 192.12 to incorporate American Petroleum Institute (API) Recommended Practice 1171, Functional Integrity of Natural Gas Storage in Depleted Hydrocarbon Reservoirs and Aquifer Reservoirs, into gas storage requirements. These revisions include new proposed requirements, highlighting the need for additional SIMP O&M funding focused on compliance with emerging regulations that may come out of pilot studies, new industry technology, and updates to best practices.

### Physical Description & Project Justification

The items below reflect potential activities required for compliance as regulations surrounding gas storage continue to evolve. Four identified items are focused on (1) data, (2) additional inspection logging, (3) geology/engineering studies, and (4) emergency response.

- Data projects include additional management of data generated from pilot projects in support of proposed regulations, and analysis of data collected in compliance with new regulations. Data management of capital projects is described and anticipated under Emerging Monitoring Integrity and Safety Technology Pilot.
- Inspection logs will require comparison and new inspection techniques/tools have also been proposed and may continue to be proposed.
- Geology and engineering studies in proposed regulations may require additional data collection and may require additional consultant support. Proposed and future regulations include the following considerations:
  - Proposed collection of new reservoir characteristics data or new pressure flow modeling;
  - Additional studies are expected to be more robust requiring physical data collection (as compared to analysis of existing data) and additional software purchase; and
  - Building geology/reservoir models and collecting additional data such as core samples.

- Emergency response requirements continue to evolve and may require additional drills and staging as part of proposed regulations.

**Forecast Methodology**

Vendor quotes, previous, studies, and initial analysis indicate each of the four identified activities are approximately \$0.75M to \$1.5M

- \$350K for previous Geologic studies
- Individual new inspection logs are forecasted at \$700k/year
- Data analysis for the UAV pilot is forecasted at \$175K/year
- Data analysis and maintenance for logging, forecast dependent on requirements
- Proposed emergency response requirements – personnel training, staging of materials, dependent on requirements and location

<b>BudgetCode</b>	2US002.000			
<b>Description:</b>	Emerging Regulations			
	<b>Method Selected</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Labor	Zero-Based	0	0	0
Non-Labor	Zero-Based	5000	5000	5000
NSE	Zero-Based	0	0	0
	<b>Total:</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>
FTE	Zero-Based	0	0	0

## SoCalGas SIMP Personnel O&M Supplemental Workpaper

### Business Purpose

Storage Integrity Management Program activities, including well work, risk management, and data management are implemented by teams comprised of engineers, project managers, technical advisors, project specialists and other roles with varying degree of responsibility.

### Physical Description

Risk management consists of a centralized organization that will mitigate risk by providing added focus on monitoring new compliance activities, emerging technology to mitigate risks, and developing data and analysis to focus funding and mitigation activities. Data management supports activities described in the Data Management non-labor capital work paper and supplemental O&M work paper. Additionally the training and industry conferences component of non-Labor O&M allows for continued growth in career development and technical skills in-house and offsite.

### Forecast Methodology

Labor Components:

- Risk and Data management O&M Labor: \$3,113K
- SIMP Engineering O&M labor component: \$94K (Beginning in 2018)

Non Labor Components:

- Training and Industry Conferences: \$100K (average of \$2.5K per FTE)
- 2 Contracted Employees: \$233K

<b>BudgetCode</b>	2US002.000			
<b>Description:</b>	Personnel			
	<b>Method Selected</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Labor</b>	Zero-Based	3304	3207	3207
<b>Non-Labor</b>	Zero-Based	333	333	333
<b>NSE</b>	Zero-Based	0	0	0
	<b>Total:</b>	<b>3637</b>	<b>3540</b>	<b>3540</b>
<b>FTE</b>	Zero-Based	41.0	40.1	40.1

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 Shared Services Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin

**Summary of Shared Services Workpapers:**

Description	In 2016 \$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
A. SVP Transmission & Storage	455	434	434	434
<b>Total</b>	<b>455</b>	<b>434</b>	<b>434</b>	<b>434</b>

*Note: Totals may include rounding differences.*

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Shared Services Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: A. SVP Transmission & Storage  
 Cost Center: 2200-2594.000

**Summary for Category: A. SVP Transmission & Storage**

	In 2016\$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2016	2017	2018	2019
Labor	228	245	245	245
Non-Labor	226	188	188	188
NSE	0	0	0	0
<b>Total</b>	<b>454</b>	<b>433</b>	<b>433</b>	<b>433</b>
FTE	0.9	1.0	1.0	1.0

**Cost Centers belonging to this Category:**

**2200-2594.000 VICE PRESIDENT OF TRANSMISSION & STORAGE**

Labor	228	245	245	245
Non-Labor	226	188	188	188
NSE	0	0	0	0
<b>Total</b>	<b>454</b>	<b>433</b>	<b>433</b>	<b>433</b>
FTE	0.9	1.0	1.0	1.0

*Note: Totals may include rounding differences.*

**Beginning of Workpaper**  
**2200-2594.000 - VICE PRESIDENT OF TRANSMISSION & STORAGE**

Southern California Gas Company  
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Shared Services Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: A. SVP Transmission & Storage  
 Category-Sub: 1. SVP Transmission & Storage  
 Cost Center: 2200-2594.000 - VICE PRESIDENT OF TRANSMISSION & STORAGE

**Activity Description:**

This forecast represents the annual costs for the new Senior Vice President of Transmission and Storage cost center established mid-year 2016.

**Forecast Explanations:**

**Labor - Base YR Rec**

Base year recorded plus incremental costs to achieve annual labor expectation.

**Non-Labor - Base YR Rec**

Base year recorded less offset to achieve annual labor and non-labor expectation.

**NSE - Base YR Rec**

There are no non-standard escalation expenses in the Senior Vice President of Transmission & Storage forecast.

**Summary of Results:**

		In 2016\$ (000) Incurred Costs								
		Adjusted-Recorded					Adjusted-Forecast			
Years		2012	2013	2014	2015	2016	2017	2018	2019	
Labor		0	0	0	0	228	245	245	245	
Non-Labor		0	0	0	0	226	189	189	189	
NSE		0	0	0	0	0	0	0	0	
<b>Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>455</b>	<b>434</b>	<b>434</b>	<b>434</b>	
FTE		0.0	0.0	0.0	0.0	0.8	1.0	1.0	1.0	

*Note: Totals may include rounding differences.*

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Shared Services Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: A. SVP Transmission & Storage  
 Category-Sub: 1. SVP Transmission & Storage  
 Cost Center: 2200-2594.000 - VICE PRESIDENT OF TRANSMISSION & STORAGE

**Cost Center Allocations (Incurred Costs):**

	2016 Adjusted-Recorded					2017 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	17	29	0	46	0.0	17	29	0	46	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	211	198	0	409	0.9	228	160	0	388	1.0
<b>Total Incurred</b>	<b>228</b>	<b>227</b>	<b>0</b>	<b>455</b>	<b>0.9</b>	<b>245</b>	<b>189</b>	<b>0</b>	<b>434</b>	<b>1.0</b>
<b>% Allocation</b>										
Retained	50.00%	50.00%				50.00%	50.00%			
SEU	50.00%	50.00%				50.00%	50.00%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

	2018 Adjusted-Forecast					2019 Adjusted-Forecast				
	Labor	Non-Labor	NSE	Total	FTE	Labor	Non-Labor	NSE	Total	FTE
Directly Retained	17	29	0	46	0.0	17	29	0	46	0.0
Directly Allocated	0	0	0	0	0.0	0	0	0	0	0.0
Subj. To % Alloc.	228	160	0	388	1.0	228	160	0	388	1.0
<b>Total Incurred</b>	<b>245</b>	<b>189</b>	<b>0</b>	<b>434</b>	<b>1.0</b>	<b>245</b>	<b>189</b>	<b>0</b>	<b>434</b>	<b>1.0</b>
<b>% Allocation</b>										
Retained	50.00%	50.00%				50.00%	50.00%			
SEU	50.00%	50.00%				50.00%	50.00%			
CORP	0.00%	0.00%				0.00%	0.00%			
Unreg	0.00%	0.00%				0.00%	0.00%			

**Cost Center Allocation Percentage Drivers/Methodology:**

**Cost Center Allocation Percentage for 2016**

Coming soon...

**Cost Center Allocation Percentage for 2017**

Coming soon...

**Cost Center Allocation Percentage for 2018**

Coming soon...

**Cost Center Allocation Percentage for 2019**

Coming soon...

Note: Totals may include rounding differences.

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Shared Services Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: A. SVP Transmission & Storage  
 Category-Sub: 1. SVP Transmission & Storage  
 Cost Center: 2200-2594.000 - VICE PRESIDENT OF TRANSMISSION & STORAGE

**Summary of Adjustments to Forecast:**

In 2016 \$(000) Incurred Costs										
Forecast Method		Base Forecast			Forecast Adjustments			Adjusted-Forecast		
Years		2017	2018	2019	2017	2018	2019	2017	2018	2019
Labor	Base YR Rec	228	228	228	17	17	17	245	245	245
Non-Labor	Base YR Rec	226	226	226	-38	-38	-38	188	188	188
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>455</b>	<b>455</b>	<b>455</b>	<b>-21</b>	<b>-21</b>	<b>-21</b>	<b>434</b>	<b>434</b>	<b>434</b>
FTE	Base YR Rec	0.9	0.9	0.9	0.1	0.1	0.1	1.0	1.0	1.0

**Forecast Adjustment Details:**

Year	Adj Group	Labor	NLbr	NSE	Total	FTE	Adj Type	RefID	
2017	Other	17	-38	0	-21	0.1	1-Sided Adj	TP1LFH20170310131649927	
<b>Explanation:</b>		True-up Base Year costs to account for mid-year start-up in 2016							
<b>2017 Total</b>		<b>17</b>	<b>-38</b>	<b>0</b>	<b>-21</b>	<b>0.1</b>			
2018	Other	17	-38	0	-21	0.1	1-Sided Adj	TP1LFH20170310170042343	
<b>Explanation:</b>		True-up Base Year costs to account for mid-year start-up in 2016							
<b>2018 Total</b>		<b>17</b>	<b>-38</b>	<b>0</b>	<b>-21</b>	<b>0.1</b>			
2019	Other	17	-38	0	-21	0.1	1-Sided Adj	TP1LFH20170310170118890	
<b>Explanation:</b>		True-up Base Year costs to account for mid-year start-up in 2016							
<b>2019 Total</b>		<b>17</b>	<b>-38</b>	<b>0</b>	<b>-21</b>	<b>0.1</b>			

Note: Totals may include rounding differences.

Southern California Gas Company  
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Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: A. SVP Transmission & Storage  
 Category-Sub: 1. SVP Transmission & Storage  
 Cost Center: 2200-2594.000 - VICE PRESIDENT OF TRANSMISSION & STORAGE

**Determination of Adjusted-Recorded (Incurred Costs):**

	2012 (\$000)	2013 (\$000)	2014 (\$000)	2015 (\$000)	2016 (\$000)
<b>Recorded (Nominal \$)*</b>					
Labor	0	0	0	0	196
Non-Labor	0	0	0	0	250
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>446</b>
FTE	0.0	0.0	0.0	0.0	0.7
<b>Adjustments (Nominal \$) **</b>					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	-24
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-24</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Nominal \$)</b>					
Labor	0	0	0	0	196
Non-Labor	0	0	0	0	226
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>422</b>
FTE	0.0	0.0	0.0	0.0	0.7
<b>Vacation &amp; Sick (Nominal \$)</b>					
Labor	0	0	0	0	32
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>32</b>
FTE	0.0	0.0	0.0	0.0	0.1
<b>Escalation to 2016\$</b>					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
FTE	0.0	0.0	0.0	0.0	0.0
<b>Recorded-Adjusted (Constant 2016\$)</b>					
Labor	0	0	0	0	228
Non-Labor	0	0	0	0	226
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>455</b>
FTE	0.0	0.0	0.0	0.0	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.

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Shared Services Workpapers

Area: UNDERGROUND STORAGE  
 Witness: Neil P. Navin  
 Category: A. SVP Transmission & Storage  
 Category-Sub: 1. SVP Transmission & Storage  
 Cost Center: 2200-2594.000 - VICE PRESIDENT OF TRANSMISSION & STORAGE

**Summary of Adjustments to Recorded:**

In Nominal \$ (000) Incurred Costs					
Years	2012	2013	2014	2015	2016
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	-24
NSE	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-24</b>
FTE	0.0	0.0	0.0	0.0	0.0

**Detail of Adjustments to Recorded:**

Year	Adj Group	Labor	NLbr	NSE	FTE	Adj Type	RefID
<b>2012 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2013 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2014 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
<b>2015 Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>		
2016	Aliso	0	-3	0	0.0	1-Sided Adj	TP1LFH20170216162854970
<b>Explanation:</b> Aliso Canyon - remove costs related to SS25/RCA							
2016	Other	0	-21	0	0.0	CCTR Transf From 2200-2564.000	TPRER20170222112605817
<b>Explanation:</b> Tsfr credit from 2HR001 2200-2564 FG9210002200 Growth Int. to 2200-2594 Storage. - NL Recruiting.							
<b>2016 Total</b>		<b>0</b>	<b>-24</b>	<b>0</b>	<b>0.0</b>		

*Note: Totals may include rounding differences.*

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2019 GRC - REVISED  
Non-Shared Service Workpapers

Area: UNDERGROUND STORAGE  
Witness: Neil P. Navin

**Appendix A: List of Non-Shared Cost Centers**

<b>Cost Center</b>	<b>Sub</b>	<b>Description</b>
2200-0278	000	STORAGE OPERATIONS DIRECTOR
2200-0279	000	STORAGE ENGINEERING
2200-0285	000	STORAGE PLAYA DEL REY
2200-0286	000	STORAGE MONTEBELLO
2200-0288	000	STORAGE TECHNICAL SERVICES
2200-0289	000	STORAGE LA GOLETA
2200-0290	000	STORAGE HONOR RANCHO
2200-0294	000	ALISO STORAGE OPS MANAGER
2200-0295	000	ALISO STORAGE STATION OPERATIONS
2200-0296	000	ALISO STATION MAINTENANCE
2200-0297	000	ALISO STORAGE AND FIELD MAINTENANCE
2200-0298	000	ALISO ENVIRONMENTAL O&M
2200-0299	000	ALISO FIELD MAINTENANCE OIL PRODUCTION
2200-2106	000	STORAGE EAST WHITTIER
2200-2393	000	ALISO CANYON TURBINE REPLACEMENT
2200-2477	000	SOCALGAS UNDERGROUND STORAGE
2200-2535	000	STORAGE OPERATIONS SUPPORT
2200-2536	000	STORAGE ASSET DEVELOPMENT
2200-2585	000	STORAGE INTEGRITY MANAGEMENT PROGRAM
2200-2595	000	STORAGE RISK MANAGEMENT DIRECTOR
2200-2600	000	STORAGE ABOVE GROUND LATERALS
2200-2601	000	STORAGE RISK ASSESSMENT & CONTROLS
2200-2602	000	STORAGE FACILITIES MANAGEMENT
2200-2603	000	STORAGE DATA MANAGEMENT
2200-2604	000	DIRECTOR OF UNDERGROUND STORAGE
2200-2608	000	STORAGE DRILLING