TURN DATA REQUEST
TURN-SCG-DR-07
SOCALGAS 2016 GRC – A.14-11-004
SOCALGAS RESPONSE
DATE RECEIVED: MARCH 20, 2015
DATE RESPONDED: APRIL 3, 2015

1. At SCG-08, page MTM-17, the utility states, "Each year, SoCalGas targets 55 miles of replacement above and beyond routine replacements in accordance with DIMP regulations." In the workpapers for 08-CWP, p. 32 of 40, the utility provides a "Forecast Adjustment Detail" for $30 million that states, "Revising forecast to add $30M DIMP DREAMS. Increasing the amount of miles to around 55 miles per year replacement of non state of the art pipe." At pages 38-39 of the same workpapers, SoCalGas presents a "Forecast Methodology" that includes the average yearly replacement of about 55 miles.
    a. Is SoCalGas's forecast of replacing 55 miles of pipe per year determined based on the number of "planners dedicated to the DREAMS replacement project"?
    b. If the response to the previous subpart is anything other than an unqualified affirmative, please explain in detail the basis SoCalGas used to determine that 550 miles of pipe over ten years was the appropriate forecast for pipe replacements under the DREAMS program.
    c. Please describe in detail the basis for determining that this replacement rate achieves the appropriate level of investment for system safety. Please also provide all documents and analyses (whether prepared by SoCalGas or prepared by a third party and provided to SoCalGas).

SoCalGas Response 1:

a. The number of planners dedicated to the DREAMS replacement projects was not the primary factor for the forecast of 55 miles of replacement but it was accounted for.

b. The failure mode for steel pipe and plastic pipe are different therefore the algorithms are different as well. Steel pipes have pending leaks whereas plastic pipe does not. The results of the steel and plastic algorithms are not meant to be compared. As a starting point to establishing a 10 year plan of top priority pipe segments to replace, the listing encompassed segments with 1 or more pending leak for steel with a risk score of 75 or greater and 5 or more repaired leaks for plastic segments with a risk score of 45 or greater. Together these segments make up approximately 550 miles.

c. The relative risk scores generated by DREAMS are not a quantification of the total risk on the system, or a determinant for "appropriate level of investment for system safety." The DREAMS algorithm is heavily weighted on pipe performance (history of pending leaks and repaired leaks). Given the available data, the algorithm is only capable of calculating a relative risk score. As such, the results are used to prioritize replacement jobs. The relative risk score is not meant to quantify the total risk on the system. The algorithm is run annually with data that has been updated during the year via routine work and the priority list is refreshed allowing for work to be focused on poor performing, high priority pipe segments.

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2. In the workpapers for SCG-08-CWP, p. 32 of 40, the utility provides "Forecast Adjustment Details" for 2014 of negative $21 million, for 2015 of negative $11 million and adding $30 million for 2016. The explanation for 2014 and 2015 is "Revising forecast to reflect long period to ramp up DREAMS activity", and the explanation for 2016 is "Revising forecast to add $30M DIMP DREAMS. Increasing the amount of miles to around 55 miles per year replacement of non-state of the art pipe."
    a. Please identify and explain the reasons for the adjustments reducing DREAMS expenditures for 2014 and 2015 shown on this workpaper, including but not limited to a discussion of any difficulty experienced in "ramping up" from the 2012 GRC forecast of 45.3 miles replaced in 2012 (as shown in 2012 GRC, Exh. 5-CWP, p. 81).
    b. Please provide the number of miles of gas main replaced under the DREAMS Program in each year from 2011 through current efforts in 2015, with annual labor cost, non-labor cost .and total cost, broken out by steel pipe and plastic pipe.

SoCalGas Response 2:

a) With the numerous company employees including planners, administrators, supervisors and contractors that were needed to complete the DREAMS work, the process to ramp-up took longer than anticipated. Once employees and contractors are in place, individuals must be trained on both the program and the tools and equipment needed to perform their tasks. This process is anticipated to take 2014 and 2015 to ramp the program to replacing 55 miles per year in 2016 as reflected in the incremental mileage.

b)

Breakout of labor, non-labor and total costs can be found in Exhibit SCG-08-CWP pg 30-34. Records for these costs are such that a breakout between steel and plastic is not readily available.

Year	Steel (Pre-1986)	Plastic (Pre-1960)	Total
2015	11 miles	6 miles	17 miles
2014	5.3 miles	1.5 miles	6.8 miles
2013	1 mile	-	1 mile
2012	-	-	0 miles
2011	-	-	0 miles

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3. At pages 38-39 of the same workpapers, SoCalGas presents a "Forecast Methodology" that includes a reference to "historic data" that was used to develop the average cost of replacement per foot for both steel and plastic of $225.
    a. Please provide the historical data that were used to develop the $225 average cost of replacement, broken out by year and by material (steel vs. plastic).
    b. Please explain in detail what has changed the per-foot cost of replacement since the forecast cost of $119/Ln ft. of Main replacement used in SoCalGas' 2012 GRC, exh. 5-CWP p. 81.

SoCalGas Response 3:

a) Similar replacement jobs were compared for 2012 and 2013. The result was that a total of 179,743 feet of main was replaced at a total cost of $40,358,517. This equates to $225 per foot. Since all the pipe is being replaced with plastic, there is no steel vs. plastic break-out of costs.

Main Replacement	2012	2013	Total
Total Length (feet)	127,761	51,982	179,743
Total Cost	28,419,551	11,938,967	$40,358,518
Avg. Cost per feet			$225

b) The data for Main replacement used in SoCalGas' 2012 GRC, Exh. 5-CWP p.81 was derived using average cost of recorded data from 2005 to 2009.

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4. In the workpapers for SCG-08-CWP, p. 38 of 40, the utility states, "Since the ratio of the steel population is twice as large as the plastic population the replacement ratio is 2:1."
   a. Please explain whether the ratio of steel population to plastic population reflects the mileage of each population, the investment in each population, or some other factor.
   b. Please explain in detail the basis for determining that twice as much unprotected steel pipe as vintage plastic pipe should be replaced in each year.
   c. For each of year from 2005-14, inclusive, for replacements that occurred outside of the DREAMS Program please state the footage of unprotected steel pipe replaced each year, and the footage of vintage plastic pipe replaced each year, and the recorded costs for each category in each year.

SoCalGas Response 4:

a) The ratio referred in SCG-08-CWP, p. 38 of 40 is the ratio of leaks on non-state of the art steel to non-state of the art plastic. There are twice as many leaks on non-state of the art steel then non-state of the art plastic. The population of steel pipe and plastic pipe are about the same. The quote in capital workpapers should be clarified to read "Since the ratio of the steel leak population is twice as large as the plastic leak population the replacement ratio is 2:1."

b) Since there are twice as many leaks on non-state of the art steel then non-state of the art plastic, DREAMS will replace twice as many non-state of the art steel then non-state of the art plastic.

c)

Period	Steel	Plastic	Total
Jan 2014 – Dec 2014	107miles	32miles	139 miles

Note: historical mileage data for years 2005 to 2013 are not readily available, and as such, year-to-date 2014 mileage data is being provided which includes abandonments and replacements of vintage plastic and steel services and mains. y.

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5. In the workpapers for SCG-08-CWP, p. 39 of 40, the utility uses the terms "pending leaks per segment" and "total leaks per segment." Please provide a detailed explanation of the terms "pending leaks per segment" and "total leaks per segment" as used in the workpapers, including but not limited to highlighting and explaining any differences between the two terms.

SoCalGas Response 5:

Pending leaks per segment are the non-hazardous leaks that have not been repaired yet. Total leaks per segment is the sum of all leaks, hazardous and non-hazardous, repaired and yet to be repaired leaks.

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6. Please provide a clear explanation of how SoCalGas determines what non-state of the art pipe segments to replace in a given year, including but not limited to a clear delineation of the role of the criteria used in the DREAMS risk ranking algorithm and the risk rankings the model provides, the role of "pending leaks" and "total leaks" per segment, and the characteristics monitored in "monitoring system performance". Please use a flow chart if it helps explain the response.

SoCalGas Response 6:

The DREAMS is a pipe replacement program within DIMP. The relative risk score calculated by DREAMS is used for prioritization of the pipe replacements only. All non-state of the art pipe is analyzed and assigned a relative risk score using the DREAMS algorithm annually. As stated in the Direct Testimony of Maria Martinez, Exh.-08,p. 16-17, the DREAMS algorithm takes into account leakage history, vintage and pipe material among other variable to calculate a relative risk score for each pipeline segment. Pending leaks and total leaks are factored into the calculation. As stated in response to question 1c, the DREAMS algorithm is heavily weighted to pipe performance. This list of replacements is updated annually when the algorithm is run with new data that has been collected through routine work.

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7. Please discuss SoCalGas's risk ranking algorithm mentioned in the workpapers for SCG-08-CWP, p. 38 of 40, including:
    a. Explain how "risk" is defined and measured for SoCalGas's system,
    b. Identify and describe each criterion used to determine the risk a pipeline segment poses,
    c. the range of values for each criterion and the coefficient assigned it in the risk model.
    d. the marginal segment risk of unprotected steel pipe at the end of 2013, and the marginal segment risk of plastic pipe at the end of 2013.
    e. the marginal segment risk that SoCalGas is using in 2014 to select steel pipe for replacement, and to select plastic pipe for replacement.
    f. The forecast marginal segment risk of unprotected steel pipe at the beginning of 2016, and the forecast marginal segment risk of plastic pipe at the beginning of 2016.

SoCalGas Response 7:

a. As stated in CFR 192.1007 c, "An operator must evaluate the risks with its distribution pipeline". This risk evaluation is conducted as part of the Distribution Integrity Management Plan (DIMP). The DREAMS is a pipe replacement program within DIMP. The relative risk score calculated by DREAMS is used for prioritization of the pipe replacements only. Risk is defined as the likelihood of failure times the consequence of failure.

b. See chart below:

Plastic Algorithm - Probability	
Attribute	**Description**
Historical Failure Trend	Historical Failure Trend factor is a function of the leak rate and the failure type. Failure types include axial failures, rocky soil, and compaction among others
Material Factor	The Material Factor takes into account the vintage of the pipe and the plastic type used for installation.
Construction Factor	The Construction Factor takes into account the soil type and method of installation to show the performance of the pipe segment in different environments and using different installation methods.
Length Normalization Factor	number of leaks per 100 feet of segment length
Steel Algorithm - Probability	
Pipe Age Factor	Pipe Age factor is a function of the pipe install year with respect to the current year, pipe wrap (external pipe coating) constant, and the number of integrity relevant leaks present on the segment.
Pipe Wrap Factor	Condition of the pipe wrap at the time of the leak repair.

Response to Question 7 (Continued)

Leakage Factor	The Leakage Factor is a function of the leak year with respect to the current year, condition of the pipe, condition of the Cathodic Protection (CP) on the pipe and the number of integrity relevant leaks.
Pipe Condition Factor	This factor looks at the amount of rust and pitting on the pipe and the condition of the wrap.
Cathodic Protection Factor	The CP factor is a depiction of the presence of cathodic protection on the pipeline.
Consequence	
Line Pressure	Pressure the line is operating at.
Proximity to structures	Proximity to structures are estimated with the assumption that all leaks on above ground MSAs are the closest to structure while leaks on services are medium distance, and leaks on mains are further away. This is based on the fact that, with a few exceptions, MSAs tend to be set up close to the house line and near the structure while services approach the structure as they connect the main to the MSA, and mains are typically found in the streets away from the structure.
Population Density	The Population Density is obtained by looking at county zoning plots.
Pipe Diameter	The consequences of failure on large diameter pipe tend to be higher versus smaller diameter pipes. The pipe sizes are grouped by service, main, high pressure transmission.
Number of Leaks and Common Leak Code	For every segment the number integrity relevant of leaks are counted along with their associated leak codes. The leak code with the highest number of leaks is then determined and used for this factor.
PHMSA Serious Injury Factor	The Pipeline and Hazardous Material Safety Administration (PHMSA) publishes the total number of leaks by cause in Gas Distribution industry wide. One of the published reports is the Serious Incidents and contained in this report is the number of fatalities by cause in the previous 20 years. The percentage for Corrosion, 3.85%, is used for the steel evaluation model while percentage for material defects, 2.45%, is used for the plastic evaluation model.

c. DREAMS is a relative risk ranking calculation. Therefore all factors are on a scale of 10, with a score of 10 contributing the highest risk and 0 contributing no risk.
d. Through continual improvement changes are made to the DREAMS algorithm. Therefore, the relative risk scores calculated from one year cannot be compared to another year. The results from 2013 are not comparable to the results from 2014. The marginal risk for steel for 2013 is 239 and the marginal risk for plastic is 73.
e. The marginal risk for steel for 2014 is 40,724 and the marginal risk for plastic is 41.
f. The DREAMS algorithm has not been run for 2016.

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8. SoCalGas's response to TURN-DR-SEU 3-4f.ii. states that SoCalGas is monitoring systems performance rather than setting a threshold for "high-risk" in targeting pipe replacement.
    a. Please explain how the "systems performance" characteristics SoCalGas is monitoring are weighted in determining what segments of pipe SoCalGas replaces.
    b. Please explain how the replacement decisions based on "systems performance" would differ from replacement decisions made with a focus on "high risk", as developed through DREAMS.

SoCalGas Response 8:

a. See questions 1c which describes system performance, 7b, and 7c where the DREAMS algorithm attributes and weight factors are described.
b. By focusing on system performance, DREAMS is looking at high priority pipe segments on the system.

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9. Regarding the GIPP, as presented in SoCalGas Exh. 08-CWP, p. 40,
   a. Please explain in detail the term "Standard Mitigation" and the term "Non-Standard Mitigation" and the differences between the two.
   b. Please explain in detail the term "FSR Vault Mitigation"
   c. Please identify and explain in detail each reason for the increase of non-standard mitigations between 2014 and 2016, and provide any documents and analysis supporting the growth in the number of non-standard mitigation projects.
   d. Please explain the difference in number of non-standard mitigations in each year displayed in Exh. 08-CWP p. 40 and displayed in Exh. 08-WP p.32.
   e. The testimony on Exh. 08-WP, p.31 states, regarding GIPP costs, "Average costs were used for the various O&M tasks of site inspections, Non Standard Mitigation, and FSR Vault Mitigation. Please provide historical labor and non-labor costs of GIPP site inspections, non-standard mitigation and FSR Vault Mitigation, by year, from 2009 through 2013.

SoCalGas Response 9:

a. Standard Mitigation is limited protective posts (bollards) and/or meter guards to protect aboveground facilities. The assessed facility is at risk from low speed vehicle impact due to close proximity of parking, driveways or alleys.

Non-Standard Mitigation is the term used to describe sites that require abandonment, alteration, relocation, custom solution/protection or any combination of these. These assessed facilities are at risk from higher speed traffic and are in close proximity to roads and intersections.

The differences between Standard and Non-Standard mitigation sites can be thought of as sites at risk from low speed vs high speed vehicle impact.

b. FSR Vault Mitigation is a specific type of Non-Standard Mitigation, where high pressure aboveground facilities with First Stage Regulator assemblies (FSR) are altered and relocated into a vault below ground, thereby reducing risk of vehicle impact.

c. The initial project focus is to complete the initial inspections of facilities as such inspection activities have outpaced construction activities for non-standard mitigations. Therefore the accumulating pending sites has increased incrementally year after year.

d. Exh. 08-CWP p. 40 is Capital and Exh. 08-WP p.32 is O&M. The number of non-standard mitigations in each year differed in the two tables because they were percentages based on cost breakdown between the two budget categories, which calculated out to be roughly 40% O&M and 60% Capital. These percentages were then applied to the total number of sites worked to arrive at the posted numbers in the tables provided.

Response to Question 9 (Continued)

e) Historically the remediation cost for standard and non-standard work was charged to the same account and cannot be easily distinguished. In 2014 the cost tracking was enhanced allowing for the cost to be differentiated.

Forecast Methodology

	(A)	(B)	(C=) B/A
SoCal Gas	Completed (Proj Total thru March 2014)	Total Cost (Proj Total thru March 2014)	Average Cost
Site Inspections (NL) O&M	321,292	$2,624,956	$8
Std Mitigation (NL) Capital	11,957	$8,898,997	$744
Non Std Mitigation (NL) Both O&M / Capital (40%/60%)	161	$1,014,686	$6,302
FSR Vault Mitigation (NL) Both O&M / Capital (50%/50%)	920	$5,520,000	$6,000

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10. In SoCalGas's response to TURN-DR-SEU 3-4e, SoCalGas states that since 2013 it evaluates the entire population of NSOTA main segments.
    a. Is this evaluation of the entire population performed annually? If not, please state how often on average this evaluation takes place for a NSOTA main segment.
    b. Please describe in detail how the evaluation of the NSOTA main segments is conducted.
    c. Please identify with specificity the information on pipe segments that is updated in the evaluation.

SoCalGas Response 10:

a. Yes
b. See questions 7b and 7c which describes the DREAMS algorithm attributes and the weight factors. The DREAMS algorithm is run on all distribution pipelines (all of question or a certain section)
c. Data for pipe segments as well as leaks is collected throughout the year through routine work. Once a year the DREAMS algorithm is run on the entire population of pipes and the segments are relatively ranked based on the risk score that is calculated.

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11. Regarding Aldyl-A Gas Main and Services,
    a. Please provide the number of feet of Aldyl-A pipe in SoCalGas's distribution main system.
    b. Please provide the number of services containing Aldyl-A pipe on SoCalGas's system.
    c. Please provide SoCalGas's forecast removal schedule for Aldyl-A main segments,
    d. Please provide SoCalGas's forecast removal schedule for services containing Aldyl-A pipe.
    e. Please provide all analysis conducted or contracted by SoCalGas to determine priorities for replacing Aldyl-A main, service lines or fittings.
    f. Please provide any analysis conducted or contracted by SoCalGas related to risk from Aldyl-A pipe fittings, and any SoCalGas initiative to mitigate these risks.
    g. Is removal of Aldyl-A pipe included in SoCalGas's DIMP forecast of 55 miles of pipe replaced per year?

SoCalGas Response 11:

    a. Using the assumption that pre-1986 installed plastic pipe is Aldyl-A, the total amount of Aldyl-A main is approximately 49,853,760 Feet.
    b. Approximately 64,215,810 Feet (12,162 miles).
    c. Based on the projected replacement rates of 55 miles for DREAMS, 18 miles will be for Aldyl-A.
    d. Services will be replaced along with the mains.
    e. See questions 7b and 7c which describes the DREAMS algorithm attributes and the weight factors. The DREAMS algorithm is run on all distribution piplines .
    f. SoCalGas has not conducted or contracted a risk analysis for Aldyl-A pipe fittings however pipe fittings are replaced in association with non-state-of-the-art plastic mains.
    g. Yes, see Question 8c.

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12. Regarding pre-1940 steel main and services, please provide any data and analyses developed or contracted by SoCalGas to determine the relative risk posed by pre-1940 steel main and services, and describe in detail all SoCalGas initiatives to mitigate these risks dating from 2009.

SoCalGas Response 12:

See questions 7b and 7c which describes the DREAMS algorithm attributes and the weight factors. The DREAMS algorithm is run on all distribution pipelines.

Services are replaced as the mains are replaced.

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13. Regarding SoCalGas's response to TURN SCG-DR-02-4:
    a. Please provide a narrative explanation of the "gas leak backlog" as that term is used in SoCalGas's testimony
    b. Please explain why for most of the locations and codes the backlog is growing over the period from 2010 or 2011 through 2013, as shown in the response.
    c. Please provide the number of main gas leaks found by grade and by year, from 2009 through 2013.

SoCalGas Response 13:

a. Please refer to the response provided in ORA-SCG-DR-004-DAO[1], Question 3.d.i.:

i. As it was used in page 51 of Exhibit SCG-04-WP, "backlog" refers to the pending leaks at the end of the year 2013. The total leakage backlog used in calculations was taken from number of known system leaks at the end of the year 2013 scheduled for repair, as reported in the DOT Annual Report for Calendar Year 2013 – Gas Distribution System.

Gas Distribution follows the requirements provided in the company Gas Standards, which are consistent with operational laws, codes, and standards established by local, state, and federal authorities. Based on these requirements, some types of leaks do not require immediate repair, and can be monitored. These leaks make up the backlog. Please refer to the CONFIDENTIAL Gas Standard provided below in response to 3.d.v.

RESPONSE REMOVED DUE TO CONFIDENTIALITY

[1] Separately provided as ORA-SCG-DR-004-DAO.pdf.

SoCalGas Response to Question 13, Continued:

b. In responding to this question, Gas Distribution discovered an error in the table provided in TURN-SCG-DR-02, Question 4. For the years 2009 and 2010, the numbers provided in the original table corresponded to the number of known system leaks at the end of the year scheduled for repair, as reported in the DOT Gas Distribution system annual report. This is not the same as the total backlogged year-end leaks for those years. In 2009 and 2010, there were additional leaks that were not included in the DOT report, as they were not estimated to be repaired in the upcoming year. This error is corrected in the amended response to TURN-SCG-DR-02, Question 4.

The total number of backlogged year-end leaks, after the correction described above, is shown in the table below. The increase in the number of backlogged leaks across the years is related to an increase in the total number of leaks found in each year, which is also shown in the table.

Year	2009	2010	2011	2012	2013
Total Leaks as of Year End	7,165	6,756	8,772	8,581	9,427
Total Leaks Identified During the Year	8,808	7,908	11,222	10,405	12,328

Please refer to the table provided in response to Question 13.c. below for additional details on the leaks identified in each year.

c. Please refer to the table provided in response to ORA-SCG-DR-004-DAO[2], Question 3.b.i.:

ORA-SCG-DR-004-DAO, Questions 3.b.i. and 3.c.i.

Year	Main Leaks Identified				Service Leaks Identified				Leaks Identified with Unspecified Location[1]				Total Leaks Identified			
	Code 1	Code 2	Code 3	Total	Code 1	Code 2	Code 3	Total	Code 1	Code 2	Code 3	Total	Code 1	Code 2	Code 3	Total
2009[1]	444	581	500	1,525	3,672	1,335	383	5,390	490	340	1,063	1,893	4,606	2,256	1,946	8,808
2010[1]	619	764	624	2,007	3,885	1,024	330	5,239	328	215	119	662	4,832	2,003	1,073	7,908
2011	846	2,131	2,638	5,615	3,791	906	876	5,573	6	14	14	34	4,643	3,051	3,528	11,222
2012	741	1,833	2,315	4,889	3,583	1,074	856	5,513	2	1	-	3	4,326	2,908	3,171	10,405
2013	724	1,304	3,728	5,756	3,450	1,973	1,148	6,571	1	-	-	1	4,175	3,277	4,876	12,328

1. SoCalGas implemented a new electronic SAP order tracking technology in 2010. The data from the legacy system did not have a location (main or service) specified for all of the identified leaks. For this reason, many of the leaks identified in 2009 and 2010 are listed with an unspecified location in the table above, and can not be broken down by main or service leaks.

[2] Separately provided as ORA-SCG-DR-004-DAO.pdf.

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14. Following up on SoCalGas's response to TURN SCG-DR 5-2.a, regarding remediation of cathodic protection packages:
    a. Please provide annual spending on cathodic protection package remediation to which SoCal refers for each year from 2009 through 2013.
    b. Please provide the number of packages to be remediated, backlogged at the end of each year from 2009 through 2013.
    c. Please explain why, given the importance of records regarding historical maintenance information in assessing gas system safety, SoCalGas has adopted a record keeping system, not immediately compatible with legacy systems, that makes cathodic protection system maintenance and remediation information prior to 2011 unavailable.
    d. Please identify any other DIMP-related activities, for which SoCalGas' new SAP tracking technology makes legacy system data difficult to retrieve and/or analyze.

SoCalGas Response 14:

a. Please refer to the response to ORA-SCG-DR-021-DAO[3], Question 7:

Gas Distribution does not track the costs associated with remediated cathodic protection packages separately, so the O&M and capital costs for this specific activity are not available.

There are other cathodic protection department costs in the account used for cathodic protection package remediation expenses.

b. Please refer to the response to TURN-SCG-DR-05, Question 2.c.:

Please see the requested data for 2010 – 2013 in the table below:

Year	*2010*	*2011*	*2012*	*2013*
Cathodic Protection Packages Requiring Remediation at Year End	*796*	*772*	*1,486*	*1,769*

The year-end number for 2009 is in a legacy system and is not readily accessible. SoCalGas implemented a new electronic SAP tracking technology in 2010.

[3] http://socalgas.com/regulatory/documents/a-14-11-004/response/ORA-SCG-DR-021-DAO_final.pdf.

SoCalGas Response to Question 14, Continued:

c. Most legacy systems and the data elements captured were established 20 to 30 years ago. The first full year of data collected in the new system was 2011. One of the purposes of investing in the new SAP system was to provide additional data points and make the data more readily available. The data that has not been readily available from legacy systems is not necessary for assessing gas system safety.

Recorded data for specific projects, including cathodic protection packages and leak objects is available from legacy systems; however, some of the summaries that have been requested (total projects over a period of time, or total open projects/objects at a specific point in time) are not available without a manual review of all of the projects or work objects in years where that data is stored in legacy systems.

The new SAP systems are actually tracking new elements that were not tracked in legacy systems, so legacy data for those new elements would not be available. One example is a breakdown of the leaks identified by leak location (main or service), as shown in Question 13.c. above.

d. Please note that cathodic protection, as described in Gas Distribution's testimony is separate from the Distribution Integrity Management Program.

As stated in Question 14.c., legacy data on specific projects or objects that were maintained in legacy systems is available; however, some summary reports are not readily available, and would need to be manually calculated.

Without having a request for a specific report, it is difficult to come up with a list of all possible report variations that would not be available from legacy systems. Below is a list of annual / year-end summaries that have been requested in this GRC that are not readily available for data tracked in legacy systems:

- Total number of cathodic protection packages remediated in each year.
- Total number of cathodic protection packages that required remediation in each year.
- Cathodic protection packages requiring remediation at year-end.
- Breakdown by leak code of the number of known system leaks at the end of the year scheduled for repair, as reported in the DOT Gas Distribution system annual report.

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15. Following up SoCalGas's response to ORA 21-7.c. and d.
    a. When SoCalGas states that "it would take some time to ramp up activities to address the backlog" of cathodic protection packages requiring remediation, what is the utility's best forecast of how many years it would take to achieve such "ramp up" and address the backlog? Please provide the supporting calculations for that forecast.
    b. When did SoCalGas first become aware that a backlog of cathodic protection packages requiring remediation was developing?
    c. Please describe the steps to address that backlog that SoCalGas has taken since first becoming aware of the backlog, including but not limited to the year in which each step was initiated.

SoCalGas Response 15:

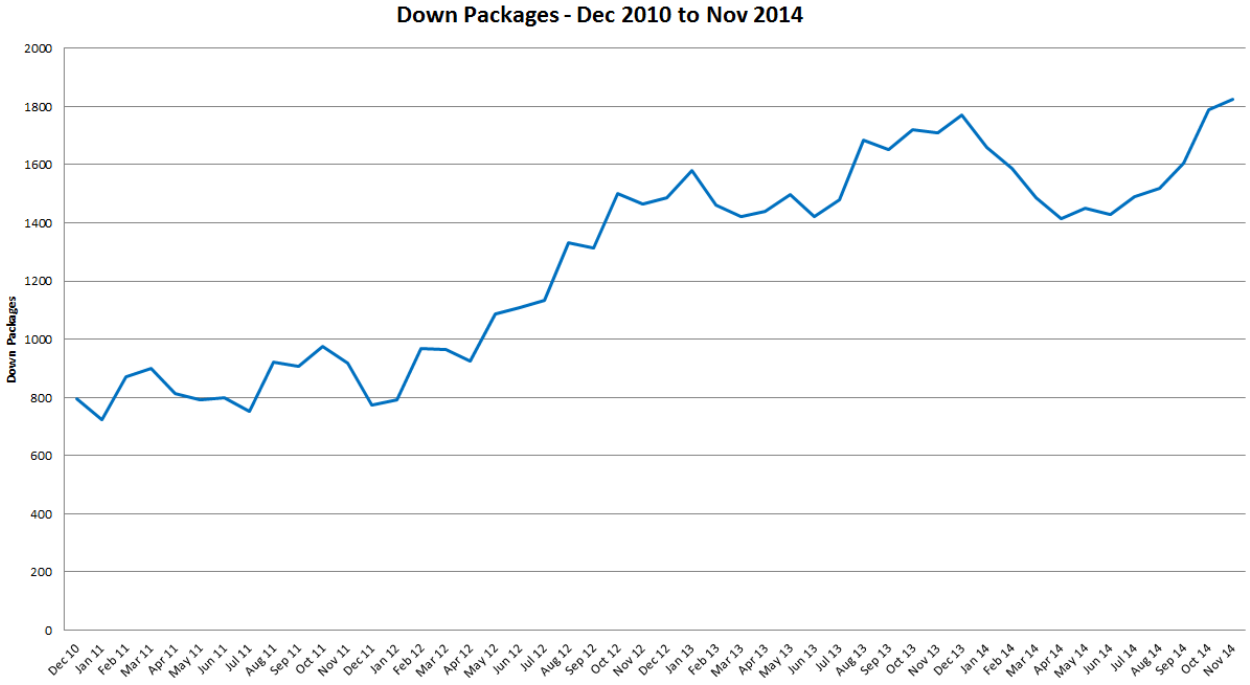
a. Gas Distribution's forecast assumed that the Cathodic Protection backlog that existed at the end of 2013 would be addressed by the end of the year 2016. The calculations to address this backlog are included in Gas Distribution's O&M and capital workpapers:

Exhibit SCG-04-WP, page 40, Supplemental Workpaper SCG-FBA-O&M-SUP-004
Exhibit SCG-04-CWP-R, page 116, Supplemental Workpaper SCG-FBA-CAP-SUP-005

Please note that once the existing backlog is addressed, incremental funding will still be required in order to keep the backlog from growing again.

SoCalGas Response to Question 15, Continued:

b. In May of 2012, Gas Distribution noticed that the number of cathodic protection packages needing remediation was growing at an increasing rate. This can be seen in the chart provided in ORA-SCG-DR-021-DAO[4], Question 2.c.



[4] http://socalgas.com/regulatory/documents/a-14-11-004/response/ORA-SCG-DR-021-DAO_final.pdf.

SoCalGas Response to Question 15, Continued:

c. In 2013, Gas Distribution took the following steps to start addressing the growing cathodic protection backlog:
   - Shifted resources between regions to support areas where the backlog was greater.
   - Solicited subject matter expert support from other departments (Gas Engineering, Gas Operations Support, and Pipeline Integrity) to provide technical support.
   - Developed a capital and O&M forecast associated with an approach to remediate the cathodic protection backlog. The workpaper locations for this forecast are provided in response to Question 15.a.
   - Hired a Project Manager, Technical Specialist, and Lead System Protection Specialist to help with the backlog. Details on changes in the Cathodic Protection workforce can be found in the response to ORA-SCG-DR-015-DAO[5], Question 7:

   Please see the table below for the employees assigned to Cathodic Protection. The first four employee classifications are System Protection management employees, who would be responsible for program management.

Employee Classification	*2009*	*2010*	*2011*	*2012*	*2013*
System Protection Supervisor	*3*	*4*	*4*	*3*	*4*
Technical Specialist – I	*4*	*8*	*6*	*6*	*7*
Technical Specialist - Corrosion	*1*				
Project Manager - System Protection					*1*
Lead System Protection Specialist	*10*	*9*	*10*	*10*	*11*
System Protection Planner	*2*	*1*	*1*	*2*	*1*
System Protection Specialist	*59*	*56*	*58*	*60*	*59*
System Protection Tech	*1*	*1*			
Total	*80*	*79*	*79*	*81*	*83*

In 2014, SoCalGas ramped up O&M and capital activities to start addressing the backlog. These activities are described in Exhibit SCG-04-R. The O&M work is described on pages FBA-29 – FBA-30 and the capital work is described on pages FBA-112 – FBA-113.

[5] http://socalgas.com/regulatory/documents/a-14-11-004/response/ORA-SCG-DR-015-DAO%20final.pdf.

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16. Following up on SoCalGas's response to TURN SEU-03-5.b:
    a. Please identify and describe in detail the new technology that SoCalGas is using to canvas areas of non-state of the art main segments.
    b. Please describe in general terms the area covered by the new technology in 2013, and provide SoCalGas's best estimate of the approximate footage of main segments present in the area covered in 2013.
    c. Does use of this new technology make continuation of other leak survey efforts unnecessary on these segments? Please explain your answer.
    d. Please explain in detail how SoCalGas's data and database software permit the utility to match the areas surveyed with new technology with the underlying pipeline segments in order to know whether a particular segment has subjected to the new technology. Please be sure the response explains in full how SoCalGas can demonstrate which non-state-of-the-art footage it has or has not surveyed with the new technology.
    e. Please provide the leak find rate found with the new technology, and the related leak find rates of NSOA pipelines with traditional survey methods, and discuss the results by type of pipeline material.

SoCalGas Response 16:

    a. The PICARRO Surveyor™ is a mobile system for modeling atmospheric methane levels with detection sensitivity in the range of 1-2 parts per billion. The PICARRO Surveyor™ has the ability to provide real-time data onto a web-based geographic imagery. PICARRO however is not being used for "Leak Survey" or "leak detection" but rather as pre-assessment tool of areas to be leak surveyed to aid routine walking leak surveyors in providing approximate locations where a system leak might possibly exist.
    b. The covered area focused non-state-of-the-art plastic with approximately 41,000 feet canvased.
    c. This new technology does not replace other leak survey efforts. Since the PICARRO Surveyor™ only detects methane levels all indications must be confirmed by field personal using conventional leak survey technology. Our evaluation of this technology has determined that it is not capable of use as a "leak survey" technology at this time.
    d. SoCalGas as part of its Distribution Integrity Management Program converted its legacy system maps into Geographic Information System (GIS) that allows pipeline characteristics such as non-state-of the-art to be graphically identified. As stated in section "c" the technology is not intended to replace conventionally leak survey methods therefore the non-state-of-the-art pipelines are not dependent on this new technology for leak survey. Canvased areas are tracked using a grid system that can be related to the GIS.
    e. As mentioned in section (a) the PICARRO Surveyor™ is not being used to identify leaks, rather it's used as a pre-assessment screening tool.

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17. Regarding the Transmission Integrity Management Program O&M expenses, Account 2TD000.000 in 2016 GRC Exh. 8-WP, p. 15: in SoCalGas's 2012 GRC, TIMP expenses appear to be reflected in Acct. 2EN001.000 (2012 GRC Exh. WP-05, p. 30). The 2009 spending in that account, of $$17M, shown in the 2016 GRC, as opposed to the spending shown in the 2012 GRC of $11M.
    a. Using the SoCalGas 2012 GRC accounts that correspond with 2016 GRC Account 2TD000.000, please provide annual TIMP expenses, recorded from 2005 through 2009 and forecast through 2012, in 2009 dollars, broken down by labor and non-labor expenditures.
    b. Please list the 2012 GRC accounts that correspond with 2016 GRC TIMP account 2TD000.000.

SoCalGas Response 17:

a. The 2016 GRC amounts for TIMP found in Exh-08 WP pg. 15 are stated in 2013$. Refer to Exh-08-WP pg. 17 to see the amount stated in nominal$. In the 2012 GRC, amounts were broken out into Non-Shared Services and Shared Services. In 2012 GRC Exh-05-WP, pg. 30 reflects the Non-Shared Services for TIMP, the Shared Services are located on 2012 GRC GRC Exh-05-WP, Pg. 219. When the 2012 GRC amounts for Non-Shared and Shared Services are added together the difference shown between 2016 GRC and 2012 GRC for 2009 (in 2009$) is minimal and due to rounding.
b. As mentioned above in 17a) the 2012 GRC amounts were presented into Non-Shared Services and Shared Service and stated in 2009$. The 2016 GRC TIMP account 2TD000.000 is all Non-shared service and stated in 2013$.

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18. Regarding the Distribution Integrity Management Program O&M expenses, 2009 expenditures in Account 2TD000.001 in SoCalGas's 2016 GRC filing, $6.45M, (Exh. 08-WP, p. 23) do not appear to correspond to 2009 DIMP expenditures, $6.57M, in SoCalGas's 2012 GRC DIMP filing for Acct. 2EN002.000 (Exh. 05-WP, p. 40).
    a. Do the costs shown in Account 2EN002.000 correspond with the costs shown in 2016 GRC Account 2TD000.001?
    b. If the expenditures in these accounts do not correspond, please provide annual DIMP expenditures, from 2005 through 2009, in 2009 dollars, corresponding with the expenditures shown in Account 2TD000.001, broken out by labor and non-labor expenditures.
    c. If the expenditures in these accounts do not correspond, please provide the costs forecast in SoCalGas's 2012 GRC, in 2009 dollars, that correspond with the expenditures recorded in SoCalGas's 2016 GRC.

SoCalGas Response 18:

a. As mentioned in response to Q.17 above the 2012 GRC was presented differently than our current 2016 GRC. The 2012 GRC amount in Account 2EN002.002 (Exh-05-WP, pg.40) is for Non-Shared Services stated in 2009$. The 2012 GRC also contained Shared Services located in Exh-05-WP, p.294. The 2016 GRC amounts shown in Exh-08-WP, p.23 are stated in 2013$ classified as Non-Shared Services.
b. See 18a) above.
c. See 18a) above.

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19. Regarding Gas Engineering, Account 2EN000.000, shown in 2012 GRC Exh. 05-WP, p. 3, and 2016 GRC Exh. 07-WP, p. 5,
    a. Please explain the difference in recorded 2009 expenditures, $10,189 in 2009 dollars in the 2012 GRC and $8,674 in 2013 dollars in the 2016 GRC.
    b. If the costs included in this account have changed between the two GRCs, please provide a table, similar to that shown on p. 3 of 2012 GRC Exh. 05-WP, with costs, in 2009 dollars, that correspond to the costs shown for this account in the 2016 GRC.

SoCalGas Response 19:

a. The reason for the differences in 2009 recorded costs between those shown in the 2012 GRC and the 2016 GRC is primarily due to: (1) the re-organizations and transfer of cost center expenditures from Non-Shared Services (NSS) to Utility Shared Services (USS); (2) transferring from one workpaper group to another workpaper group; and (3) the transfer of cost center expenditures from the Gas Engineering witness area to either Gas Distribution, Pipeline Integrity, or Research, Development and Demonstration witness areas as shown below:

Cost Center	Description / Explanation
2200-0303	Transferred from NSS to USS in Gas Engineering witness area
2200-0308	Transferred from NSS to USS in Gas Engineering witness area
2200-0305	Transferred from Gas Engineering witness area to Gas Distribution witness area
2200-0315	Transferred from Gas Engineering workpaper 2EN000 to Gas Engineering workpaper 2EN002.
2200-0317	Transferred from Gas Engineering workpaper 2EN000 to Gas Engineering workpaper 2EN001
2200-2064	Transferred from Gas Engineering to Research, Development and Demonstrations
2200-2065	Transferred from Gas Engineering to Research, Development and Demonstrations
2200-2066	Transferred from Gas Engineering to Research, Development and Demonstrations
2200-2067	Transferred from Gas Engineering to Research, Development and Demonstrations
2200-1177	Transferred from Gas Engineering to Pipeline Integrity
2200-2300	Transferred from NSS to USS in Gas Engineering witness area
2200-0307	Added to Gas Engineering in 2016 GRC

b. See attachment, "TURN-SCG-DR-07_Q19b_Exh 07.PDF" for the tables illustrating the expenditures in the cost centers described above. It has been observed that the calculation from 2013 dollars to 2009 dollars do not have an exact match (below 1%) due to rounding and escalation factors.

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20. Regarding Gas Distribution, 2016 GRC Exhibit 04-WP, Cathodic Protection, Workpaper 2GD003.000, p. 31, the adjusted recorded expenditures for 2009 of $12.36M, do not match the expenditures for this account in 2012 GRC Exh. 02-WP, p. 152 of $7.19M.
    a. Please provide the annual forecast 2010 through 2012 expenditures for accounts that correspond to 2016 workpaper 2GD003.000, broken out by account.
    b. If expenditures shown in 2012 GRC, Exh. 02-WP p. 55 for Workpaper 2GD000.006 are not included in a. above, please explain where these expenditures appear in 2016 GRC documentation.

SoCalGas Response 20:

a. The 2016 GRC workpaper 2GD003.000, Field O&M – Cathodic Protection corresponds to two workpapers used in the 2012 GRC:
    - 2GD000.006, Pipeline O&M – Cathodic Protection Field (under the Field Operations and Maintenance category)
    - 2GD003.000, Cathodic Protection (under the Asset Management category)

    The 2012 GRC forecasts for these two workpapers are shown below. Please note that these forecasts are shown in 2009 dollars.

SoCalGas Response to Question 20.a., Continued:

Category: A. Field Operations & Maintenance
Category-Sub: 4. Cathodic Protection Field
Workpaper: 2GD000.006 - Pipeline O&M-Cathodic Protection Field

Forecast Summary:

In 2009 $(000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
		2010	**2011**	**2012**	**2010**	**2011**	**2012**	**2010**	**2011**	**2012**
Labor	5-YR Average	883	883	883	128	128	128	1,011	1,011	1,011
Non-Labor	5-YR Average	1,219	1,219	1,219	416	563	716	1,635	1,782	1,935
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		2,102	2,102	2,102	544	691	844	2,646	2,793	2,946
FTE	5-YR Average	13.4	13.4	13.4	1.3	1.3	1.3	14.7	14.7	14.7

Category: B. Asset Management
Category-Sub: 2. Cathodic Protection
Workpaper: 2GD003.000 - Cathodic Protection

Forecast Summary:

In 2009 $(000)										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
		2010	**2011**	**2012**	**2010**	**2011**	**2012**	**2010**	**2011**	**2012**
Labor	5-YR Average	4,588	4,588	4,588	0	0	0	4,588	4,588	4,588
Non-Labor	5-YR Average	2,479	2,479	2,479	0	0	0	2,479	2,479	2,479
NSE	5-YR Average	0	0	0	0	0	0	0	0	0
Total		7,067	7,067	7,067	0	0	0	7,067	7,067	7,067
FTE	5-YR Average	64.0	64.0	64.0	0.0	0.0	0.0	64.0	64.0	64.0

b. Please refer to the response to Question 20a.

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21. Regarding Gas Distribution Exhibit 04-WP: Tools, Fittings and Materials. Workpaper 2GD000.005,
    a. Please explain the difference between the 2009 recorded expenditure in 2012 GRC Exh. 2-WP, p. 133, $8.6M, and 2016 GRC Exh. 04-WP p. 73 expenditure of $6.8M for Workpaper 2GD000.005
    b. If the accounts represented by this Workpaper number in 2016 differs from 2012, please provide the annual recorded and forecast expenditures for those accounts shown in the SoCalGas's 2012 GRC application, with account number or other identifier used in SoCalGas's application.

SoCalGas Response 21:

a. Please refer to the table below for the differences between the 2012 GRC and the 2016 GRC for the 2009 recorded-adjusted total for the Field O&M – Tools, Fittings, and Materials workgroup, 2GD000.005.

Field O&M - Tools, Fittings & Materials, 2GD000.005 (Thousands of Dollars)		**2009**
2012 GRC: 2009 Recorded-Adjusted (Constant 2009$)	**$**	**8,620**
Differences in Historical Adjustments (Nominal 2009$):		
2012 GRC: Reverse adjustment to reflect pre-charged fittings as 100% O&M in the 2012 GRC.	$	(2,444)
Differences in Escalation:		
2016 GRC: Escalation to 2013$	$	667
2016 GRC: 2009 Recorded-Adjusted (Constant 2013$)	**$**	**6,843**

The $2.444 million adjustment that is reversed in the table above is an adjustment that was made in the 2012 GRC, but not in the 2016 GRC. This adjustment was made to reflect pre-charged fittings as 100% O&M in the 2012 GRC. In researching this response, we have determined that a similar adjustment in this GRC should have been made but was not. Therefore, the 2009-2013 historical recorded values and the forecast derived from them are understated for this reason. The capital reassignments were then handled through the RO model. The 2009 adjustment made in the 2012 GRC is shown below (page 137 of Exhibit SCG-02-WP in the 2012 GRC):

Year/Expl.	Labor	NLbr	NSE	FTE	Adj_Type	From CCtr	RefID
2009	0	2,444	0	0.0	1-Sided Adj	N/A	TP1MTC2010050 3080447767

Adjustment necessary to reflect charging of precharge fittings as 100% O&M. Capital reassignments will then be handled in the RO model as per usual GRC process.

b. The type of accounts represented in the Field O&M – Tools, Fittings, and Materials workpaper, 2GD000.005 is the same for the 2012 GRC and the 2016 GRC.

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22. Regarding Gas Distribution Exhibit 04-WP: Asset Management, Workpaper 2GD001.000,
    a. Please explain the difference between the 2009 recorded expenditure in 2012 GRC Exh. 2-WP, p. 143 of $6.78M, and 2016 GRC Exh. 04-WP p. 81 expenditure of $5.2M .
    b. If the accounts represented by this Workpaper in 2016 differ from 2012, please provide the annual recorded and forecast expenditures for the accounts in this workpaper in SoCalGas's 2012 application, with account number or other identifier used in SoCalGas's GRC application.

SoCalGas Response 22:

a. Please refer to the table below for the differences between the 2012 GRC and the 2016 GRC for the 2009 recorded-adjusted total for the Asset Management workgroup, 2GD001.000.

Asset Management, 2GD001.000 (Thousands of Dollars)		**2009**
2012 GRC: 2009 Recorded-Adjusted (Constant 2009$)	**$**	**6,777**
Differences in Cost Centers Included in Workgroup 2GD001.000 (Nominal 2009$):		
2012 GRC: Remove Cost Center 2200-2116 from 2GD001.000.	$	(3)
2016 GRC: Add Cost Centers 2200-0484, 2200-0580, 2200-2236, and 2200-2259 to 2GD001.000.	$	343
Differences in Historical Adjustments (Nominal 2009$):		
2012 GRC: Reverse 2012 GRC adjustments that transferred Gas Distribution Environmental costs from other Gas Distribution workgroups into 2GD001.000.	$	(189)
2016 GRC: Transfer Gas Distribution Environmental costs from 2GD001.000 to Environmental Services, to be consistent with future years.	$	(59)
2016 GRC: Transfer Dispatch costs from 2GD001.000 to 2GD000.000, to be consistent with future years.	$	(200)
Differences in Cost Mapping (Nominal 2009$):		
2012 GRC: Remove FERC 880.4 that was mapped from 2GD003.000 to 2GD001.000 in 2012 GRC.	$	(1,523)
2016 GRC: Map FERC 863.770 and 887.770 to Pipeline Integrity.	$	(24)
Differences in Exclusions (Nominal 2009$):		
2016 GRC: Exclude Prior Year Union Retro Pay.	$	(116)
Differences in Vacation & Sick (Nominal 2009$):		
2012 GRC: Remove Vacation & Sick from 2012 GRC.	$	(945)
2016 GRC: Add Vacation & Sick for 2016 GRC.	$	628
Differences in Escalation		
2016 GRC: Escalation to 2013$	$	483
2016 GRC: 2009 Recorded-Adjusted (Constant 2013$)	**$**	**5,172**

SoCalGas Response to Question 22, Continued:

b. Please refer to the table provided in Question 22.a. for the differences in the cost centers represented in the Asset Management workgroup, 2GD001.000 in the 2012 GRC and the 2016 GRC. These differences are related to changes in the way the costs centers were used during the two GRC periods.

The 2009 – 2014 historical totals for these cost centers are shown in the tables below, in thousands of nominal dollars.

Cost Centers in 2GD001.000 in the 2012 GRC, but not the 2016 GRC:

Cost Center	2016 GRC WP	2009	2010	2011	2012	2013	2014
2200-2116	2GD004	3	61	100	61	149	18

Cost Centers in 2GD001.000 in the 2016 GRC, but not the 2012 GRC:

Cost Center	2012 GRC WP	2009	2010	2011	2012	2013	2014
2200-0484	2GD000	127	35	359	375	479	753
2200-0580	2GD000	204	1	462	496	507	571
2200-2236	2GD004	11	1	334	422	521	521
2200-2259	2GD000	2	0	1	694	692	684

Gas Distribution did not generate forecasts at the cost center level for non-shared services, so a breakdown of the forecast by these accounts is not available.