

INDICATED SHIPPER DATA REQUEST
IS-SCG-005
SOCALGAS 2019 GRC – A.17-10-008
SOCALGAS RESPONSE
DATE RECEIVED: MARCH 2, 2018
DATE RESPONDED: MARCH 22, 2018

- 5-1. Please refer to the PSEP supplemental workpaper of SCG witness Richard Phillips, Exhibit No. SCG-15-WP-S, at the pages associated with the Line 235 West Section 1 Pressure Test Project.
- a. Please explain why this project must be completed in the proposed time frame i.e., during the 2019 GRC cycle, rather than spread over a greater number of years, i.e., during future GRC cycles.
 - b. Please explain how the Focus on Reasonable Rates and Continuous Improvement, as described on page 4 of the Application and page 3 of the Direct Testimony of Bret Lane, was considered for this project. Additionally, please provide the revenue requirement impact of this project for each year in the GRC cycle (2019, 2020, 2021, 2022) and all supporting documentation.
 - c. Please explain why the proposed number of individual test sections are required for this project. Is it feasible and reliable to complete this pressure test with fewer test sections? Please provide a detailed narrative explaining the response, and support for those positions.
 - d. Please explain how the number of individual test sections impacts the overall budget of the project. Is the forecast developed based on the specific cost to pressure test each individual section?
 - e. Please provide a detailed breakdown of each of the cost estimate components presented (Materials, Construction, Environmental Survey/Permitting/Monitoring, Land & Right-of-Way Acquisition, Company Labor, and Other Capital Costs) for each year separately, including prior to 2018. For the costs incurred prior to 2018 please identify in what year the cost was incurred. This detailed breakdown should explicitly detail the number of units or hours included in the estimate, as well as cost per unit or cost per hour of each item that is required to arrive at the total labor and non-labor costs associated with this cost estimate component. Further, please provide a detailed explanation of the activity associated with each cost component and why it is required to be included in this cost estimate. For all cost components, any assumptions or additional information identified in the PSEP supplemental workpaper should clearly be shown in the detailed cost estimate breakdown provided in response to this discovery.

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Question 5.1 - Continued

- f. Please provide the split between O&M and Capital for each cost component and explain how that split was determined. Additionally, provide a workpaper showing the calculation of this split.
- g. Please provide the cost model utilized to determine the cost estimates provided in response to part d. above. If available in Excel spreadsheet format, provide with all formulas and links intact.
- h. Please explain the nature of the work conducted for this project prior to 2018. For each item identify the year in which the work was completed.
- i. Provide the unit cost per test head. Please explain why SoCalGas determined the number of test heads identified is required to complete the project. Please explain why more test heads than the number of test sections was deemed necessary to complete this pressure test project. Please explain why these test heads cannot be re-used for multiple test segments.
- j. If not provided in part d. above, please provide a detailed breakdown of the costs associated with the Field Overhead portion of the Construction cost component, the SoCalGas Labor portion of Company Labor cost component, and the SoCalGas Field Labor portion of Company Labor cost component.
- k. Please explain how it was determined that the costs associated with Other Capital Costs are required, as the other cost components have assumptions identified that represent the same services; Engineering, Project Management, Construction Management, and Surveying are included in other cost components. Please provide all supporting workpapers and documentation that were utilized to determine both the need and level cost associated with each item included in Other Capital Costs
- l. Please explain if there are any contingency adders included in these cost estimates. If so, please explain what contingencies are included, what cost components these contingencies are applied to, and why it is required to inflate the cost estimates with contingency adders.
- m. Please explain if any overhead or profit adders are included in these cost estimates. If so, please explain what overhead is included, what cost components these adders are applied to, and why it is required to inflate the cost estimates with overhead and profit adders.
- n. Please explain if there are any additional indirect costs included in these cost estimates not discussed previously.

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- o. Please provide all workpapers from the 2016 RAMP Report associated with this project.
- p. Please identify the exact locations in the 2016 RAMP report that discuss this project.
- q. Is this project mandated by any approved Federal regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- r. Is this project mandated by any approved California regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- s. Is this project mandated by any proposed State or Federal regulations? If so, please identify these proposed regulations and explain how this project makes SoCalGas compliant with these regulations.
- t. Please provide the Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio (as they are defined by the 2016 RAMP report) associated with this project. Additionally, explain how the scores in these metrics led SoCalGas to the decision that the 2019 GRC was the appropriate time to propose this project.
- u. Please explain what Category (1-4) and Class (1-4), as described in the workpaper glossary, this pipeline belongs to.
- v. Please provide the GIS data (a .gpd geodatabase or the individual .shp shape files will suffice, as will .kmz or .kml files) associated with this project and used to display the Project Map for this project.
- w. Please provide the number of buildings intended for human occupancy that exist within 300 feet of the pipeline associated with this project.
- x. Please explain if there are any economies of scale benefits captured for other pipeline pressure test projects associated with the same pipeline. If not, please provide a detailed narrative explaining why benefits associated with economies of scale would not be applicable to other pressure tests conducted on the same pipeline.

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SoCalGas Responses 5.1:

- a. The proposed schedule is consistent with the Commission requirement set forth in D.11-06-017 on page 19 that PSEP be completed “as soon as practicable” and the directives in the Natural Gas Pipeline Safety Act of 2011 that the plan “shall include a timeline for completion that is as soon as practicable” (Pub. Util. Code § 958).
- b. One of the primary objectives of PSEP, is to maximize the cost effectiveness of safety investments for the benefit of customers, as indicated on pages RDP-A-5, RDP-A-15, RDP-A-16, RDP-A-20, RDP-A-21 and RDP-57 of SCG-15. The forecasted costs of are based on project specific estimates that were developed for each pipeline project, based on detailed engineering and project planning analysis.

SoCalGas does not forecast its revenue requirement for individual projects or work activities at the level of detail requested. Page RDP-A-21 of Exhibit SCG-15 describes the process of normalizing the forecasted PSEP O&M expenditures for the test year. The normalized 2019 PSEP O&M expenditures as well as any PSEP capital expenditures projected to be in service by TY 2019 were an input to the overall forecasted TY 2019 SoCalGas revenue requirement.

Beyond 2019, an attrition mechanism is established to escalate revenue requirement throughout the post-test years until a new rate case can be filed and approved. In the case of PSEP, a specific revenue requirement “adder” was included in the Post-Test Year request for the entirety of the PSEP capital forecasts projected to be in-service in the post-test years. Revenue requirement was not forecasted on a PSEP project by project basis. Please see the Direct testimony of Jawaad Malik (Exhibit SCG-44) beginning on page JAM-9 for Post-Test Year Ratemaking. Details for PSEP for 2020-2022 can be found in the PSEP workpapers of Jawaad Malik (Exhibit SCG-44-WP) starting on page SCG-44 WP JAM PSEP-1.

- c. The number of test sections was determined for each pipeline based on its operating characteristics, operating percent Specified Minimum Yield Strength (SMYS) and planned maximum test pressure. This process was used for all the hydrotest projects in the filing. The differences in the number of test sections are due to the unique elevation profile along each pipeline. Engineering judgment is used to plan the projects based on the profile and the conditions stated.

As stated on Page WP-I-A1 of SCG-15-WP-S, the project requires 47 individual test sections to address test pressure limitations due to elevation changes totaling 2,611 feet (4,527 feet at highest elevation and 1,916 feet at lowest elevation). Elevation is a key determining factor for selecting the number of test breaks in any given project.

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SoCalGas Responses 5.1.d:

- d. The number of individual test sections increases the overall budget of a project by increasing the schedule, scope of work, and the duration based field support staff such as: environmental monitors, inspectors, cost analysts, construction team leads, etc. The forecast was developed based on the project's scope of work and not just the specific cost to pressure test each individual section.

Each overall budget is impacted by the number of test sections. Additional test sections require additional test heads, water handling, pipe handling, etc. to complete each additional test. The detailed estimate is based on each project's anticipated conditions, scope, etc.

- e. Please see attached estimate in response to Question 1F for a detailed breakdown of costs. Costs incurred prior to 2018 were incurred in 2017.
- **Material** is required for test heads, replacement sections, and to perform hydrotesting operations.
 - **Environmental** is included for abatement activities, water sampling, environmental monitors, and industrial hygienists.
 - **Surveying/Permitting/Monitoring** is required to locate the pipeline, update GIS databases, monitor for protected species, and to acquire work permits with municipalities and environmental agencies.
 - **Company Labor** is required to schedule, perform cost controlling, estimating, project management, contract issuing and field oversight.
 - **Other Capital Costs** are required to perform project engineering and design, project management, environmental services, and survey service.

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- f. **The attached document includes Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. Note that the attached files have also been redacted to remove non-responsive, non-relevant employee information.**

Please see illustrative example in the response to Question 2F, indicating where in the attached spreadsheets this information can be obtained for each project.

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SoCalGas Responses 5.1:

- g. Please see the attachment provided in response to Question 1F.

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- h. Work performed prior to 2018 is associated with the planning and engineering design for projects anticipated to be in construction in 2019. For details on PSEP’s planning and engineering design work please refer to SCG-15 Direct Testimony (Phillips) at pp. RDP-A-23 and 24.
- i. Each test section requires two test heads, one at each end to isolate the section for testing. The number of test heads required for each project was based on the engineering analysis and judgment of each individual project, and is proportional to the number of test sections for a given project. Projects with multiple test sections may reuse tests heads based on schedule duration (i.e., the timing of the individual tests), water management plans and other factors.

For line 235 Section 1, the unit cost for the test head is \$12,598.06 (Direct Cost without contingency, taxes, or freight).

- j. Please see the attachment provided in response to Question 1F.
Field Overhead - see worksheet tab “Construction Contractor.”
SoCalGas Labor - see worksheets “Engr” and “CM.”

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- k. It is typical on PSEP projects to have a project team comprised of both, full-time Company employees and Contract employees. “Other Capital Costs” represents costs for contracted Purchased Services (i.e., contract employees hired to augment staffing of SoCalGas/SDG&E company employees.

Engineering and Project Management include activities that are captured in different areas of the estimates. Costs were determined based on an execution strategy, anticipated construction duration and planned activities. See attached estimate provided in response to Question 1F.

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- l. SoCalGas objects to the portion of the question that asks, “why it is required to inflate the cost estimates with contingency adders,” because the inclusion of contingency is standard in the industry to capture costs that, although not individually itemized, are reasonably anticipated to be incurred on construction projects. Subject to and without waiving the foregoing objection, SoCalGas responds as follows:

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SoCalGas Responses 5.1:

Yes, there are contingency adders included. The contingency categories are productivity, scope, pricing and duration. The following are the cost components within which contingencies are applied:

- Site Mobilization
- Site Preparation
- Site Facilities
- Site Management / Best Management Practices (BMPs)
- Pipe Transportation / Handling
- Traffic Control
- Site Right-of-Way (ROW) Clearing
- Utility Locates
- Site Excavations
- Remove Existing / Install New Pipeline Features
- Cathodic Protection
- Isolate Existing Pipeline
- Hydrotest Pipeline
- Tie-In Pipeline / Reconnect Taps
- Backfill Excavations
- Site Restoration
- Site Demobilization
- Field Overhead
- Other Contractor
- SoCalGas Labor - Mgmt. & Non-Labor
- SoCalGas Labor - Union T/H
- Material- Pipe & Fittings
- Material-Valves
- Material- Other
- Engineering / Design Services
- Project Management / Project Services
- Construction Management
- Surveying / As-builts
- Environmental Services
- Pressure Test Certification Services
- Water Storage
- X-ray / Non-destructive evaluation (NDE)
- Land Services
- CNG / LNG
- Spreadboss
- Miscellaneous Services
- Permits
- Other Non-Labor Costs
- Allowances

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SoCalGas Responses 5.1:

Contingency is a direct cost to the project and is anticipated to be spent over the course of engineering, design, procurement, and construction. Per the Association for the Advancement of Cost Engineering (AACEi), contingency is defined as:

An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience. Contingency usually excludes: 1) Major scope changes such as changes in end product specification, capacities, building sizes, and location of the asset or project; 2) Extraordinary events such as major strikes and natural disasters; 3) Management reserves; and 4) Escalation and currency effects. Some of the items, conditions, or events for which the state, occurrence, and/or effect is uncertain include, but are not limited to, planning and estimating errors and omissions, minor price fluctuations (other than general escalation), design developments and changes within the scope, and variations in market and environmental conditions. Contingency is generally included in most estimates, and is expected to be expended.¹

- m. As shown in the capital workpapers, 2017-2019 capital expenditures depicted in witness testimony are presented as direct costs for labor and non-labor, and in the cases where standard escalation is not applicable, are classified as non-standard escalation or ‘NSE.’ As such, the only additional adder included in the labor forecast is vacation and sick (V&S) time. A standard V&S rate is applied to the forecasted labor cost of a project, as shown in the applicable capital workpaper.
- n. No. There are no indirect cost included in these cost estimates.
- o. Workpapers associated with SoCalGas and SDG&E’s RAMP Report can be accessed using the following steps:
Visit the RAMP proceeding on SDG&E’s website:
<https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas>.
 - Click on “Discovery.”
 - Click on “CUE.”
 - The risk reduction workpapers are shown as “CUE DR-01 RAMP RSE Workpapers.” The cost-related workpapers are labeled as “CUE DR-01 Cost Workpapers.”

In addition, as stated in the Direct Testimony of RAMP to GRC Integration witness Jamie York (Exhibit SCG-02-R/SDGE-02-R, Chapter 3), “much information from the RAMP Report was transcribed and is shown in the GRC witness’ workpapers to provide context as well as a comparison reference to the RAMP Report itself.

¹ See AACEi Recommended Practice 10S-90, *Cost Engineering Terminology*, available for free to the general public at <https://web.aacei.org/docs/default-source/rps/10s-90.pdf?sfvrsn=18>.

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SoCalGas Responses 5.1:

Such information includes the RAMP risk the particular activity was associated with, the name of the mitigation as presented in the RAMP Report, the estimated range of costs put forth in the RAMP for the mitigation activity, the funding source (i.e., CPUC-GRC, FERC), the work type (e.g., mandated) and citation (e.g., General Order 165), and the 2016 embedded historical cost estimate.” (Exhibit SCG-02-R/SDGE-02-R, Chapter 3 at p. JKY-7 lines 3-10.)

- p. As mentioned in the RAMP Report Chapter A at p. SDGE/SCG A-2, “The purpose of RAMP is not to request funding. Any finding requests will be made in the GRC. RAMP mitigation forecasts are providing only to estimate a range that will be refined with supporting testimony in the GRC.” Accordingly, the project assumptions and estimated costs put forth in the RAMP Report were superseded by the requests made in supporting testimony in the Test Year 2019 GRC. For the locations of the requested projects in the RAMP Report, please refer to the response to part m above.
- q. SoCalGas objects to Question 5-1.q. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-1.q. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-1.q. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal codes and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

The design, construction and testing of the pipeline is governed by state regulations which flow from federal regulations. 49 Code of Federal (CFR), Section 192, Subpart J. sets forth the minimum strength testing and record keeping requirement for pipelines.

- r. SoCalGas objects to Question 5-1.r. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-1.r. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-1.r. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal codes and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

Yes. See the Natural Gas Pipeline Safety Act of 2011 and California Public Utilities Commission decisions in R.11-02-019 and A.11-11.002.

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- s. SoCalGas objects to Question 5-1.s. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-1.s. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-1.s. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal codes and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

SoCalGas is unaware of any applicable proposed state or federal regulations.

- t. SoCalGas and SDG&E object to this request as out of scope. Subject to and without waiving the foregoing objection, SoCalGas and SDG&E responds as follows:

Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio calculations were not presented in the TY 2019 GRC. This approach is consistent with guidance stemming from the RAMP proceeding, as shown in the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1): “Through the SED Evaluation Report and comments submitted in response to both the SED Evaluation Report and the Companies’ RAMP Report, stakeholders agreed that the RSEs are evolving, should be further refined in the S-MAP, and have limited usefulness in their current state.” (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1 at p. DD-17 lines 18-21.) SoCalGas and SDG&E’s comments in the RAMP proceeding stated “the Utilities do not plan to include their nascent RSE calculations in the upcoming TY 2019 GRC. However, the Utilities will work with the parties and the Commission in the S-MAP proceeding toward furthering development of a more useful effectiveness metric in the next RAMP.” (I.16-10-015/I.16-10-016. SoCalGas and SDG&E Opening Comments (April 24, 2017), at 4-5; and SoCalGas and SDG&E Reply Comments (May 9, 2017), at 6-8.) Please see the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1) and the Direct Testimony of Jamie York (Exhibit SCG-02-R/SDG&E-02-R, Chapter 3) for more information regarding the Commission’s guidance in presenting the first-ever risk-informed GRC.

- u. Line 235 West Section 1 consist of 24.356 miles of Category Four pipe and .281 miles of Category One pipe.

This is a Phase 2A project and, as stated on pg. RDP-A-7 of SCG-15. Phase 2A addresses pipe located in Class 1 and 2 non-high consequence areas.

- v. **The attached documents include Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023.** See attached KMZ files.

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- w. There is one building within 300 feet of the pipe associated with Line 235 West Section 1 Pressure Test Project.
- x. Economies of scale were considered and planned into the projects on the same pipeline. The sections defined as a project are delineated based on the approximate schedule for each project.

Some factors that affect decisions on length of individual projects include gas system availability, permit acquisition and restrictions, land acquisition and restrictions, number of project personnel. In addition, the distance between individual projects on the same pipeline also factor into the decisions, for example, the line 2000 Chino Hills and Line 2000 E of Cactus City projects are approx. 115 miles apart.

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- 5-2. Please refer to the PSEP supplemental workpaper of SCG witness Richard Phillips, Exhibit No. SCG-15-WPS, at the pages associated with the Line 235 West Section 2 Pressure Test Project.
- a. Please explain why this project must be completed in the proposed time frame i.e., during the 2019 GRC cycle, rather than spread over a greater number of years, i.e., during future GRC cycles.
 - b. Please explain how the Focus on Reasonable Rates and Continuous Improvement, as described on page 4 of the Application and page 3 of the Direct Testimony of Bret Lane, was considered for this project. Additionally, please provide the revenue requirement impact of this project for each year in the GRC cycle (2019, 2020, 2021, 2022) and all supporting documentation.
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Question 5.2 - Continued

- h. Please explain the nature of the work conducted for this project prior to 2018. For each item identify the year in which the work was completed.
- i. Provide the unit cost per test head. Please explain why SoCalGas determined the number of test heads identified is required to complete the project. Please explain why more test heads than the number of test sections was deemed necessary to complete this pressure test project. Please explain why these test heads cannot be re-used for multiple test segments.
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SoCalGas Response 5-2:-Continued

- a. The proposed schedule is consistent with the Commission requirement set forth in D.11-06-017 on page 19 that PSEP be completed “as soon as practicable” and the directives in the Natural Gas Pipeline Safety Act of 2011 that the plan “shall include a timeline for completion that is as soon as practicable” (Pub. Util. Code § 958).
- b. One of the primary objectives of PSEP, is to maximize the cost effectiveness of safety investments for the benefit of customers, as indicated on pages RDP-A-5, RDP-A-15, RDP-A-16, RDP-A-20, RDP-A-21 and RDP-57 of SCG-15. The forecasted costs of are based on project specific estimates that were developed for each pipeline project, based on detailed engineering and project planning analysis.

SoCalGas does not forecast its revenue requirement for individual projects or work activities at the level of detail requested. Page RDP-A-21 of Exhibit SCG-15 describes the process of normalizing the forecasted PSEP O&M expenditures for the test year. The normalized 2019 PSEP O&M expenditures as well as any PSEP capital expenditures projected to be in service by TY 2019 were an input to the overall forecasted TY 2019 SoCalGas revenue requirement.

Beyond 2019, an attrition mechanism is established to escalate revenue requirement throughout the post-test years until a new rate case can be filed and approved. In the case of PSEP, a specific revenue requirement “adder” was included in the Post-Test Year request for the entirety of the PSEP capital forecasts projected to be in-service in the post-test years. Revenue requirement was not forecasted on a PSEP project by project basis. Please see the Direct testimony of Jawaad Malik (Exhibit SCG-44) beginning on page JAM-9 for Post-Test Year Ratemaking. Details for PSEP for 2020-2022 can be found in the PSEP workpapers of Jawaad Malik (Exhibit SCG-44-WP) starting on page SCG-44 WP JAM PSEP-1.

- c. The number of test sections was determined for each pipeline based on its operating characteristics, operating percent Specified Minimum Yield Strength (SMYS) and planned maximum test pressure. This process was used for all the hydrotest projects in the filing. The differences in the number of test sections are due to the unique elevation profile along each pipeline. Engineering judgment is used to plan the projects based on the profile and the conditions stated.

As stated on Page WP-I-A19 of SCG-15-WP-S, the project requires 27 individual test sections to address test pressure limitations due to elevation changes totaling 1,358 feet (4,039 feet at highest elevation and 2,681 feet at lowest elevation). Elevation is a key determining factor for selecting the number of test breaks in any given project.

- d. The number of individual test sections increases the overall budget of a project by increasing the schedule, scope of work, and the duration based field support staff such as: environmental monitors, inspectors, cost analysts, construction team leads, etc. The forecast was developed based on the project’s scope of work and not just the specific cost to pressure test each individual section.

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SoCalGas Response 5-2.d:-Continued

Each overall budget is impacted by the number of test sections. Additional test sections require additional test heads, water handling, pipe handling, etc. to complete each additional test. The detailed estimate is based on each project's anticipated conditions, scope, etc.

- e. Please see attached estimate in response to Question 2F for a detailed breakdown of costs. Costs incurred prior to 2018 were incurred in 2017.

Material is required for test heads, replacement sections, and to perform hydro-testing operations.

Environmental is included for abatement activities, water sampling, environmental monitors, and industrial hygienists.

Surveying/Permitting/Monitoring is required to locate the pipeline, update GIS databases, monitor for protected species, and to acquire work permits with municipalities and environmental agencies.

Company Labor is required to schedule, perform cost controlling, estimating, project management, contract issuing and field oversight.

Other Capital Costs are required to perform project engineering and design, project management, environmental services, and survey services.

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- f. **The attached document includes Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. Note that the attached files have also been redacted to remove non-responsive, non-relevant employee information.**

Please see illustrative example below for Line 235 West Section 2, indicating where in the attached spreadsheets this information can be obtained for each project. Open attachment “IS-SCG-005 Q02F CONFIDENTIAL 235 W Sec2 Ph2Stage 3 Est 05-08-17_redacted” and go to worksheet tab: Project Summary.

Cost splits are based on the percentage of capital and O&M identified in the Construction Contractor (Row 6) and Material (Row 9) portion of the estimate. The percentages in column O, P and Q are then applied to all other non-construction contractor and material portion of the estimate.

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SoCalGas Response 5-2.f:-Continued

	H	I	J	K	L	M	N	O	P	Q
1										
2										
3										
4					\$ 15,871,230.65	\$ 4,580,894.11	\$ -	78%	22%	0%
5	WBS Summary				O&M	Plant	Abandon	O&M	Plant	Abandon
6	Contractors E&C	1	\$ 19,996,475	Construction Contractor	\$ 15,871,230.65	\$ 4,125,243.90	\$ -			
7	SEU Mgmt Labor	2M	\$ 780,104	SCG Labor - Mgmt. & Non Labor		\$ -				
8	SEU Union Labor	2U	\$ 445,887	SCG Labor - Union T/H						
9	Material - Pipe and Fittings	3	\$ 455,650	Material- Pipe & Fittings	\$ -	\$ 455,650.21	\$ -			
10	Material - Valves	4	\$ -	Material-Valves						
11	Material - Other	5	\$ -	Material- Other						
12	Purchased services	6D	\$ 1,786,526	Engineering / Design Services						
13	Purchased services	6P	\$ 592,447	PM / Project Services						
14	Purchased services	6CM	\$ 1,602,085	Construction Management						
15	Purchased services	6S	\$ 923,631	Surveying / As-builts						
16	Purchased services	6E	\$ 5,368,546	Environmental Services						
17	Purchased services	6H	\$ 2,378,866	Pressure Test Certification Services						
18	Purchased services	15W	\$ 363,836	Water Storage						
19	Purchased services	6X	\$ 47,348	X-ray / NDE						
20	Purchased services	6LS	\$ 140,091	Land Services						
21	Purchased services	6CM	\$ 258,398	CNG / LNG						
22	Spreadboss	6SP	\$ 153,297	Spreadboss						
23	Purchased services	6M	\$ -	Miscellaneous Services						
24	Permits	7	\$ 126,429	Permits						
25	Other Non-Labor Costs	8	\$ 83,879	Other Non-Labor Costs						
26	GMA	15	\$ -	GMA						
27	Allowances		\$ 1,220,167							
28	Actuals		\$ 140,459							
29										
30										
31										
32										

The following table is an example of how the capital, abandonment and O&M are calculated. The table below labeled SCG Company Labor, followed by “Base Engineering Hours” is the 100% for the project. It is followed by “Capital Installation”, “Capital Abandonment”, and “O&M.” Each SCG Company Labor area below the “Base Engineering Hours” portion of the estimate are calculated by taking the “Base Engineering” cost and multiplying it against the percentage split shown in the above table in the “project summary” worksheet. The same logic is used for calculating the “Additional Costs” portion of each estimate.

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SoCalGas Response 5-2.f:Continued

L	M	N	O	P	Q
SCG COMPANT LABOR					
Bare Engineering Hours					
SOG - PSEP Project (Field Management)	2718	HR			\$ 217,440.00
SOG - PSEP Project (Field Management)	33	HR			\$ 2,600.00
SOG - PSEP Project Manager	1967	HR			\$ 157,360.00
SOG - PSEP Project Engineers	116	HR			\$ 7,560.00
SOG - Environmental Services	806	HR			\$ 36,530.00
SOG - Engineering Services	116	HR			\$ 7,560.00
SOG - Inspectors / CA's	960	HR			\$ 62,400.00
SOG - Other Departments	2362	HR			\$ 103,480.00
SOG - Distribution Field Services	4272	HR			\$ 341,760.00
SOG - Transmission Field Services		HR			
SOG - Pipeline Integrity Services		HR			
SOG - Other Field Departments		HR			
CAPITAL INSTALLATION					
SOG - PSEP Project (Field Management)	609	HR			\$ 48,702.50
SOG - PSEP Project (Field Management)	7	HR			\$ 592.35
SOG - PSEP Project Manager	441	HR			\$ 35,245.70
SOG - PSEP Project Engineers	26	HR			\$ 1,693.30
SOG - Environmental Services	181	HR			\$ 8,182.04
SOG - Engineering Services	26	HR			\$ 1,693.30
SOG - Inspectors / CA's	215	HR			\$ 13,976.44
SOG - Other Departments	529	HR			\$ 23,177.59
SOG - Distribution Field Services	957	HR			\$ 76,547.86
SOG - Transmission Field Services	-	HR			\$ -
SOG - Pipeline Integrity Services	-	HR			\$ -
SOG - Other Field Departments	-	HR			\$ -
CAPITAL ABANDONMENT					
SOG - PSEP Project (Field Management)	-	HR			\$ -
SOG - PSEP Project (Field Management) Clear-Out	-	HR			\$ -
SOG - PSEP Project Manager	-	HR			\$ -
SOG - PSEP Project Engineers	-	HR			\$ -
SOG - Environmental Services	-	HR			\$ -
SOG - Engineering Services	-	HR			\$ -
SOG - Inspectors / CA's	-	HR			\$ -
SOG - Other Departments	-	HR			\$ -
SOG - Distribution Field Services	-	HR			\$ -
SOG - Other Field Departments	-	HR			\$ -
O&M					
SOG - PSEP Project (Field Management)	2,109	HR			168,737
SOG - PSEP Project (Field Management) Clear-Out	25	HR			2,018
SOG - PSEP Project (Field Management) Clear-Out	1,526	HR			
SOG - PSEP Project (Field Management) Clear-Out		HR			
SOG - PSEP Project Manager	1,526	HR			122,114
SOG - PSEP Project Engineers	90	HR			5,867
SOG - Environmental Services	625	HR			28,348
SOG - Engineering Services	90	HR			5,867
SOG - Inspectors / CA's	745	HR			48,424
SOG - Other Departments	1,833	HR			80,302
SOG - Distribution Field Services	3,215	HR			265,212
SOG - Other Field Departments	-	HR			-

←100%

←22%

←0%

←78%

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SoCalGas Response 5-2:Continued

- g. Please see the attachment provided in response to Question 2F.

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- h. Work performed prior to 2018 is associated with the planning and engineering design for projects anticipated to be in construction in 2019. For details on PSEP’s planning and engineering design work please refer to SCG-15 Direct Testimony (Phillips) at pp. RDP-A-23 and 24.
- i. Each test section requires two test heads, one at each end to isolate the section for testing. The number of test heads required for each project was based on the engineering analysis and judgment of each individual project, and is proportional to the number of test sections for a given project. Projects with multiple test sections may reuse tests heads based on schedule duration (i.e., the timing of the individual tests), water management plans and other factors.

For line 235 Section 2, the unit cost for a test head is \$12,062.32 (Direct Cost without contingency, taxes, or freight).

- j. Please see the attachment provided in response to Question 2F.
Field Overhead - see worksheet tab “Construction Contractor.”
SoCalGas Labor - see worksheets “Engr” and “CM.”

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- k. It is typical on PSEP projects to have a project team comprised of both, full-time Company employees and Contract employees. “Other Capital Costs” represents costs for contracted Purchased Services (i.e., contract employees hired to augment staffing of SoCalGas/SDG&E company employees.

Engineering and Project Management include activities that are captured in different areas of the estimates. Costs were determined based on an execution strategy, anticipated construction duration and planned activities. See attached estimate provided in response to Question 2F.

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- l. SoCalGas objects to the portion of the question that asks, “why it is required to inflate the cost estimates with contingency adders,” because the inclusion of contingency is standard in the industry to capture costs that, although not individually itemized, are reasonably anticipated to be incurred on construction projects. Subject to and without waiving the foregoing objection, SoCalGas responds as follows:

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SoCalGas Response 5-2.1:-Continued

Yes, there are contingency adders included. The contingency categories are productivity, scope, pricing and duration. The following are the cost components within which contingencies are applied:

- Site Mobilization
- Site Preparation
- Site Facilities
- Site Management / Best Management Practices (BMPs)
- Pipe Transportation / Handling
- Traffic Control
- Site Right-of-Way (ROW) Clearing
- Utility Locates
- Site Excavations
- Remove Existing / Install New Pipeline Features
- Cathodic Protection
- Isolate Existing Pipeline
- Hydrotest Pipeline
- Tie-In Pipeline / Reconnect Taps
- Backfill Excavations
- Site Restoration
- Site Demobilization
- Field Overhead
- Other Contractor
- SoCalGas Labor - Mgmt. & Non-Labor
- SoCalGas Labor - Union T/H
- Material- Pipe & Fittings
- Material-Valves
- Material- Other
- Engineering / Design Services
- Project Management / Project Services
- Construction Management
- Surveying / As-builts
- Environmental Services
- Pressure Test Certification Services
- Water Storage
- X-ray / Non-destructive evaluation (NDE)
- Land Services
- CNG / LNG
- Spreadboss
- Miscellaneous Services
- Permits
- Other Non-Labor Costs
- Allowances

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Contingency is a direct cost to the project and is anticipated to be spent over the course of engineering, design, procurement, and construction. Per the Association for the Advancement of Cost Engineering (AACEi), contingency is defined as:

An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience. Contingency usually excludes: 1) Major scope changes such as changes in end product specification, capacities, building sizes, and location of the asset or project; 2) Extraordinary events such as major strikes and natural disasters; 3) Management reserves; and 4) Escalation and currency effects. Some of the items, conditions, or events for which the state, occurrence, and/or effect is uncertain include, but are not limited to, planning and estimating errors and omissions, minor price fluctuations (other than general escalation), design developments and changes within the scope, and variations in market and environmental conditions. Contingency is generally included in most estimates, and is expected to be expended.¹

- m. As shown in the capital workpapers, 2017-2019 capital expenditures depicted in witness testimony are presented as direct costs for labor and non-labor, and in the cases where standard escalation is not applicable, are classified as non-standard escalation or ‘NSE.’ As such, the only additional adder included in the labor forecast is vacation and sick (V&S) time. A standard V&S rate is applied to the forecasted labor cost of a project, as shown in the applicable capital workpaper.
- n. No. There are no indirect cost included in these cost estimates.
- o. Workpapers associated with SoCalGas and SDG&E’s RAMP Report can be accessed using the following steps:
Visit the RAMP proceeding on SDG&E’s website:
<https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socialgas>.
 - Click on “Discovery.”
 - Click on “CUE.”
 - The risk reduction workpapers are shown as “CUE DR-01 RAMP RSE Workpapers.” The cost-related workpapers are labeled as “CUE DR-01 Cost Workpapers.”

In addition, as stated in the Direct Testimony of RAMP to GRC Integration witness Jamie York (Exhibit SCG-02-R/SDGE-02-R, Chapter 3), “much information from the RAMP Report was transcribed and is shown in the GRC witness’ workpapers to provide context as well as a comparison reference to the RAMP Report itself. Such information includes the RAMP risk the particular activity was associated with, the name of the mitigation as presented in the RAMP

¹ See AACEi Recommended Practice 10S-90, *Cost Engineering Terminology*, available for free to the general public at <https://web.aacei.org/docs/default-source/rps/10s-90.pdf?sfvrsn=18>.

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Report, the estimated range of costs put forth in the RAMP for the mitigation activity, the funding source (i.e., CPUC-GRC, FERC), the work type (e.g., mandated) and citation (e.g., General Order 165), and the 2016 embedded historical cost estimate.” (Exhibit SCG-02-R/SDGE-02-R, Chapter 3 at p. JKY-7 lines 3-10.)

- p. As mentioned in the RAMP Report Chapter A at p. SDGE/SCG A-2, “The purpose of RAMP is not to request funding. Any finding requests will be made in the GRC. RAMP mitigation forecasts are providing only to estimate a range that will be refined with supporting testimony in the GRC.” Accordingly, the project assumptions and estimated costs put forth in the RAMP Report were superseded by the requests made in supporting testimony in the Test Year 2019 GRC. For the locations of the requested projects in the RAMP Report, please refer to the response to part m above.
- q. SoCalGas objects to Question 5-2.q. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-2.q. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-2.q. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal codes and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

The design, construction and testing of the pipeline is governed by state regulations which flow from federal regulations. 49 Code of Federal Regulations (CFR), Section 192, Subpart J. sets forth the minimum strength testing and record keeping requirement For pipelines.

- r. SoCalGas objects to Question 5-2.r. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-2.r. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-2.r. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

Yes. See the Natural Gas Pipeline Safety Act of 2011 and California Public Utilities Commission decisions in R.11-02-019 and A.11-11.002.

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- s. SoCalGas objects to Question 5-2.s. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-2.s. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-2.s. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

SoCalGas is unaware of any applicable proposed state or federal regulations.

- t. SoCalGas and SDG&E object to this request as out of scope. Subject to and without waiving the foregoing objection, SoCalGas and SDG&E responds as follows:

Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio calculations were not presented in the TY 2019 GRC. This approach is consistent with guidance stemming from the RAMP proceeding, as shown in the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1): “Through the SED Evaluation Report and comments submitted in response to both the SED Evaluation Report and the Companies’ RAMP Report, stakeholders agreed that the RSEs are evolving, should be further refined in the S-MAP, and have limited usefulness in their current state.” (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1 at p. DD-17 lines 18-21.) SoCalGas and SDG&E’s comments in the RAMP proceeding stated “the Utilities do not plan to include their nascent RSE calculations in the upcoming TY 2019 GRC. However, the Utilities will work with the parties and the Commission in the S-MAP proceeding toward furthering development of a more useful effectiveness metric in the next RAMP.” (I.16-10-015/I.16-10-016. SoCalGas and SDG&E Opening Comments (April 24, 2017), at 4-5; and SoCalGas and SDG&E Reply Comments (May 9, 2017), at 6-8.) Please see the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1) and the Direct Testimony of Jamie York (Exhibit SCG-02-R/SDG&E-02-R, Chapter 3) for more information regarding the Commission’s guidance in presenting the first-ever risk-informed GRC.

- u. Line 235 West Section 2 consist of 18.865 miles of Category Four pipe and 1.483 miles of Category One pipe.

This is a Phase 2A project and, as stated on pg. RDP-A-7 of SCG-15. Phase 2A addresses pipe located in Class 1 and 2 non-high consequence areas.

- v. **The attached documents include Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023.** See attached KMZ files.

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- w. There are six buildings within 300 feet of the pipe associated with Line 235 West Section 2 Pressure Test Project.

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- x. Economies of scale were considered and planned into the projects on the same pipeline. The sections defined as a project are delineated based on the approximate schedule for each project.

Some factors that affect decisions on length of individual projects include gas system availability, permit acquisition and restrictions, land acquisition and restrictions, number of project personnel. In addition, the distance between individual projects on the same pipeline also factor into the decisions, for example, the line 2000 Chino Hills and Line 2000 E of Cactus City projects are approx. 115 miles apart.

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5-3. Please refer to the PSEP supplemental workpaper of SCG witness Richard Phillips, Exhibit No. SCG-15-WPS, at the pages associated with the Line 235 West Section 3 Pressure Test Project.

- a. Please explain why this project must be completed in the proposed time frame i.e., during the 2019 GRC cycle, rather than spread over a greater number of years, i.e., during future GRC cycles.
- b. Please explain how the Focus on Reasonable Rates and Continuous Improvement, as described on page 4 of the Application and page 3 of the Direct Testimony of Bret Lane, was considered for this project. Additionally, please provide the revenue requirement impact of this project for each year in the GRC cycle (2019, 2020, 2021, 2022) and all supporting documentation.
- c. Please explain why the proposed number of individual test sections are required for this project. Is it feasible and reliable to complete this pressure test with fewer test sections? Please provide a detailed narrative explaining the response, and support for those positions.
- d. Please explain how the number of individual test sections impacts the overall budget of the project. Is the forecast developed based on the specific cost to pressure test each individual section?
- e. Please provide a detailed breakdown of each of the cost estimate components presented (Materials, Construction, Environmental Survey/Permitting/Monitoring, Land & Right-of-Way Acquisition, Company Labor, and Other Capital Costs) for each year separately, including prior to 2018. For the costs incurred prior to 2018 please identify in what year the cost was incurred. This detailed breakdown should explicitly detail the number of units or hours included in the estimate, as well as cost per unit or cost per hour of each item that is required to arrive at the total labor and non-labor costs associated with this cost estimate component. Further, please provide a detailed explanation of the activity associated with each cost component and why it is required to be included in this cost estimate. For all cost components, any assumptions or additional information identified in the PSEP supplemental workpaper should clearly be shown in the detailed cost estimate breakdown provided in response to this discovery.
- f. Please provide the split between O&M and Capital for each cost component and explain how that split was determined. Additionally, provide a workpaper showing the calculation of this split.
- g. Please provide the cost model utilized to determine the cost estimates provided in response to part d. above. If available in Excel spreadsheet format, provide with all formulas and links intact.

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Question 5.3 - Continued

- h. Please explain the nature of the work conducted for this project prior to 2018. For each item identify the year in which the work was completed.
- i. Provide the unit cost per test head. Please explain why SoCalGas determined the number of test heads identified is required to complete the project. Please explain why more test heads than the number of test sections was deemed necessary to complete this pressure test project. Please explain why these test heads cannot be re-used for multiple test segments.
- j. If not provided in part d. above, please provide a detailed breakdown of the costs associated with the Field Overhead portion of the Construction cost component, the SoCalGas Labor portion of Company Labor cost component, and the SoCalGas Field Labor portion of Company Labor cost component.
- k. Please explain how it was determined that the costs associated with Other Capital Costs are required, as the other cost components have assumptions identified that represent the same services; Engineering, Project Management, Construction Management, and Surveying are included in other cost components. Please provide all supporting workpapers and documentation that were utilized to determine both the need and level cost associated with each item included in Other Capital Costs
- l. Please explain if there are any contingency adders included in these cost estimates. If so, please explain what contingencies are included, what cost components these contingencies are applied to, and why it is required to inflate the cost estimates with contingency adders.
- m. Please explain if any overhead or profit adders are included in these cost estimates. If so, please explain what overhead is included, what cost components these adders are applied to, and why it is required to inflate the cost estimates with overhead and profit adders.
- n. Please explain if there are any additional indirect costs included in these cost estimates not discussed previously.
- o. Please provide all workpapers from the 2016 RAMP Report associated with this project.
- p. Please identify the exact locations in the 2016 RAMP report that discuss this project.

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- q. Is this project mandated by any approved Federal regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- r. Is this project mandated by any approved California regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- s. Is this project mandated by any proposed State or Federal regulations? If so, please identify these proposed regulations and explain how this project makes SoCalGas compliant with these regulations.
- t. Please provide the Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio (as they are defined by the 2016 RAMP report) associated with this project. Additionally, explain how the scores in these metrics led SoCalGas to the decision that the 2019 GRC was the appropriate time to propose this project.
- u. Please explain what Category (1-4) and Class (1-4), as described in the workpaper glossary, this pipeline belongs to.
- v. Please provide the GIS data (a .gpd geodatabase or the individual .shp shape files will suffice, as will .kmz or .kml files) associated with this project and used to display the Project Map for this project.
- w. Please provide the number of buildings intended for human occupancy that exist within 300 feet of the pipeline associated with this project.
- x. Please explain if there are any economies of scale benefits captured for other pipeline pressure test projects associated with the same pipeline. If not, please provide a detailed narrative explaining why benefits associated with economies of scale would not be applicable to other pressure tests conducted on the same pipeline.

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SoCalGas Response 5-3:

- a. The selection of projects is consistent with the Commission requirement set forth in D.11-06-017 on page 19 that PSEP be completed “as soon as practicable” and the directives in the Natural Gas Pipeline Safety Act of 2011 that the plan “shall include a timeline for completion that is as soon as practicable” (Pub. Util. Code § 958).
- b. One of the primary objectives of PSEP, is to maximize the cost effectiveness of safety investments for the benefit of customers, as indicated on pages RDP-A-5, RDP-A-15, RDP-A-16, RDP-A-20, RDP-A-21 and RDP-57 of SCG-15. The forecasted costs of are based on project specific estimates that were developed for each pipeline project, based on detailed engineering and project planning analysis.

SoCalGas does not forecast its revenue requirement for individual projects or work activities at the level of detail requested. Page RDP-A-21 of Exhibit SCG-15 describes the process of normalizing the forecasted PSEP O&M expenditures for the test year. The normalized 2019 PSEP O&M expenditures as well as any PSEP capital expenditures projected to be in service by TY 2019 were an input to the overall forecasted TY 2019 SoCalGas revenue requirement.

Beyond 2019, an attrition mechanism is established to escalate revenue requirement throughout the post-test years until a new rate case can be filed and approved. In the case of PSEP, a specific revenue requirement “adder” was included in the Post-Test Year request for the entirety of the PSEP capital forecasts projected to be in-service in the post-test years. Revenue requirement was not forecasted on a PSEP project by project basis. Please see the Direct testimony of Jawaad Malik (Exhibit SCG-44) beginning on page JAM-9 for Post-Test Year Ratemaking. Details for PSEP for 2020-2022 can be found in the PSEP workpapers of Jawaad Malik (Exhibit SCG-44-WP) starting on page SCG-44 WP JAM PSEP-1.

- c. The number of test sections was determined for each pipeline based on its operating characteristics, operating percent Specified Minimum Yield Strength (SMYS) and planned maximum test pressure. This process was used for all the hydrotest projects in the filing. The differences in the number of test sections are due to the unique elevation profile along each pipeline. Engineering judgment is used to plan the projects based on the profile and the conditions stated.

As stated on Page WP-I-A35 of SCG-15-WP-S, the project requires six individual test sections to address test pressure limitations due to elevation changes totaling 330 feet (3,092 feet highest elevation less 2,762 feet lowest elevation). Elevation is a key determining factor for selecting the number of test breaks in any given project.

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SoCalGas Response 5-3:-Continued

- d. The number of individual test sections increases the overall budget of a project by increasing the schedule, scope of work, and the duration based field support staff such as: environmental monitors, inspectors, cost analysts, construction team leads, etc. The forecast was developed based on the project's scope of work and not just the specific cost to pressure test each individual section.

Each overall budget is impacted by the number of test sections. Additional test sections require additional test heads, water handling, pipe handling, etc. to complete each additional test. The detailed estimate is based on each project's anticipated conditions, scope, etc.

- e. Please see attached estimate in response to Question 3F for a detailed breakdown of costs. Costs incurred prior to 2018 were incurred in 2017.

Material is required for test heads, replacement sections, and to perform hydro-testing operations.

Environmental is included for abatement activities, water sampling, environmental monitors, and industrial hygienists.

Surveying/Permitting/Monitoring is required to locate the pipeline, update GIS databases, monitor for protected species, and to acquire work permits with municipalities and environmental agencies.

Company Labor is required to schedule, perform cost controlling, estimating, project management, contract issuing and field oversight.

Other Capital Costs are required to perform project engineering and design, project management, environmental services, and survey services.

“IS DR-005 Q03F CONFIDENTIAL 235 W Sec3 Ph2 Stage 3 Est 05-08-17_redacted.xlsm.”

- f. **The attached document includes Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. Note that the attached files have also been redacted to remove non-responsive, non-relevant employee information.**

Please see illustrative example in the response to Question 2F, indicating where in the attached spreadsheets this information can be obtained for each project.

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- g. Please see the attachment provided in response to Question 3F.

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SoCalGas Response 5-3:-Continued

- h. Work performed prior to 2018 is associated with the planning and engineering design for projects anticipated to be in construction in 2019. For details on PSEP's planning and engineering design work please refer to SCG-15 Direct Testimony (Phillips) at pp. RDP-A-23 and 24.
- i. Each test section requires two test heads, one at each end to isolate the section for testing. The number of test heads required for each project was based on the engineering analysis and judgment of each individual project, and is proportional to the number of test sections for a given project. Projects with multiple test sections may reuse tests heads based on schedule duration (i.e., the timing of the individual tests), water management plans and other factors.

For line 235 Section 3, the unit cost for a test head is \$17,943.44 (Direct Cost without contingency, taxes, or freight).

- j. Please see the attachment provided in response to Question 3F.
- **Field Overhead** - see worksheet tab "Construction Contractor."
 - **SoCalGas Labor** - see worksheets "Engr" and "CM."

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- k. It is typical on PSEP projects to have a project team comprised of both, full-time Company employees and Contract employees. "Other Capital Costs" represents costs for contracted Purchased Services (i.e., contract employees hired to augment staffing of SoCalGas/SDG&E company employees.

Engineering and Project Management include activities that are captured in different areas of the estimates. Costs were determined based on an execution strategy, anticipated construction duration and planned activities. See attached estimate provided in response to Question 3F.

"IS DR-005 Q02F CONFIDENTIAL 235 W Sec2 Ph2 Stage 3 Est 05-08-17_redacted.xlsm."

- l. SoCalGas objects to the portion of the question that asks, "why it is required to inflate the cost estimates with contingency adders," because the inclusion of contingency is standard in the industry to capture costs that, although not individually itemized, are reasonably anticipated to be incurred on construction projects. Subject to and without waiving the foregoing objection, SoCalGas responds as follows:

Yes, there are contingency adders included. The contingency categories are productivity, scope, pricing and duration. The following are the cost components within which contingencies are applied:

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- Site Mobilization
- Site Preparation
- Site Facilities
- Site Management / Best Management Practices (BMPs)
- Pipe Transportation / Handling
- Traffic Control
- Site Right-of-Way (ROW) Clearing
- Utility Locates
- Site Excavations
- Remove Existing / Install New Pipeline Features
- Cathodic Protection
- Isolate Existing Pipeline
- Hydrotest Pipeline
- Tie-In Pipeline / Reconnect Taps
- Backfill Excavations
- Site Restoration
- Site Demobilization
- Field Overhead
- Other Contractor
- SoCalGas Labor - Mgmt. & Non-Labor
- SoCalGas Labor - Union T/H
- Material- Pipe & Fittings
- Material-Valves
- Material- Other
- Engineering / Design Services
- Project Management / Project Services
- Construction Management
- Surveying / As-builts
- Environmental Services
- Pressure Test Certification Services
- Water Storage
- X-ray / Non-destructive evaluation (NDE)
- Land Services
- CNG / LNG
- Spreadboss
- Miscellaneous Services
- Permits
- Other Non-Labor Costs
- Allowances

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SoCalGas Response 5-3:-Continued

Contingency is a direct cost to the project and is anticipated to be spent over the course of engineering, design, procurement, and construction. Per the Association for the Advancement of Cost Engineering (AACEi), contingency is defined as:

An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience. Contingency usually excludes: 1) Major scope changes such as changes in end product specification, capacities, building sizes, and location of the asset or project; 2) Extraordinary events such as major strikes and natural disasters; 3) Management reserves; and 4) Escalation and currency effects. Some of the items, conditions, or events for which the state, occurrence, and/or effect is uncertain include, but are not limited to, planning and estimating errors and omissions, minor price fluctuations (other than general escalation), design developments and changes within the scope, and variations in market and environmental conditions. Contingency is generally included in most estimates, and is expected to be expended.¹

- m. As shown in the capital workpapers, 2017-2019 capital expenditures depicted in witness testimony are presented as direct costs for labor and non-labor, and in the cases where standard escalation is not applicable, are classified as non-standard escalation or ‘NSE.’ As such, the only additional adder included in the labor forecast is vacation and sick (V&S) time. A standard V&S rate is applied to the forecasted labor cost of a project, as shown in the applicable capital workpaper.
- n. No. There are no indirect cost included in these cost estimates.
- o. Workpapers associated with SoCalGas and SDG&E’s RAMP Report can be Accessed using the following steps:
Visit the RAMP proceeding on SDG&E’s website:
[:https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas](https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas).
- Click on “Discovery.”
 - Click on “CUE.”
 - The risk reduction workpapers are shown as “CUE DR-01 RAMP RSE Workpapers.” The cost-related workpapers are labeled as “CUE DR-01 Cost Workpapers.”

In addition, as stated in the Direct Testimony of RAMP to GRC Integration witness Jamie York (Exhibit SCG-02-R/SDGE-02-R, Chapter 3), “much information from the RAMP Report was transcribed and is shown in the GRC witness’ workpapers to provide context as well as a comparison reference to the RAMP Report itself.

¹ See AACEi Recommended Practice 10S-90, *Cost Engineering Terminology*, available for free to the general public at <https://web.aacei.org/docs/default-source/rps/10s-90.pdf?sfvrsn=18>.

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SoCalGas Response 5-3.o:-Continued

Such information includes the RAMP risk the particular activity was associated with, the name of the mitigation as presented in the RAMP Report, the estimated range of costs put forth in the RAMP for the mitigation activity, the funding source (i.e., CPUC-GRC, FERC), the work type (e.g., mandated) and citation (e.g., General Order 165), and the 2016 embedded historical cost estimate.” (Exhibit SCG-02-R/SDGE-02-R, Chapter 3 at p. JKY-7 lines 3-10.)

- p. As mentioned in the RAMP Report Chapter A at p. SDGE/SCG A-2, “The purpose of RAMP is not to request funding. Any finding requests will be made in the GRC. RAMP mitigation forecasts are providing only to estimate a range that will be refined with supporting testimony in the GRC.” Accordingly, the project assumptions and estimated costs put forth in the RAMP Report were superseded by the requests made in supporting testimony in the Test Year 2019 GRC. For the locations of the requested projects in the RAMP Report, please refer to the response to part m above.
- q. SoCalGas objects to Question 5-3.q. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-3.q. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-3.q. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

The design, construction and testing of the pipeline is governed by state regulations which flow from federal regulations. 49 Code of Federal Regulations (CFR), Section 192, Subpart J. sets forth the minimum strength testing and record keeping requirements for pipelines.

- r. SoCalGas objects to Question 5-3.r. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-3.r. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-3.r. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

Yes. See the Natural Gas Pipeline Safety Act of 2011 and California Public Utilities Commission decisions in R.11-02-019 and A.11-11.002.

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- s. SoCalGas objects to Question 5-3.s. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-3.s. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-3.s. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

SoCalGas is unaware of any applicable proposed state or federal regulations.

- t. SoCalGas and SDG&E object to this request as out of scope. Subject to and without waiving the foregoing objection, SoCalGas and SDG&E responds as follows:

Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio calculations were not presented in the TY 2019 GRC. This approach is consistent with guidance stemming from the RAMP proceeding, as shown in the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1): “Through the SED Evaluation Report and comments submitted in response to both the SED Evaluation Report and the Companies’ RAMP Report, stakeholders agreed that the RSEs are evolving, should be further refined in the S-MAP, and have limited usefulness in their current state.” (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1 at p. DD-17 lines 18-21.) SoCalGas and SDG&E’s comments in the RAMP proceeding stated “the Utilities do not plan to include their nascent RSE calculations in the upcoming TY 2019 GRC. However, the Utilities will work with the parties and the Commission in the S-MAP proceeding toward furthering development of a more useful effectiveness metric in the next RAMP.” (I.16-10-015/I.16-10-016. SoCalGas and SDG&E Opening Comments (April 24, 2017), at 4-5; and SoCalGas and SDG&E Reply Comments (May 9, 2017), at 6-8.) Please see the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1) and the Direct Testimony of Jamie York (Exhibit SCG-02-R/SDG&E-02-R, Chapter 3) for more information regarding the Commission’s guidance in presenting the first-ever risk-informed GRC.

- u. Line 235 West Section 3 consists of 26.537 miles of Category Four pipe and 0.347 miles of Category One pipe.

This is a Phase 2A project and, as stated on pg. RDP-A-7 of SCG-15. Phase 2A addresses pipe located in Class 1 and 2 non-high consequence areas.

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- v. The attached documents include Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. See attached KMZ files.

“IS DR-005 Q03V CONFIDENTIAL 235 W Sec3 .kmz”

- w. There are 26 buildings within 300 feet of the pipe associated with Line 235 West Section 3 Pressure Test Project.
- x. Economies of scale were considered and planned into the projects on the same pipeline. The sections defined as a project are delineated based on the approximate schedule for each project.

Some factors that affect decisions on length of individual projects include gas system availability, permit acquisition and restrictions, land acquisition and restrictions, number of project personnel. In addition, the distance between individual projects on the same pipeline also factor into the decisions, for example, the line 2000 Chino Hills and Line 2000 E of Cactus City projects are approx. 115 miles apart.

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- 5-4. Please refer to the PSEP supplemental workpaper of SCG witness Richard Phillips, Exhibit No. SCG-15-WPS, at the pages associated with the Line 407 Pressure Test Project.
- a. Please explain why this project must be completed in the proposed time frame i.e., during the 2019 GRC cycle, rather than spread over a greater number of years, i.e., during future GRC cycles.
 - b. Please explain how the Focus on Reasonable Rates and Continuous Improvement, as described on page 4 of the Application and page 3 of the Direct Testimony of Bret Lane, was considered for this project. Additionally, please provide the revenue requirement impact of this project for each year in the GRC cycle (2019, 2020, 2021, 2022) and all supporting documentation.
 - c. Please explain why the proposed number of individual test sections are required for this project. Is it feasible and reliable to complete this pressure test with fewer test sections? Please provide a detailed narrative explaining the response, and support for those positions.
 - d. Please explain how the number of individual test sections impacts the overall budget of the project. Is the forecast developed based on the specific cost to pressure test each individual section?
 - e. Please provide a detailed breakdown of each of the cost estimate components presented (Materials, Construction, Environmental Survey/Permitting/Monitoring, Land & Right-of-Way Acquisition, Company Labor, and Other Capital Costs) for each year separately, including prior to 2018. For the costs incurred prior to 2018 please identify in what year the cost was incurred. This detailed breakdown should explicitly detail the number of units or hours included in the estimate, as well as cost per unit or cost per hour of each item that is required to arrive at the total labor and non-labor costs associated with this cost estimate component. Further, please provide a detailed explanation of the activity associated with each cost component and why it is required to be included in this cost estimate. For all cost components, any assumptions or additional information identified in the PSEP supplemental workpaper should clearly be shown in the detailed cost estimate breakdown provided in response to this discovery.
 - f. Please provide the split between O&M and Capital for each cost component and explain how that split was determined. Additionally, provide a workpaper showing the calculation of this split.

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Question 5.4 - Continued

- g. Please provide the cost model utilized to determine the cost estimates provided in response to part d. above. If available in Excel spreadsheet format, provide with all formulas and links intact.
- h. Please explain the nature of the work conducted for this project prior to 2018. For each item identify the year in which the work was completed.
- i. Provide the unit cost per test head. Please explain why SoCalGas determined the number of test heads identified is required to complete the project. Please explain why more test heads than the number of test sections was deemed necessary to complete this pressure test project.

Please explain why these test heads cannot be re-used for multiple test segments.

- j. If not provided in part d. above, please provide a detailed breakdown of the costs associated with the Field Overhead portion of the Construction cost component, the SoCalGas Labor portion of Company Labor cost component, and the SoCalGas Field Labor portion of Company Labor cost component.
- k. Please explain how it was determined that the costs associated with Other Capital Costs are required, as the other cost components have assumptions identified that represent the same services; Engineering, Project Management, Construction Management, and Surveying are included in other cost components. Please provide all supporting workpapers and documentation that were utilized to determine both the need and level cost associated with each item included in Other Capital Costs
- l. Please explain if there are any contingency adders included in these cost estimates. If so, please explain what contingencies are included, what cost components these contingencies are applied to, and why it is required to inflate the cost estimates with contingency adders.
- m. Please explain if any overhead or profit adders are included in these cost estimates. If so, please explain what overhead is included, what cost components these adders are applied to, and why it is required to inflate the cost estimates with overhead and profit adders.
- n. Please explain if there are any additional indirect costs included in these cost estimates not discussed previously.
- o. Please provide all workpapers from the 2016 RAMP Report associated with this project.

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Question 5.4 - Continued

- p. Please identify the exact locations in the 2016 RAMP report that discuss this project.
- q. Is this project mandated by any approved Federal regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- r. Is this project mandated by any approved California regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- s. Is this project mandated by any proposed State or Federal regulations? If so, please identify these proposed regulations and explain how this project makes SoCalGas compliant with these regulations.
- t. Please provide the Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio (as they are defined by the 2016 RAMP report) associated with this project. Additionally, explain how the scores in these metrics led SoCalGas to the decision that the 2019 GRC was the appropriate time to propose this project.
- u. Please explain what Category (1-4) and Class (1-4), as described in the workpaper glossary, this pipeline belongs to.
- v. Please provide the GIS data (a .gpd geodatabase or the individual .shp shape files will suffice, as will .kmz or .kml files) associated with this project and used to display the Project Map for this project.
- w. Please provide the number of buildings intended for human occupancy that exist within 300 feet of the pipeline associated with this project.
- x. Please explain if there are any economies of scale benefits captured for other pipeline pressure test projects associated with the same pipeline. If not, please provide a detailed narrative explaining why benefits associated with economies of scale would not be applicable to other pressure tests conducted on the same pipeline.

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SoCalGas Response 5-4:

- a. The proposed schedule is consistent with the Commission requirement set forth in D.11-06-017 on page 19 that PSEP be completed “as soon as practicable” and the directives in the Natural Gas Pipeline Safety Act of 2011 that the plan “shall include a timeline for completion that is as soon as practicable” (Pub. Util. Code § 958).
- b. One of the primary objectives of PSEP, is to maximize the cost effectiveness of safety investments for the benefit of customers, as indicated on pages RDP-A-5, RDP-A-15, RDP-A-16, RDP-A-20, RDP-A-21 and RDP-57 of SCG-15. The forecasted costs of are based on project specific estimates that were developed for each pipeline project, based on detailed engineering and project planning analysis.

SoCalGas does not forecast its revenue requirement for individual projects or work activities at the level of detail requested. Page RDP-A-21 of Exhibit SCG-15 describes the process of normalizing the forecasted PSEP O&M expenditures for the test year. The normalized 2019 PSEP O&M expenditures as well as any PSEP capital expenditures projected to be in service by TY 2019 were an input to the overall forecasted TY 2019 SoCalGas revenue requirement.

Beyond 2019, an attrition mechanism is established to escalate revenue requirement throughout the post-test years until a new rate case can be filed and approved. In the case of PSEP, a specific revenue requirement “adder” was included in the Post-Test Year request for the entirety of the PSEP capital forecasts projected to be in-service in the post-test years. Revenue requirement was not forecasted on a PSEP project by project basis. Please see the Direct testimony of Jawaad Malik (Exhibit SCG-44) beginning on page JAM-9 for Post-Test Year Ratemaking. Details for PSEP for 2020-2022 can be found in the PSEP workpapers of Jawaad Malik (Exhibit SCG-44-WP) starting on page SCG-44 WP JAM PSEP-1.

- c. The number of test sections was determined for each pipeline based on its operating characteristics, operating percent Specified Minimum Yield Strength (SMYS) and planned maximum test pressure. This process was used for all the hydrotest projects in the filing. The differences in the number of test sections are due to the unique elevation profile along each pipeline. Engineering judgment is used to plan the projects based on the profile and the conditions stated.

As stated on Page WP-I-A49 of SCG-15-WP-S, the project requires two individual test sections to address test pressure limitations due to elevation changes totaling 1,290 feet (1,890 feet at highest elevation and 600 feet at lowest elevation). Elevation is a key determining factor for selecting the number of test breaks in any given project.

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- d. The number of individual test sections increases the overall budget of a project by increasing the schedule, scope of work, and the duration based field support staff such as: environmental monitors, inspectors, cost analysts, construction team leads, etc. The forecast was developed based on the project's scope of work and not just the specific cost to pressure test each individual section.

Each overall budget is impacted by the number of test sections. Additional test sections require additional test heads, water handling, pipe handling, etc. to complete each additional test. The detailed estimate is based on each project's anticipated conditions, scope, etc.

- e. Please see attached estimate in response to Question 4F for a detailed breakdown of costs. Costs incurred prior to 2018 were incurred in 2017.

Material is required for test heads, replacement sections, and to perform hydro-testing operations.

Environmental is included for abatement activities, water sampling, environmental monitors, and industrial hygienists.

Surveying/Permitting/Monitoring is required to locate the pipeline, update GIS databases, monitor for protected species, and to acquire work permits with municipalities and environmental agencies.

Company Labor is required to schedule, perform cost controlling, estimating, project management, contract issuing and field oversight.

Other Capital Costs are required to perform project engineering and design, project management, environmental services, and survey services.

“IS DR-005 Q04F CONFIDENTIAL 407 Hydro Ph2 Stage 3 Est 05-08-17_redacted.xlsm.”

- f. **The attached document includes Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. Note that the attached files have also been redacted to remove non-responsive, non-relevant employee information.**

Please see illustrative example in the response to Question 2F, indicating where in the attached spreadsheets this information can be obtained for each project.

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- g. Please see the attachment provided in response to Question 4F.

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SoCalGas Response 5-4:-Continued

- h. Work performed prior to 2018 is associated with the planning and engineering design for projects anticipated to be in construction in 2019. For details on PSEP’s planning and engineering design work please refer to SCG-15 Direct Testimony (Phillips) at pp. RDP-A-23 and 24.
- i. Each test section requires two test heads, one at each end to isolate the section for testing. The number of test heads required for each project was based on the engineering analysis and judgment of each individual project, and is proportional to the number of test sections for a given project. Projects with multiple test sections may reuse tests heads based on schedule duration (i.e., the timing of the individual tests), water management plans and other factors.

For line 407, the unit cost for a test head is \$5,883.01 (Direct Cost without contingency, taxes, or freight).

- j. Please see the attachment provided in response to Question 4F.
Field Overhead - see worksheet tab “Construction Contractor.”
SoCalGas Labor - see worksheets “Engr” and “CM.”

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- k. It is typical on PSEP projects to have a project team comprised of both, full-time Company employees and Contract employees. “Other Capital Costs” represents costs for contracted Purchased Services (i.e., contract employees hired to augment staffing of SoCalGas/SDG&E company employees.

Engineering and Project Management include activities that are captured in different areas of the estimates. Costs were determined based on an execution strategy, anticipated construction duration and planned activities. See attached estimate provided in response to Question 4F.

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- l. SoCalGas objects to the portion of the question that asks, “why it is required to inflate the cost estimates with contingency adders,” because the inclusion of contingency is standard in the industry to capture costs that, although not individually itemized, are reasonably anticipated to be incurred on construction projects. Subject to and without waiving the foregoing objection, SoCalGas responds as follows:

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SoCalGas Response 5-4.1:-Continued

Yes, there are contingency adders included. The contingency categories are productivity, scope, pricing and duration. The following are the cost components within which contingencies are applied:

- Site Mobilization
- Site Preparation
- Site Facilities
- Site Management / Best Management Practices (BMPs)
- Pipe Transportation / Handling
- Traffic Control
- Site Right-of-Way (ROW) Clearing
- Utility Locates
- Site Excavations
- Remove Existing / Install New Pipeline Features
- Cathodic Protection
- Isolate Existing Pipeline
- Hydrotest Pipeline
- Tie-In Pipeline / Reconnect Taps
- Backfill Excavations
- Site Restoration
- Site Demobilization
- Field Overhead
- Other Contractor
- SoCalGas Labor - Mgmt. & Non-Labor
- SoCalGas Labor - Union T/H
- Material- Pipe & Fittings
- Material-Valves
- Material- Other
- Engineering / Design Services
- Project Management / Project Services
- Construction Management
- Surveying / As-builts
- Environmental Services
- Pressure Test Certification Services
- Water Storage
- X-ray / Non-destructive evaluation (NDE)
- Land Services
- CNG / LNG
- Spreadboss
- Miscellaneous Services
- Permits
- Other Non-Labor Costs
- Allowances

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SoCalGas Response 5-4.I:-Continued

Contingency is a direct cost to the project and is anticipated to be spent over the course of engineering, design, procurement, and construction. Per the Association for the Advancement of Cost Engineering (AACEi), contingency is defined as:

An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience. Contingency usually excludes: 1) Major scope changes such as changes in end product specification, capacities, building sizes, and location of the asset or project; 2) Extraordinary events such as major strikes and natural disasters; 3) Management reserves; and 4) Escalation and currency effects. Some of the items, conditions, or events for which the state, occurrence, and/or effect is uncertain include, but are not limited to, planning and estimating errors and omissions, minor price fluctuations (other than general escalation), design developments and changes within the scope, and variations in market and environmental conditions. Contingency is generally included in most estimates, and is expected to be expended.¹

- m. As shown in the capital workpapers, 2017-2019 capital expenditures depicted in witness testimony are presented as direct costs for labor and non-labor, and in the cases where standard escalation is not applicable, are classified as non-standard escalation or ‘NSE.’ As such, the only additional adder included in the labor forecast is vacation and sick (V&S) time. A standard V&S rate is applied to the forecasted labor cost of a project, as shown in the applicable capital workpaper.
- n. No. There are no indirect cost included in these cost estimates.
- o. Workpapers associated with SoCalGas and SDG&E’s RAMP Report can be accessed using the following steps:
Visit the RAMP proceeding on SDG&E’s website:
<https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas>.
- Click on “Discovery.”
 - Click on “CUE.”
 - The risk reduction workpapers are shown as “CUE DR-01 RAMP RSE Workpapers.” The cost-related workpapers are labeled as “CUE DR-01 Cost Workpapers.”

¹ See AACEi Recommended Practice 10S-90, *Cost Engineering Terminology*, available for free to the general public at <https://web.aacei.org/docs/default-source/rps/10s-90.pdf?sfvrsn=18>.

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SoCalGas Response 5-4.o:-Continued

In addition, as stated in the Direct Testimony of RAMP to GRC Integration witness Jamie York (Exhibit SCG-02-R/SDGE-02-R, Chapter 3), “much information from the RAMP Report was transcribed and is shown in the GRC witness’ workpapers to provide context as well as a comparison reference to the RAMP Report itself. Such information includes the RAMP risk the particular activity was associated with, the name of the mitigation as presented in the RAMP Report, the estimated range of costs put forth in the RAMP for the mitigation activity, the funding source (i.e., CPUC-GRC, FERC), the work type (e.g., mandated) and citation (e.g., General Order 165), and the 2016 embedded historical cost estimate.” (Exhibit SCG-02-R/SDGE-02-R, Chapter 3 at p. JKY-7 lines 3-10.)

p. As mentioned in the RAMP Report Chapter A at p. SDGE/SCG A-2, “The purpose of RAMP is not to request funding. Any finding requests will be made in the GRC. RAMP mitigation forecasts are providing only to estimate a range that will be refined with supporting testimony in the GRC.” Accordingly, the project assumptions and estimated costs put forth in the RAMP Report were superseded by the requests made in supporting testimony in the Test Year 2019 GRC. For the locations of the requested projects in the RAMP Report, please refer to the response to part m above.

q. SoCalGas objects to Question 5-4.q. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-4.q. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-4.q. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

The design, construction and testing of the pipeline is governed by state regulations which flow from federal regulations. 49 Code of Federal Regulations (CFR), Section 192, Subpart J. sets forth the minimum strength testing and record keeping requirements for pipelines.

r. SoCalGas objects to Question 5-4.r. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-4.r. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-4.r. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.).

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SoCalGas Response 5-4.r:-Continued

This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

Yes. See the Natural Gas Pipeline Safety Act of 2011 and California Public Utilities Commission decisions in R.11-02-019 and A.11-11.002.

- s. SoCalGas objects to Question 5-4.s. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-4.s. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-4.s. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

SoCalGas is unaware of any applicable proposed state or federal regulations.

- t. SoCalGas and SDG&E object to this request as out of scope. Subject to and without waiving the foregoing objection, SoCalGas and SDG&E responds as follows:

Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio calculations were not presented in the TY 2019 GRC. This approach is consistent with guidance stemming from the RAMP proceeding, as shown in the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1): “Through the SED Evaluation Report and comments submitted in response to both the SED Evaluation Report and the Companies’ RAMP Report, stakeholders agreed that the RSEs are evolving, should be further refined in the S-MAP, and have limited usefulness in their current state.” (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1 at p. DD-17 lines 18-21.) SoCalGas and SDG&E’s comments in the RAMP proceeding stated “the Utilities do not plan to include their nascent RSE calculations in the upcoming TY 2019 GRC. However, the Utilities will work with the parties and the Commission in the S-MAP proceeding toward furthering development of a more useful effectiveness metric in the next RAMP.” (I.16-10-015/I.16-10-016. SoCalGas and SDG&E Opening Comments (April 24, 2017), at 4-5; and SoCalGas and SDG&E Reply Comments (May 9, 2017), at 6-8.) Please see the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1) and the Direct Testimony of Jamie York (Exhibit SCG-02-R/SDG&E-02-R, Chapter 3) for more information regarding the Commission’s guidance in presenting the first-ever risk-informed GRC.

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SoCalGas Response 5-4:-Continued

- u. Line 407 consist of 3.959 miles of Category Four pipe and 0.013 miles of Category One pipe.

This is a Phase 2A project and, as stated on pg. RDP-A-7 of SCG-15. Phase 2A addresses pipe located in Class 1 and 2 non-high consequence areas.

- v. **The attached documents include Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023.** See attached KMZ files.

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- w. There are 0 buildings within 300 feet of the pipe associated with Line 407 Pressure Test Project.
- x. Economies of scale were considered and planned into the projects on the same pipeline. The sections defined as a project are delineated based on the approximate schedule for each project.
Some factors that affect decisions on length of individual projects include gas system availability, permit acquisition and restrictions, land acquisition and restrictions, number of project personnel. In addition, the distance between individual projects on the same pipeline also factor into the decisions, for example, the line 2000 Chino Hills and Line 2000 E of Cactus City projects are approx. 115 miles apart.

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5-5. Please refer to the PSEP supplemental workpaper of SCG witness Richard Phillips, Exhibit No. SCG-15-WPS, at the pages associated with the Line 1011 Pressure Test Project.

- a. Please explain why this project must be completed in the proposed time frame i.e., during the 2019 GRC cycle, rather than spread over a greater number of years, i.e., during future GRC cycles.
- b. Please explain how the Focus on Reasonable Rates and Continuous Improvement, as described on page 4 of the Application and page 3 of the Direct Testimony of Bret Lane, was considered for this project. Additionally, please provide the revenue requirement impact of this project for each year in the GRC cycle (2019, 2020, 2021, 2022) and all supporting documentation.
- c. Please explain why the proposed number of individual test sections are required for this project. Is it feasible and reliable to complete this pressure test with fewer test sections? Please provide a detailed narrative explaining the response, and support for those positions.
- d. Please explain how the number of individual test sections impacts the overall budget of the project. Is the forecast developed based on the specific cost to pressure test each individual section?
- e. Please provide a detailed breakdown of each of the cost estimate components presented (Materials, Construction, Environmental Survey/Permitting/Monitoring, Land & Right-of-Way Acquisition, Company Labor, and Other Capital Costs) for each year separately, including prior to 2018. For the costs incurred prior to 2018 please identify in what year the cost was incurred. This detailed breakdown should explicitly detail the number of units or hours included in the estimate, as well as cost per unit or cost per hour of each item that is required to arrive at the total labor and non-labor costs associated with this cost estimate component. Further, please provide a detailed explanation of the activity associated with each cost component and why it is required to be included in this cost estimate. For all cost components, any assumptions or additional information identified in the PSEP supplemental workpaper should clearly be shown in the detailed cost estimate breakdown provided in response to this discovery.
- f. Please provide the split between O&M and Capital for each cost component and explain how that split was determined. Additionally, provide a workpaper showing the calculation of this split.
- g. Please provide the cost model utilized to determine the cost estimates provided in response to part d. above. If available in Excel spreadsheet format, provide with all formulas and links intact.

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Question 5.5 - Continued

- h. Please explain the nature of the work conducted for this project prior to 2018. For each item identify the year in which the work was completed.
- i. Provide the unit cost per test head. Please explain why SoCalGas determined the number of test heads identified is required to complete the project. Please explain why more test heads than the number of test sections was deemed necessary to complete this pressure test project. Please explain why these test heads cannot be re-used for multiple test segments.
- j. If not provided in part d. above, please provide a detailed breakdown of the costs associated with the Field Overhead portion of the Construction cost component, the SoCalGas Labor portion of Company Labor cost component, and the SoCalGas Field Labor portion of Company Labor cost component.
- k. Please explain how it was determined that the costs associated with Other Capital Costs are required, as the other cost components have assumptions identified that represent the same services; Engineering, Project Management, Construction Management, and Surveying are included in other cost components. Please provide all supporting workpapers and documentation that were utilized to determine both the need and level cost associated with each item included in Other Capital Costs
- l. Please explain if there are any contingency adders included in these cost estimates. If so, please explain what contingencies are included, what cost components these contingencies are applied to, and why it is required to inflate the cost estimates with contingency adders.
- m. Please explain if any overhead or profit adders are included in these cost estimates. If so, please explain what overhead is included, what cost components these adders are applied to, and why it is required to inflate the cost estimates with overhead and profit adders.
- n. Please explain if there are any additional indirect costs included in these cost estimates not discussed previously.
- o. Please provide all workpapers from the 2016 RAMP Report associated with this project.
- p. Please identify the exact locations in the 2016 RAMP report that discuss this project.
- q. Is this project mandated by any approved Federal regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.

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Question 5.5 - Continued

- r. Is this project mandated by any approved California regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- s. Is this project mandated by any proposed State or Federal regulations? If so, please identify these proposed regulations and explain how this project makes SoCalGas compliant with these regulations.
- t. Please provide the Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio (as they are defined by the 2016 RAMP report) associated with this project. Additionally, explain how the scores in these metrics led SoCalGas to the decision that the 2019 GRC was the appropriate time to propose this project.
- u. Please explain what Category (1-4) and Class (1-4), as described in the workpaper glossary, this pipeline belongs to.
- v. Please provide the GIS data (a .gpd geodatabase or the individual .shp shape files will suffice, as will .kmz or .kml files) associated with this project and used to display the Project Map for this project.
- w. Please provide the number of buildings intended for human occupancy that exist within 300 feet of the pipeline associated with this project.
- x. Please explain if there are any economies of scale benefits captured for other pipeline pressure test projects associated with the same pipeline. If not, please provide a detailed narrative explaining why benefits associated with economies of scale would not be applicable to other pressure tests conducted on the same pipeline.

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SoCalGas Response 5-5:

- a. The proposed schedule is consistent with the Commission requirement set forth in D.11-06-017 on page 19 that PSEP be completed “as soon as practicable” and the directives in the Natural Gas Pipeline Safety Act of 2011 that the plan “shall include a timeline for completion that is as soon as practicable” (Pub. Util. Code § 958).
- b. One of the primary objectives of PSEP, is to maximize the cost effectiveness of safety investments for the benefit of customers, as indicated on pages RDP-A-5, RDP-A-15, RDP-A-16, RDP-A-20, RDP-A-21 and RDP-57 of SCG-15. The forecasted costs of are based on project specific estimates that were developed for each pipeline project, based on detailed engineering and project planning analysis.

SoCalGas does not forecast its revenue requirement for individual projects or work activities at the level of detail requested. Page RDP-A-21 of Exhibit SCG-15 describes the process of normalizing the forecasted PSEP O&M expenditures for the test year. The normalized 2019 PSEP O&M expenditures as well as any PSEP capital expenditures projected to be in service by TY 2019 were an input to the overall forecasted TY 2019 SoCalGas revenue requirement.

Beyond 2019, an attrition mechanism is established to escalate revenue requirement throughout the post-test years until a new rate case can be filed and approved. In the case of PSEP, a specific revenue requirement “adder” was included in the Post-Test Year request for the entirety of the PSEP capital forecasts projected to be in-service in the post-test years. Revenue requirement was not forecasted on a PSEP project by project basis. Please see the Direct testimony of Jawaad Malik (Exhibit SCG-44) beginning on page JAM-9 for Post-Test Year Ratemaking. Details for PSEP for 2020-2022 can be found in the PSEP workpapers of Jawaad Malik (Exhibit SCG-44-WP) starting on page SCG-44 WP JAM PSEP-1.

- c. The number of test sections was determined for each pipeline based on its operating characteristics, operating percent Specified Minimum Yield Strength (SMYS) and planned maximum test pressure. This process was used for all the hydrotest projects in the filing. The differences in the number of test sections are due to the unique elevation profile along each pipeline. Engineering judgment is used to plan the projects based on the profile and the conditions stated.

As stated on Page WP-I-A60 of SCG-15-WP-S, the project requires two individual test sections to address the existence of an above ground span. Testing through the span would require additional pipe supports and modifications to the bends at the beginning and end of the pipeline span. The span can be removed from scope because it was installed in 1995 and there are valid test records from that project.

- d. The number of individual test sections increases the overall budget of a project by increasing the schedule, scope of work, and the duration based field support staff such as: environmental monitors, inspectors, cost analysts, construction team leads, etc.

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SoCalGas Response 5-5.d-Continued

The forecast was developed based on the project's scope of work and not just the specific cost to pressure test each individual section.

Each overall budget is impacted by the number of test sections. Additional test sections require additional test heads, water handling, pipe handling, etc. to complete each additional test. The detailed estimate is based on each project's anticipated conditions, scope, etc.

- e. Please see attached estimate in response to Question 5F for a detailed breakdown of costs. Costs incurred prior to 2018 were incurred in 2017.

Material is required for test heads, replacement sections, and to perform hydro-testing operations.

Environmental is included for abatement activities, water sampling, environmental monitors, and industrial hygienists.

Surveying/Permitting/Monitoring is required to locate the pipeline, update GIS databases, monitor for protected species, and to acquire work permits with municipalities and environmental agencies.

Company Labor is required to schedule, perform cost controlling, estimating, project management, contract issuing and field oversight.

Other Capital Costs are required to perform project engineering and design, project management, environmental services, and survey services.

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- f. **The attached document includes Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. Note that the attached files have also been redacted to remove non-responsive, non-relevant employee information.**

Please see illustrative example in the response to question 2F, indicating where in the attached spreadsheets this information can be obtained for each project.

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- g. Please see the attachment provided in response to question 5F.

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- h. Work performed prior to 2018 is associated with the planning and engineering design for projects anticipated to be construction in 2019. For details on PSEP's planning and engineering design work please refer to SCG-15 Direct Testimony (Phillips) at pp. RDP-A-23 and 24.

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SoCalGas Response 5-5.-Continued

- i. Work performed prior to 2018 is associated with the planning and engineering design for projects anticipated to be construction in 2019. For details on PSEP's planning and engineering design work please refer to SCG-15 Direct Testimony (Phillips) at pp. RDP-A-23 and 24.

For line 1011 the unit cost for a test head Type I is \$14,397.77 (Direct Cost without contingency, taxes, or freight).

For line 1011 the unit cost for a test head Type II is \$12,598.06 (Direct Cost without contingency, taxes, or freight).

- j. Please see the attachment provided in response to question 5F.
Field Overhead - see worksheet tab "Construction Contractor."
SoCalGas Labor - see worksheets "Engr" and "CM."

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- k. It is typical on PSEP projects to have a project team comprised of both, full-time Company employees and Contract employees. "Other Capital Costs" represents costs for contracted Purchased Services (i.e., contract employees hired to augment staffing of SoCalGas/SDG&E company employees.

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Yes, there are contingency adders included. The contingency categories are productivity, scope, pricing and duration. The following are the cost components within which contingencies are applied:

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- 2-Site Preparation

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- 3-Site Facilities
- 4-Site Management / BMP's
- 5-Pipe transportation / Handling
- 6-Traffic Control
- 7-Site ROW Clearing
- 8-Utility Locates
- 9-Site Excavations
- 10-Remove Existing / Install New Pipeline Features
- 11-Cathodic Protection
- 12-Isolate Existing Pipeline
- 13-Hydrotest Pipeline
- 14-Tie-In Pipeline / Reconnect Taps
- 15-Backfill Excavations
- 16-Site Restoration
- 17-Site Demobilization
- 18-Field Overhead
- Other Contractor
- SCG Labor - Mgmt. & Non-Labor
- SCG Labor - Union T/H
- Material- Pipe & Fittings
- Material-Valves
- Material- Other
- Engineering / Design Services
- PM / Project Services
- Construction Management
- Surveying / As-builts
- Environmental Services
- Pressure Test Certification Services
- Water Storage
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- CNG / LNG
- Spreadboss
- Miscellaneous Services
- Permits
- Other Non-Labor Costs
- Allowances

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SoCalGas Response 5-5.1-Continued

An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience. Contingency usually excludes: 1) Major scope changes such as changes in end product specification, capacities, building sizes, and location of the asset or project; 2) Extraordinary events such as major strikes and natural disasters; 3) Management reserves; and 4) Escalation and currency effects. Some of the items, conditions, or events for which the state, occurrence, and/or effect is uncertain include, but are not limited to, planning and estimating errors and omissions, minor price fluctuations (other than general escalation), design developments and changes within the scope, and variations in market and environmental conditions. Contingency is generally included in most estimates, and is expected to be expended.¹

- m. As shown in the capital workpapers, 2017-2019 capital expenditures depicted in witness testimony are presented as direct costs for labor and non-labor, and in the cases where standard escalation is not applicable, are classified as non-standard escalation or ‘NSE.’ As such, the only additional adder included in the labor forecast is vacation and sick (V&S) time. A standard V&S rate is applied to the forecasted labor cost of a project, as shown in the applicable capital workpaper
- n. No. There are no indirect cost included in these cost estimates
- o. Workpapers associated with SoCalGas and SDG&E’s RAMP Report can be accessed using the following steps:
Visit the RAMP proceeding on SDG&E’s website:
<https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas>.
 - Click on “Discovery.”
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 - The risk reduction workpapers are shown as “CUE DR-01 RAMP RSE Workpapers.” The cost-related workpapers are labeled as “CUE DR-01 Cost Workpapers.”

In addition, as stated in the Direct Testimony of RAMP to GRC Integration witness Jamie York (Exhibit SCG-02-R/SDGE-02-R, Chapter 3), “much information from the RAMP Report was transcribed and is shown in the GRC witness’ workpapers to provide context as well as a comparison reference to the RAMP Report itself. Such information includes the RAMP risk the particular activity was associated with, the name of the mitigation as presented in the RAMP Report, the estimated range of costs put forth in the RAMP for the mitigation activity, the funding source (i.e.,

¹ See ACEi Recommended Practice 10S-90, *Cost Engineering Terminology*, available for free to the general public at <https://web.aacei.org/docs/default-source/rps/10s-90.pdf?sfvrsn=18>.

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SoCalGas Response 5-5.o-Continued

CPUC-GRC, FERC), the work type (e.g., mandated) and citation (e.g., General Order 165), and the 2016 embedded historical cost estimate.” (Exhibit SCG-02-R/SDGE-02-R, Chapter 3 at p. JKY-7 lines 3-10.

- p. As mentioned in the RAMP Report Chapter A at p. SDGE/SCG A-2, “The purpose of RAMP is not to request funding. Any finding requests will be made in the GRC. RAMP mitigation forecasts are providing only to estimate a range that will be refined with supporting testimony in the GRC.” Accordingly, the project assumptions and estimated costs put forth in the RAMP Report were superseded by the requests made in supporting testimony in the Test Year 2019 GRC. For the locations of the requested projects in the RAMP Report, please refer to the response to part m above.
- q. SoCalGas objects to Question 5-5.q. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-5.q. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-5.q. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

The design, construction and testing of the pipeline is governed by state regulations which flow from federal regulations. 49 Code of Federal Regulations (CFR), Section 192, Subpart J. sets forth the minimum strength testing and record keeping requirements for pipelines.

- r. SoCalGas objects to Question 5-5.r. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-5.r. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-5.r. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

Yes. See the Natural Gas Pipeline Safety Act of 2011 and California Public Utilities Commission decisions in R.11-02-019 and A.11-11.002.

- s. SoCalGas objects to Question 5-5.s. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission.

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SoCalGas Response 5-5.s-Continued

Question 5-5.s. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-5.s. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

SoCalGas is unaware of any applicable proposed state or federal regulations.

- t. SoCalGas and SDG&E object to this request as out of scope. Subject to and without waiving the foregoing objection, SoCalGas and SDG&E responds as follows:

Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio calculations were not presented in the TY 2019 GRC. This approach is consistent with guidance stemming from the RAMP proceeding, as shown in the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1): “Through the SED Evaluation Report and comments submitted in response to both the SED Evaluation Report and the Companies’ RAMP Report, stakeholders agreed that the RSEs are evolving, should be further refined in the S-MAP, and have limited usefulness in their current state.” (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1 at p. DD-17 lines 18-21.) SoCalGas and SDG&E’s comments in the RAMP proceeding stated “the Utilities do not plan to include their nascent RSE calculations in the upcoming TY 2019 GRC. However, the Utilities will work with the parties and the Commission in the S-MAP proceeding toward furthering development of a more useful effectiveness metric in the next RAMP.” (I.16-10-015/I.16-10-016. SoCalGas and SDG&E Opening Comments (April 24, 2017), at 4-5; and SoCalGas and SDG&E Reply Comments (May 9, 2017), at 6-8.) Please see the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1) and the Direct Testimony of Jamie York (Exhibit SCG-02-R/SDG&E-02-R, Chapter 3) for more information regarding the Commission’s guidance in presenting the first-ever risk-informed GRC.

- u. Line 1011 consist of 1.495 miles of Category Four pipe and .278 miles of Category One pipe.

This is a Phase 2A project and, as stated on pg. RDP-A-7 of SCG-15. Phase 2A addresses pipe located in Class 1 and 2 non-high consequence areas.

- v. **The attached documents include Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023.** See attached KMZ files.

“IS DR-005 Q05V CONFIDENTIAL 1011 .kmz file”

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SoCalGas Response 5-5.-Continued

- W. There are 0 buildings within 300 feet of the pipe associated with Line 1011 Pressure Test Project.

- X. Economies of scale were considered and planned into the projects on the same pipeline. The sections defined as a project are delineated based on the approximate schedule for each project.

Some factors that affect decisions on length of individual projects include gas system availability, permit acquisition and restrictions, land acquisition and restrictions, number of project personnel. In addition, the distance between individual projects on the same pipeline also factor into the decisions, for example, the line 2000 Chino Hills and Line 2000 E of Cactus City projects are approx. 115 miles apart.

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- 5-6. Please refer to the PSEP supplemental workpaper of SCG witness Richard Phillips, Exhibit No. SCG-15-WPS, at the pages associated with the Line 2000 Chino Hills Pressure Test Project.
- a. Please explain why this project must be completed in the proposed time frame i.e., during the 2019 GRC cycle, rather than spread over a greater number of years, i.e., during future GRC cycles.
 - b. Please explain how the Focus on Reasonable Rates and Continuous Improvement, as described on page 4 of the Application and page 3 of the Direct Testimony of Bret Lane, was considered for this project. Additionally, please provide the revenue requirement impact of this project for each year in the GRC cycle (2019, 2020, 2021, 2022) and all supporting documentation.
 - c. Please explain why the proposed number of individual test sections are required for this project. Is it feasible and reliable to complete this pressure test with fewer test sections? Please provide a detailed narrative explaining the response, and support for those positions.
 - d. Please explain how the number of individual test sections impacts the overall budget of the project. Is the forecast developed based on the specific cost to pressure test each individual section?
 - e. Please provide a detailed breakdown of each of the cost estimate components presented (Materials, Construction, Environmental Survey/Permitting/Monitoring, Land & Right-of-Way Acquisition, Company Labor, and Other Capital Costs) for each year separately, including prior to 2018. For the costs incurred prior to 2018 please identify in what year the cost was incurred. This detailed breakdown should explicitly detail the number of units or hours included in the estimate, as well as cost per unit or cost per hour of each item that is required to arrive at the total labor and non-labor costs associated with this cost estimate component. Further, please provide a detailed explanation of the activity associated with each cost component and why it is required to be included in this cost estimate. For all cost components, any assumptions or additional information identified in the PSEP supplemental workpaper should clearly be shown in the detailed cost estimate breakdown provided in response to this discovery.
 - f. Please provide the split between O&M and Capital for each cost component and explain how that split was determined. Additionally, provide a workpaper showing the calculation of this split.
 - g. Please provide the cost model utilized to determine the cost estimates provided in response to part d. above. If available in Excel spreadsheet format, provide with all formulas and links intact.

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Question 5.6 - Continued

- h. Please explain the nature of the work conducted for this project prior to 2018. For each item identify the year in which the work was completed.
- i. Provide the unit cost per test head. Please explain why SoCalGas determined the number of test heads identified is required to complete the project. Please explain why more test heads than the number of test sections was deemed necessary to complete this pressure test project. Please explain why these test heads cannot be re-used for multiple test segments.
- j. If not provided in part d. above, please provide a detailed breakdown of the costs associated with the Field Overhead portion of the Construction cost component, the SoCalGas Labor portion of Company Labor cost component, and the SoCalGas Field Labor portion of Company Labor cost component.
- k. Please explain how it was determined that the costs associated with Other Capital Costs are required, as the other cost components have assumptions identified that represent the same services; Engineering, Project Management, Construction Management, and Surveying are included in other cost components. Please provide all supporting workpapers and documentation that were utilized to determine both the need and level cost associated with each item included in Other Capital Costs
- l. Please explain if there are any contingency adders included in these cost estimates. If so, please explain what contingencies are included, what cost components these contingencies are applied to, and why it is required to inflate the cost estimates with contingency adders.
- m. Please explain if any overhead or profit adders are included in these cost estimates. If so, please explain what overhead is included, what cost components these adders are applied to, and why it is required to inflate the cost estimates with overhead and profit adders.
- n. Please explain if there are any additional indirect costs included in these cost estimates not discussed previously.
- o. Please provide all workpapers from the 2016 RAMP Report associated with this project.
- p. Please identify the exact locations in the 2016 RAMP report that discuss this project.
- q. Is this project mandated by any approved Federal regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.

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- r. Is this project mandated by any approved California regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- s. Is this project mandated by any proposed State or Federal regulations? If so, please identify these proposed regulations and explain how this project makes SoCalGas compliant with these regulations.
- t. Please provide the Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio (as they are defined by the 2016 RAMP report) associated with this project. Additionally, explain how the scores in these metrics led SoCalGas to the decision that the 2019 GRC was the appropriate time to propose this project.
- u. Please explain what Category (1-4) and Class (1-4), as described in the workpaper glossary, this pipeline belongs to.
- v. Please provide the GIS data (a .gpd geodatabase or the individual .shp shape files will suffice, as will .kmz or .kml files) associated with this project and used to display the Project Map for this project.
- w. Please provide the number of buildings intended for human occupancy that exist within 300 feet of the pipeline associated with this project.
- x. Please explain if there are any economies of scale benefits captured for other pipeline pressure test projects associated with the same pipeline. If not, please provide a detailed narrative explaining why benefits associated with economies of scale would not be applicable to other pressure tests conducted on the same pipeline.

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SoCalGas Response 5-6:

- a. The proposed schedule is consistent with the Commission requirement set forth in D.11-06-017 on page 19 that PSEP be completed “as soon as practicable” and the directives in the Natural Gas Pipeline Safety Act of 2011 that the plan “shall include a timeline for completion that is as soon as practicable” (Pub. Util. Code § 958).
- b. One of the primary objectives of PSEP, is to maximize the cost effectiveness of safety investments for the benefit of customers, as indicated on pages RDP-A-5, RDP-A-15, RDP-A-16, RDP-A-20, RDP-A-21 and RDP-57 of SCG-15. The forecasted costs of are based on project specific estimates that were developed for each pipeline project, based on detailed engineering and project planning analysis.

SoCalGas does not forecast its revenue requirement for individual projects or work activities at the level of detail requested. Page RDP-A-21 of Exhibit SCG-15 describes the process of normalizing the forecasted PSEP O&M expenditures for the test year. The normalized 2019 PSEP O&M expenditures as well as any PSEP capital expenditures projected to be in service by TY 2019 were an input to the overall forecasted TY 2019 SoCalGas revenue requirement.

Beyond 2019, an attrition mechanism is established to escalate revenue requirement throughout the post-test years until a new rate case can be filed and approved. In the case of PSEP, a specific revenue requirement “adder” was included in the Post-Test Year request for the entirety of the PSEP capital forecasts projected to be in-service in the post-test years. Revenue requirement was not forecasted on a PSEP project by project basis. Please see the Direct testimony of Jawaad Malik (Exhibit SCG-44) beginning on page JAM-9 for Post-Test Year Ratemaking. Details for PSEP for 2020-2022 can be found in the PSEP workpapers of Jawaad Malik (Exhibit SCG-44-WP) starting on page SCG-44 WP JAM PSEP-1.

- c. The number of test sections was determined for each pipeline based on its operating characteristics, operating percent Specified Minimum Yield Strength (SMYS) and planned maximum test pressure. This process was used for all the hydrotest projects in the filing. The differences in the number of test sections are due to the unique elevation profile along each pipeline. Engineering judgment is used to plan the projects based on the profile and the conditions stated.

As stated on Page WP-I-A71 of SCG-15-WP-S, the project requires 34 individual test sections to address test pressure limitations due to elevation changes totaling 1,090 feet (1,650 feet at highest elevation and 560 feet at lowest elevation). Elevation is a key determining factor for selecting the number of test breaks in any given project.

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SoCalGas Response 5-6:-Continued

- d. The number of individual test sections increases the overall budget of a project by increasing the schedule, scope of work, and the duration based field support staff such as: environmental monitors, inspectors, cost analysts, construction team leads, etc. The forecast was developed based on the project’s scope of work and not just the specific cost to pressure test each individual section.

Each overall budget is impacted by the number of test sections. Additional test sections require additional test heads, water handling, pipe handling, etc. to complete each additional test. The detailed estimate is based on each project’s anticipated conditions, scope, etc.

- e. Please see attached estimate in response to Question 6F for a detailed breakdown of costs. Costs incurred prior to 2018 were incurred in 2017.

Material is required for test heads, replacement sections, and to perform hydro-testing operations.

Environmental is included for abatement activities, water sampling, environmental monitors, and industrial hygienists.

Surveying/Permitting/Monitoring is required to locate the pipeline, update GIS databases, monitor for protected species, and to acquire work permits with municipalities and environmental agencies.

Company Labor is required to schedule, perform cost controlling, estimating, project management, contract issuing and field oversight.

Other Capital Costs are required to perform project engineering and design, project management, environmental services, and survey services.

“IS DR-005 Q06F CONFIDENTIAL 2000 Chino Hills Ph2 Stage 3 Est 06-23-17_redacted.xlsm.”

- f. **The attached document includes Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. Note that the attached files have also been redacted to remove non-responsive, non-relevant employee information.**

Please see illustrative example in the response to Question 2F, indicating where in the attached spreadsheets this information can be obtained for each project.

“IS DR-005 Q06F CONFIDENTIAL 2000 Chino Hills Ph2 Stage 3 Est 06-23-17_redacted.xlsm.”

- g. Please see the attachment provided in response to Question 6F.

“IS DR-005 Q06F CONFIDENTIAL 2000 Chino Hills Ph2 Stage 3 Est 06-23-17_redacted.xlsm.”

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- h. Work performed prior to 2018 is associated with the planning and engineering design for projects anticipated to be in construction in 2019. For details on PSEP's planning and engineering design work please refer to SCG-15 Direct Testimony (Phillips) at pp. RDP-A-23 and 24.
- i. Each test section requires two test heads, one at each end to isolate the section for testing. The number of test heads required for each project was based on the engineering analysis and judgment of each individual project, and is proportional to the number of test sections for a given project. Projects with multiple test sections may reuse tests heads based on schedule duration (i.e., the timing of the individual tests), water management plans and other factors.

For line 2000 Chino Hills, the unit cost for a test head is \$12,053.00 (Direct Cost without contingency, taxes, and freight).

- j. Please see the attachment provided in response to Question 6F.
Field Overhead - see worksheet tab "Construction Contractor."
SoCalGas Labor - see worksheets "Engr" and "CM."

"IS DR-005 Q06F CONFIDENTIAL 2000 Chino Hills Ph2 Stage 3 Est 06-23-17_redacted.xlsm."

- k. It is typical on PSEP projects to have a project team comprised of both, full-time Company employees and Contract employees. "Other Capital Costs" represents costs for contracted Purchased Services (i.e., contract employees hired to augment staffing of SoCalGas/SDG&E company employees.

Engineering and Project Management include activities that are captured in different areas of the estimates. Costs were determined based on an execution strategy, anticipated construction duration and planned activities. See attached estimate provided in response to Question 6F.

"IS DR-005 Q06F CONFIDENTIAL 2000 Chino Hills Ph2 Stage 3 Est 06-23-17_redacted.xlsm."

- l. SoCalGas objects to the portion of the question that asks, "why it is required to inflate the cost estimates with contingency adders," because the inclusion of contingency is standard in the industry to capture costs that, although not individually itemized, are reasonably anticipated to be incurred on construction projects. Subject to and without waiving the foregoing objection, SoCalGas responds as follows:

Yes, there are contingency adders included. The contingency categories are productivity, scope, pricing and duration. The following are the cost components within which contingencies are applied:

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- Site Mobilization
- Site Preparation
- Site Facilities
- Site Management / Best Management Practices (BMPs)
- Pipe Transportation / Handling
- Traffic Control
- Site Right-of-Way (ROW) Clearing
- Utility Locates
- Site Excavations
- Remove Existing / Install New Pipeline Features
- Cathodic Protection
- Isolate Existing Pipeline
- Hydrotest Pipeline
- Tie-In Pipeline / Reconnect Taps
- Backfill Excavations
- Site Restoration
- Site Demobilization
- Field Overhead
- Other Contractor
- SoCalGas Labor - Mgmt. & Non-Labor
- SoCalGas Labor - Union T/H
- Material- Pipe & Fittings
- Material-Valves
- Material- Other
- Engineering / Design Services
- Project Management / Project Services
- Construction Management
- Surveying / As-builts
- Environmental Services
- Pressure Test Certification Services
- Water Storage
- X-ray / Non-destructive evaluation (NDE)
- Land Services
- CNG / LNG
- Spreadboss
- Miscellaneous Services
- Permits
- Other Non-Labor Costs
- Allowances

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SoCalGas Response 5-6.I:-Continued

Contingency is a direct cost to the project and is anticipated to be spent over the course of engineering, design, procurement, and construction. Per the Association for the Advancement of Cost Engineering (AACEi), contingency is defined as:

An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience. Contingency usually excludes: 1) Major scope changes such as changes in end product specification, capacities, building sizes, and location of the asset or project; 2) Extraordinary events such as major strikes and natural disasters; 3) Management reserves; and 4) Escalation and currency effects. Some of the items, conditions, or events for which the state, occurrence, and/or effect is uncertain include, but are not limited to, planning and estimating errors and omissions, minor price fluctuations (other than general escalation), design developments and changes within the scope, and variations in market and environmental conditions. Contingency is generally included in most estimates, and is expected to be expended.¹

- m. As shown in the capital workpapers, 2017-2019 capital expenditures depicted in witness testimony are presented as direct costs for labor and non-labor, and in the cases where standard escalation is not applicable, are classified as non-standard escalation or ‘NSE.’ As such, the only additional adder included in the labor forecast is vacation and sick (V&S) time. A standard V&S rate is applied to the forecasted labor cost of a project, as shown in the applicable capital workpaper.
- n. No. There are no indirect cost included in these cost estimates.
- o. Workpapers associated with SoCalGas and SDG&E’s RAMP Report can be accessed using the following steps:
Visit the RAMP proceeding on SDG&E’s website:
<https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas>.
- Click on “Discovery.”
 - Click on “CUE.”
 - The risk reduction workpapers are shown as “CUE DR-01 RAMP RSE Workpapers.” The cost-related workpapers are labeled as “CUE DR-01 Cost Workpapers.”

¹ See AACEi Recommended Practice 10S-90, *Cost Engineering Terminology*, available for free to the general public at <https://web.aacei.org/docs/default-source/rps/10s-90.pdf?sfvrsn=18>.

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SoCalGas Response 5-6.o:-Continued

In addition, as stated in the Direct Testimony of RAMP to GRC Integration witness Jamie York (Exhibit SCG-02-R/SDGE-02-R, Chapter 3), “much information from the RAMP Report was transcribed and is shown in the GRC witness’ workpapers to provide context as well as a comparison reference to the RAMP Report itself. Such information includes the RAMP risk the particular activity was associated with, the name of the mitigation as presented in the RAMP Report, the estimated range of costs put forth in the RAMP for the mitigation activity, the funding source (i.e., CPUC-GRC, FERC), the work type (e.g., mandated) and citation (e.g., General Order 165), and the 2016 embedded historical cost estimate.” (Exhibit SCG-02-R/SDGE-02-R, Chapter 3 at p. JKY-7 lines 3-10.)

- p. As mentioned in the RAMP Report Chapter A at p. SDGE/SCG A-2, “The purpose of RAMP is not to request funding. Any finding requests will be made in the GRC. RAMP mitigation forecasts are providing only to estimate a range that will be refined with supporting testimony in the GRC.” Accordingly, the project assumptions and estimated costs put forth in the RAMP Report were superseded by the requests made in supporting testimony in the Test Year 2019 GRC. For the locations of the requested projects in the RAMP Report, please refer to the response to part m above.
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SoCalGas Response 5-6.r:-Continued

This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

Yes. See the Natural Gas Pipeline Safety Act of 2011 and California Public Utilities Commission decisions in R.11-02-019 and A.11-11.002.

- s. SoCalGas objects to Question 5-6.s. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-6.s. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-6.s. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

SoCalGas is unaware of any applicable proposed state or federal regulations.

- t. SoCalGas and SDG&E object to this request as out of scope. Subject to and without waiving the foregoing objection, SoCalGas and SDG&E responds as follows:

Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio calculations were not presented in the TY 2019 GRC. This approach is consistent with guidance stemming from the RAMP proceeding, as shown in the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1): “Through the SED Evaluation Report and comments submitted in response to both the SED Evaluation Report and the Companies’ RAMP Report, stakeholders agreed that the RSEs are evolving, should be further refined in the S-MAP, and have limited usefulness in their current state.” (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1 at p. DD-17 lines 18-21.) SoCalGas and SDG&E’s comments in the RAMP proceeding stated “the Utilities do not plan to include their nascent RSE calculations in the upcoming TY 2019 GRC. However, the Utilities will work with the parties and the Commission in the S-MAP proceeding toward furthering development of a more useful effectiveness metric in the next RAMP.” (I.16-10-015/I.16-10-016. SoCalGas and SDG&E Opening Comments (April 24, 2017), at 4-5; and SoCalGas and SDG&E Reply Comments (May 9, 2017), at 6-8.) Please see the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1) and the Direct Testimony of Jamie York (Exhibit SCG-02-R/SDG&E-02-R, Chapter 3) for more information regarding the Commission’s guidance in presenting the first-ever risk-informed GRC.

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SoCalGas Response 5-6:-Continued

- u. Line 2000 Chino Hills consists of 9.982 miles of Category Four pipe and 0.016 miles of Category One pipe.

This is a Phase 2A project and, as stated on pg. RDP-A-7 of SCG-15. Phase 2A addresses pipe located in Class 1 and 2 non-high consequence areas.

- v. **The attached documents include Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023.** See attached KMZ files.

“IS DR-005 Q06V CONFIDENTIAL 2000 Chino Hills .kmz file.”

- w. There are 17 buildings within 300 feet of the pipe associated with Line 2000 Chino Hills Pressure Test Project.
- x. Economies of scale were considered and planned into the projects on the same pipeline. The sections defined as a project are delineated based on the approximate schedule for each project.

Some factors that affect decisions on length of individual projects include gas system availability, permit acquisition and restrictions, land acquisition and restrictions, number of project personnel. In addition, the distance between individual projects on the same pipeline also factor into the decisions, for example, the line 2000 Chino Hills and Line 2000 E of Cactus City projects are approx. 115 miles apart.

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5-7. Please refer to the PSEP supplemental workpaper of SCG witness Richard Phillips, Exhibit No. SCG-15-WPS, at the pages associated with the Line 2000 Section E Pressure Test Project.

- a. Please explain why this project must be completed in the proposed time frame i.e., during the 2019 GRC cycle, rather than spread over a greater number of years, i.e., during future GRC cycles.
- b. Please explain how the Focus on Reasonable Rates and Continuous Improvement, as described on page 4 of the Application and page 3 of the Direct Testimony of Bret Lane, was considered for this project. Additionally, please provide the revenue requirement impact of this project for each year in the GRC cycle (2019, 2020, 2021, 2022) and all supporting documentation.
- c. Please explain why the proposed number of individual test sections are required for this project. Is it feasible and reliable to complete this pressure test with fewer test sections? Please provide a detailed narrative explaining the response, and support for those positions.
- d. Please explain how the number of individual test sections impacts the overall budget of the project. Is the forecast developed based on the specific cost to pressure test each individual section?
- e. Please provide a detailed breakdown of each of the cost estimate components presented (Materials, Construction, Environmental Survey/Permitting/Monitoring, Land & Right-of-Way Acquisition, Company Labor, and Other Capital Costs) for each year separately, including prior to 2018. For the costs incurred prior to 2018 please identify in what year the cost was incurred. This detailed breakdown should explicitly detail the number of units or hours included in the estimate, as well as cost per unit or cost per hour of each item that is required to arrive at the total labor and non-labor costs associated with this cost estimate component. Further, please provide a detailed explanation of the activity associated with each cost component and why it is required to be included in this cost estimate. For all cost components, any assumptions or additional information identified in the PSEP supplemental workpaper should clearly be shown in the detailed cost estimate breakdown provided in response to this discovery.
- f. Please provide the split between O&M and Capital for each cost component and explain how that split was determined. Additionally, provide a workpaper showing the calculation of this split.

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- g. Please provide the cost model utilized to determine the cost estimates provided in response to part d. above. If available in Excel spreadsheet format, provide with all formulas and links intact.
- h. Please explain the nature of the work conducted for this project prior to 2018. For each item identify the year in which the work was completed.
- i. Provide the unit cost per test head. Please explain why SoCalGas determined the number of test heads identified is required to complete the project. Please explain why more test heads than the number of test sections was deemed necessary to complete this pressure test project. Please explain why these test heads cannot be re-used for multiple test segments.
- j. If not provided in part d. above, please provide a detailed breakdown of the costs associated with the Field Overhead portion of the Construction cost component, the SoCalGas Labor portion of Company Labor cost component, and the SoCalGas Field Labor portion of Company Labor cost component.
- k. Please explain how it was determined that the costs associated with Other Capital Costs are required, as the other cost components have assumptions identified that represent the same services; Engineering, Project Management, Construction Management, and Surveying are included in other cost components. Please provide all supporting workpapers and documentation that were utilized to determine both the need and level cost associated with each item included in Other Capital Costs
- l. Please explain if there are any contingency adders included in these cost estimates. If so, please explain what contingencies are included, what cost components these contingencies are applied to, and why it is required to inflate the cost estimates with contingency adders.
- m. Please explain if any overhead or profit adders are included in these cost estimates. If so, please explain what overhead is included, what cost components these adders are applied to, and why it is required to inflate the cost estimates with overhead and profit adders.
- n. Please explain if there are any additional indirect costs included in these cost estimates not discussed previously.
- o. Please provide all workpapers from the 2016 RAMP Report associated with this project.

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- p. Please identify the exact locations in the 2016 RAMP report that discuss this project.
- q. Is this project mandated by any approved Federal regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- r. Is this project mandated by any approved California regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- s. Is this project mandated by any proposed State or Federal regulations? If so, please identify these proposed regulations and explain how this project makes SoCalGas compliant with these regulations.
- t. Please provide the Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio (as they are defined by the 2016 RAMP report) associated with this project. Additionally, explain how the scores in these metrics led SoCalGas to the decision that the 2019 GRC was the appropriate time to propose this project.
- u. Please explain what Category (1-4) and Class (1-4), as described in the workpaper glossary, this pipeline belongs to.
- v. Please provide the GIS data (a .gpd geodatabase or the individual .shp shape files will suffice, as will .kmz or .kml files) associated with this project and used to display the Project Map for this project.
- w. Please provide the number of buildings intended for human occupancy that exist within 300 feet of the pipeline associated with this project.
- x. Please explain if there are any economies of scale benefits captured for other pipeline pressure test projects associated with the same pipeline. If not, please provide a detailed narrative explaining why benefits associated with economies of scale would not be applicable to other pressure tests conducted on the same pipeline.

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SoCalGas Response 5-7:

- a. The proposed schedule is consistent with the Commission requirement set forth in D.11-06-017 on page 19 that PSEP be completed “as soon as practicable” and the directives in the Natural Gas Pipeline Safety Act of 2011 that the plan “shall include a timeline for completion that is as soon as practicable” (Pub. Util. Code § 958).
- b. One of the primary objectives of PSEP, is to maximize the cost effectiveness of safety investments for the benefit of customers, as indicated on pages RDP-A-5, RDP-A-15, RDP-A-16, RDP-A-20, RDP-A-21 and RDP-57 of SCG-15. The forecasted costs of are based on project specific estimates that were developed for each pipeline project, based on detailed engineering and project planning analysis.

SoCalGas does not forecast its revenue requirement for individual projects or work activities at the level of detail requested. Page RDP-A-21 of Exhibit SCG-15 describes the process of normalizing the forecasted PSEP O&M expenditures for the test year. The normalized 2019 PSEP O&M expenditures as well as any PSEP capital expenditures projected to be in service by TY 2019 were an input to the overall forecasted TY 2019 SoCalGas revenue requirement.

Beyond 2019, an attrition mechanism is established to escalate revenue requirement throughout the post-test years until a new rate case can be filed and approved. In the case of PSEP, a specific revenue requirement “adder” was included in the Post-Test Year request for the entirety of the PSEP capital forecasts projected to be in-service in the post-test years. Revenue requirement was not forecasted on a PSEP project by project basis. Please see the Direct testimony of Jawaad Malik (Exhibit SCG-44) beginning on page JAM-9 for Post-Test Year Ratemaking. Details for PSEP for 2020-2022 can be found in the PSEP workpapers of Jawaad Malik (Exhibit SCG-44-WP) starting on page SCG-44 WP JAM PSEP-1.

- c. The number of test sections was determined for each pipeline based on its operating characteristics, operating percent Specified Minimum Yield Strength (SMYS) and planned maximum test pressure. This process was used for all the hydrotest projects in the filing. The differences in the number of test sections are due to the unique elevation profile along each pipeline. Engineering judgment is used to plan the projects based on the profile and the conditions stated.

As stated on Page WP-I-A86 of SCG-15-WP-S, the project requires five individual test sections to address test pressure limitations due to elevation changes totaling 700 feet (1,700 feet at highest elevation and 1,000 feet at lowest elevation). Elevation is a key determining factor for selecting the number of test breaks in any given project.

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SoCalGas Response 5-7:-Continued

- d. The number of individual test sections increases the overall budget of a project by increasing the schedule, scope of work, and the duration based field support staff such as: environmental monitors, inspectors, cost analysts, construction team leads, etc. The forecast was developed based on the project's scope of work and not just the specific cost to pressure test each individual section.

Each overall budget is impacted by the number of test sections. Additional test sections require additional test heads, water handling, pipe handling, etc. to complete each additional test. The detailed estimate is based on each project's anticipated conditions, scope, etc.

- e. Please see attached estimate in response to Question 7F for a detailed breakdown of costs. Costs incurred prior to 2018 were incurred in 2017.

Material is required for test heads, replacement sections, and to perform hydro-testing operations.

Environmental is included for abatement activities, water sampling, environmental monitors, and industrial hygienists.

Surveying/Permitting/Monitoring is required to locate the pipeline, update GIS databases, monitor for protected species, and to acquire work permits with municipalities and environmental agencies.

Company Labor is required to schedule, perform cost controlling, estimating, project management, contract issuing and field oversight.

Other Capital Costs are required to perform project engineering and design, project management, environmental services, and survey services.

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- f. The attached document includes Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. Note that the attached files have also been redacted to remove non-responsive, non-relevant employee information.

Please see illustrative example in the response to Question 2F, indicating where in the attached spreadsheets this information can be obtained for each project.

“IS DR-005 Q07F CONFIDENTIAL 2000E Hydro Ph1B Stage 3 Est 05-09-17_redacted.xlsm.”

- g. Please see the attachment provided in response to Question 7F.

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- h. Work performed prior to 2018 is associated with the planning and engineering design for projects anticipated to be in construction in 2019. For details on PSEP's planning and engineering design work please refer to SCG-15 Direct Testimony (Phillips) at pp. RDP-A-23 and 24.
- i. Each test section requires two test heads, one at each end to isolate the section for testing. The number of test heads required for each project was based on the engineering analysis and judgment of each individual project, and is proportional to the number of test sections for a given project. Projects with multiple test sections may reuse tests heads based on schedule duration (i.e., the timing of the individual tests), water management plans and other factors.

For line 2000E, the unit cost for a test head is \$10,653.53 (Direct Cost without contingency, taxes, and freight).

- j. Please see the attachment provided in response to Question 7F.
Field Overhead - see worksheet tab "Construction Contractor."
SoCalGas Labor - see worksheets "Engr" and "CM."

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- k. It is typical on PSEP projects to have a project team comprised of both, full-time Company employees and Contract employees. "Other Capital Costs" represents costs for contracted Purchased Services (i.e., contract employees hired to augment staffing of SoCalGas/SDG&E company employees.

Engineering and Project Management include activities that are captured in different areas of the estimates. Costs were determined based on an execution strategy, anticipated construction duration and planned activities. See attached estimate provided in response to Question 7F.

"IS DR-005 Q07F CONFIDENTIAL 2000E Hydro Ph1B Stage 3 Est 05-09-17_redacted.xlsm."

- l. SoCalGas objects to the portion of the question that asks, "why it is required to inflate the cost estimates with contingency adders," because the inclusion of contingency is standard in the industry to capture costs that, although not individually itemized, are reasonably anticipated to be incurred on construction projects. Subject to and without waiving the foregoing objection, SoCalGas responds as follows:

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Yes, there are contingency adders included. The contingency categories are productivity, scope, pricing and duration. The following are the cost components within which contingencies are applied:

- Site Mobilization
- Site Preparation
- Site Facilities
- Site Management / Best Management Practices (BMPs)
- Pipe Transportation / Handling
- Traffic Control
- Site Right-of-Way (ROW) Clearing
- Utility Locates
- Site Excavations
- Remove Existing / Install New Pipeline Features
- Cathodic Protection
- Isolate Existing Pipeline
- Hydrotest Pipeline
- Tie-In Pipeline / Reconnect Taps
- Backfill Excavations
- Site Restoration
- Site Demobilization
- Field Overhead
- Other Contractor
- SoCalGas Labor - Mgmt. & Non-Labor
- SoCalGas Labor - Union T/H
- Material- Pipe & Fittings
- Material-Valves
- Material- Other
- Engineering / Design Services
- Project Management / Project Services
- Construction Management
- Surveying / As-builts
- Environmental Services
- Pressure Test Certification Services
- Water Storage
- X-ray / Non-destructive evaluation (NDE)
- Land Services
- CNG / LNG
- Spreadboss
- Miscellaneous Services

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- Permits
- Other Non-Labor Costs
- Allowances

Contingency is a direct cost to the project and is anticipated to be spent over the course of engineering, design, procurement, and construction. Per the Association for the Advancement of Cost Engineering (AACEi), contingency is defined as:

An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience. Contingency usually excludes: 1) Major scope changes such as changes in end product specification, capacities, building sizes, and location of the asset or project; 2) Extraordinary events such as major strikes and natural disasters; 3) Management reserves; and 4) Escalation and currency effects. Some of the items, conditions, or events for which the state, occurrence, and/or effect is uncertain include, but are not limited to, planning and estimating errors and omissions, minor price fluctuations (other than general escalation), design developments and changes within the scope, and variations in market and environmental conditions. Contingency is generally included in most estimates, and is expected to be expended.¹

- m. As shown in the capital workpapers, 2017-2019 capital expenditures depicted in witness testimony are presented as direct costs for labor and non-labor, and in the cases where standard escalation is not applicable, are classified as non-standard escalation or ‘NSE.’ As such, the only additional adder included in the labor forecast is vacation and sick (V&S) time. A standard V&S rate is applied to the forecasted labor cost of a project, as shown in the applicable capital workpaper.
- n. No. There are no indirect cost included in these cost estimates.
- o. Workpapers associated with SoCalGas and SDG&E’s RAMP Report can be accessed using the following steps:
Visit the RAMP proceeding on SDG&E’s website:
<https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas>.

¹ See AACEi Recommended Practice 10S-90, *Cost Engineering Terminology*, available for free to the general public at <https://web.aacei.org/docs/default-source/rps/10s-90.pdf?sfvrsn=18>.

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SoCalGas Response 5-7.o-Continued

- Click on “Discovery.”
- Click on “CUE.”
- The risk reduction workpapers are shown as “CUE DR-01 RAMP RSE Workpapers.” The cost-related workpapers are labeled as “CUE DR-01 Cost Workpapers.”

In addition, as stated in the Direct Testimony of RAMP to GRC Integration witness Jamie York (Exhibit SCG-02-R/SDGE-02-R, Chapter 3), “much information from the RAMP Report was transcribed and is shown in the GRC witness’ workpapers to provide context as well as a comparison reference to the RAMP Report itself. Such information includes the RAMP risk the particular activity was associated with, the name of the mitigation as presented in the RAMP Report, the estimated range of costs put forth in the RAMP for the mitigation activity, the funding source (i.e., CPUC-GRC, FERC), the work type (e.g., mandated) and citation (e.g., General Order 165), and the 2016 embedded historical cost estimate.” (Exhibit SCG-02-R/SDGE-02-R, Chapter 3 at p. JKY-7 lines 3-10.)

- p. As mentioned in the RAMP Report Chapter A at p. SDGE/SCG A-2, “The purpose of RAMP is not to request funding. Any finding requests will be made in the GRC. RAMP mitigation forecasts are providing only to estimate a range that will be refined with supporting testimony in the GRC.” Accordingly, the project assumptions and estimated costs put forth in the RAMP Report were superseded by the requests made in supporting testimony in the Test Year 2019 GRC. For the locations of the requested projects in the RAMP Report, please refer to the response to part m above.
- q. SoCalGas objects to Question 5-7.q. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-7.q. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-7.q. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal codes and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

The design, construction and testing of the pipeline is governed by state regulations which flow from federal regulations. 49 Code of Federal Regulations (CFR), Section 192, Subpart J. sets forth the minimum strength testing and record keeping requirements for pipelines.

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- r. SoCalGas objects to Question 5-7.r. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-7.r. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-7.r. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

Yes. See the Natural Gas Pipeline Safety Act of 2011 and California Public Utilities Commission decisions in R.11-02-019 and A.11-11.002.

- s. SoCalGas objects to Question 5-7.s. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-7.s. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-7.s. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

SoCalGas is unaware of any applicable proposed state or federal regulations.

- t. SoCalGas and SDG&E object to this request as out of scope. Subject to and without waiving the foregoing objection, SoCalGas and SDG&E responds as follows:

Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio calculations were not presented in the TY 2019 GRC. This approach is consistent with guidance stemming from the RAMP proceeding, as shown in the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1): “Through the SED Evaluation Report and comments submitted in response to both the SED Evaluation Report and the Companies’ RAMP Report, stakeholders agreed that the RSEs are evolving, should be further refined in the S-MAP, and have limited usefulness in their current state.” (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1 at p. DD-17 lines 18-21.) SoCalGas and SDG&E’s comments in the RAMP proceeding stated “the Utilities do not plan to include their nascent RSE calculations in the upcoming TY 2019 GRC.

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However, the Utilities will work with the parties and the Commission in the S-MAP proceeding toward furthering development of a more useful effectiveness metric in the next RAMP.” (I.16-10-015/I.16-10-016. SoCalGas and SDG&E Opening Comments (April 24, 2017), at 4-5; and SoCalGas and SDG&E Reply Comments (May 9, 2017), at 6-8.) Please see the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1) and the Direct Testimony of Jamie York (Exhibit SCG-02-R/SDG&E-02-R, Chapter 3) for more information regarding the Commission’s guidance in presenting the first-ever risk-informed GRC.

- u. Line 2000-E consist of 8.756 miles of Category Four pipe and 0.128 miles of Category One pipe.

This is a Phase 2A project and, as stated on pg. RDP-A-7 of SCG-15. Phase 2A addresses pipe located in Class 1 and 2 non-high consequence areas.

- v. **The attached documents include Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023.** See attached KMZ files.

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- w. There is 1 building within 300 feet of the pipe associated with Line 2000 Section E Pressure Test Project.
- x. Economies of scale were considered and planned into the projects on the same pipeline. The sections defined as a project are delineated based on the approximate schedule for each project.

Some factors that affect decisions on length of individual projects include gas system availability, permit acquisition and restrictions, land acquisition and restrictions, number of project personnel. In addition, the distance between individual projects on the same pipeline also factor into the decisions, for example, the line 2000 Chino Hills and Line 2000 E of Cactus City projects are approx. 115 miles apart.

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5-8. Please refer to the PSEP supplemental workpaper of SCG witness Richard Phillips, Exhibit No. SCG-15-WPS, at the pages associated with the Line 2000 Blythe to Cactus City Hydrotest Pressure Test Project.

- a. Please explain why this project must be completed in the proposed time frame i.e., during the 2019 GRC cycle, rather than spread over a greater number of years, i.e., during future GRC cycles.
- b. Please explain how the Focus on Reasonable Rates and Continuous Improvement, as described on page 4 of the Application and page 3 of the Direct Testimony of Bret Lane, was considered for this project. Additionally, please provide the revenue requirement impact of this project for each year in the GRC cycle (2019, 2020, 2021, 2022) and all supporting documentation.
- c. Please explain why the proposed number of individual test sections are required for this project. Is it feasible and reliable to complete this pressure test with fewer test sections? Please provide a detailed narrative explaining the response, and support for those positions.
- d. Please explain how the number of individual test sections impacts the overall budget of the project. Is the forecast developed based on the specific cost to pressure test each individual section?
- e. Please provide a detailed breakdown of each of the cost estimate components presented (Materials, Construction, Environmental Survey/Permitting/Monitoring, Land & Right-of-Way Acquisition, Company Labor, and Other Capital Costs) for each year separately, including prior to 2018. For the costs incurred prior to 2018 please identify in what year the cost was incurred. This detailed breakdown should explicitly detail the number of units or hours included in the estimate, as well as cost per unit or cost per hour of each item that is required to arrive at the total labor and non-labor costs associated with this cost estimate component. Further, please provide a detailed explanation of the activity associated with each cost component and why it is required to be included in this cost estimate.

For all cost components, any assumptions or additional information identified in the PSEP supplemental workpaper should clearly be shown in the detailed cost estimate breakdown provided in response to this discovery.
- f. Please provide the split between O&M and Capital for each cost component and explain how that split was determined. Additionally, provide a workpaper showing the calculation of this split.
- g. Please provide the cost model utilized to determine the cost estimates provided in response to part d. above. If available in Excel spreadsheet format, provide with all formulas and links intact.

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- h. Please explain the nature of the work conducted for this project prior to 2018. For each item identify the year in which the work was completed.
- i. Provide the unit cost per test head. Please explain why SoCalGas determined the number of test heads identified is required to complete the project. Please explain why more test heads than the number of test sections was deemed necessary to complete this pressure test project. Please explain why these test heads cannot be re-used for multiple test segments.
- j. If not provided in part d. above, please provide a detailed breakdown of the costs associated with the Field Overhead portion of the Construction cost component, the SoCalGas Labor portion of Company Labor cost component, and the SoCalGas Field Labor portion of Company Labor cost component.
- k. Please explain how it was determined that the costs associated with Other Capital Costs are required, as the other cost components have assumptions identified that represent the same services; Engineering, Project Management, Construction Management, and Surveying are included in other cost components. Please provide all supporting workpapers and documentation that were utilized to determine both the need and level cost associated with each item included in Other Capital Costs
- l. Please explain if there are any contingency adders included in these cost estimates. If so, please explain what contingencies are included, what cost components these contingencies are applied to, and why it is required to inflate the cost estimates with contingency adders.
- m. Please explain if any overhead or profit adders are included in these cost estimates. If so, please explain what overhead is included, what cost components these adders are applied to, and why it is required to inflate the cost estimates with overhead and profit adders.
- n. Please explain if there are any additional indirect costs included in these cost estimates not discussed previously.
- o. Please provide all workpapers from the 2016 RAMP Report associated with this project.
- p. Please identify the exact locations in the 2016 RAMP report that discuss this project.

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- q. Is this project mandated by any approved Federal regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- r. Is this project mandated by any approved California regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- s. Is this project mandated by any proposed State or Federal regulations? If so, please identify these proposed regulations and explain how this project makes SoCalGas compliant with these regulations.
- t. Please provide the Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio (as they are defined by the 2016 RAMP report) associated with this project. Additionally, explain how the scores in these metrics led SoCalGas to the decision that the 2019 GRC was the appropriate time to propose this project.
- u. Please explain what Category (1-4) and Class (1-4), as described in the workpaper glossary, this pipeline belongs to.
- v. Please provide the GIS data (a .gpd geodatabase or the individual .shp shape files will suffice, as will .kmz or .kml files) associated with this project and used to display the Project Map for this project.
- w. Please provide the number of buildings intended for human occupancy that exist within 300 feet of the pipeline associated with this project.
- x. Please explain if there are any economies of scale benefits captured for other pipeline pressure test projects associated with the same pipeline. If not, please provide a detailed narrative explaining why benefits associated with economies of scale would not be applicable to other pressure tests conducted on the same pipeline.

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SoCalGas Response 5-8:

- a. The proposed schedule is consistent with the Commission requirement set forth in D.11-06-017 on page 19 that PSEP be completed “as soon as practicable” and the directives in the Natural Gas Pipeline Safety Act of 2011 that the plan “shall include a timeline for completion that is as soon as practicable” (Pub. Util. Code § 958).
- b. One of the primary objectives of PSEP, is to maximize the cost effectiveness of safety investments for the benefit of customers, as indicated on pages RDP-A-5, RDP-A-15, RDP-A-16, RDP-A-20, RDP-A-21 and RDP-57 of SCG-15. The forecasted costs of are based on project specific estimates that were developed for each pipeline project, based on detailed engineering and project planning analysis.

SoCalGas does not forecast its revenue requirement for individual projects or work activities at the level of detail requested. Page RDP-A-21 of Exhibit SCG-15 describes the process of normalizing the forecasted PSEP O&M expenditures for the test year. The normalized 2019 PSEP O&M expenditures as well as any PSEP capital expenditures projected to be in service by TY 2019 were an input to the overall forecasted TY 2019 SoCalGas revenue requirement.

Beyond 2019, an attrition mechanism is established to escalate revenue requirement throughout the post-test years until a new rate case can be filed and approved. In the case of PSEP, a specific revenue requirement “adder” was included in the Post-Test Year request for the entirety of the PSEP capital forecasts projected to be in-service in the post-test years. Revenue requirement was not forecasted on a PSEP project by project basis. Please see the Direct testimony of Jawaad Malik (Exhibit SCG-44) beginning on page JAM-9 for Post-Test Year Ratemaking. Details for PSEP for 2020-2022 can be found in the PSEP workpapers of Jawaad Malik (Exhibit SCG-44-WP) starting on page SCG-44 WP JAM PSEP-1.

- c. The number of test sections was determined for each pipeline based on its operating characteristics, operating percent Specified Minimum Yield Strength (SMYS) and planned maximum test pressure. This process was used for all the hydrotest projects in the filing. The differences in the number of test sections are due to the unique elevation profile along each pipeline. Engineering judgment is used to plan the projects based on the profile and the conditions stated.

As stated on Page WP-I-A98 of SCG-15-WP-S, the project requires 32 individual test sections to address test pressure limitations due to elevation changes totaling 1,380 feet (1,760 feet at highest elevation and 380 feet at lowest elevation). Elevation is a key determining factor for selecting the number of test breaks in any given project.

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SoCalGas Response 5-8:-Continued

- d. The number of individual test sections increases the overall budget of a project by increasing the schedule, scope of work, and the duration based field support staff such as: environmental monitors, inspectors, cost analysts, construction team leads, etc. The forecast was developed based on the project’s scope of work and not just the specific cost to pressure test each individual section.

Each overall budget is impacted by the number of test sections. Additional test sections require additional test heads, water handling, pipe handling, etc. to complete each additional test. The detailed estimate is based on each project’s anticipated conditions, scope, etc.

- e. Please see attached estimate in response to Question 8F for a detailed breakdown of costs. Costs incurred prior to 2018 were incurred in 2017.

Material is required for test heads, replacement sections, and to perform hydro-testing operations.

Environmental is included for abatement activities, water sampling, environmental monitors, and industrial hygienists.

Surveying/Permitting/Monitoring is required to locate the pipeline, update GIS databases, monitor for protected species, and to acquire work permits with municipalities and environmental agencies.

Company Labor is required to schedule, perform cost controlling, estimating, project management, contract issuing and field oversight.

Other Capital Costs are required to perform project engineering and design, project management, environmental services, and survey services.

“IS DR-005 Q08F CONFIDENTIAL 2000 BlythetoCactus City Ph2 Stage3 Est 05-07-17_redacted.xlsm.”

- f. **The attached document includes Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. Note that the attached files have also been redacted to remove non-responsive, non-relevant employee information.**

Please see illustrative example in the response to Question 2F, indicating where in the attached spreadsheets this information can be obtained for each project.

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- g. Please see the attachment provided in response to Question 8F.

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SoCalGas Response 5-8:-Continued

- h. Work performed prior to 2018 is associated with the planning and engineering design for projects anticipated to be in construction in 2019. For details on PSEP's planning and engineering design work please refer to SCG-15 Direct Testimony (Phillips) at pp. RDP-A-23 and 24.
- i. Each test section requires two test heads, one at each end to isolate the section for testing. The number of test heads required for each project was based on the engineering analysis and judgment of each individual project, and is proportional to the number of test sections for a given project. Projects with multiple test sections may reuse tests heads based on schedule duration (i.e., the timing of the individual tests), water management plans and other factors.

For line 2000 Blythe to Cactus, the unit cost for a test head is \$12,751.63 (Direct Cost without contingency, taxes, and freight).

- j. Please see the attachment provided in response to Question 8F.
Field Overhead - see worksheet tab "Construction Contractor."
SoCalGas Labor - see worksheets "Engr" and "CM."

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- k. It is typical on PSEP projects to have a project team comprised of both, full-time Company employees and Contract employees. "Other Capital Costs" represents costs for contracted Purchased Services (i.e., contract employees hired to augment staffing of SoCalGas/SDG&E company employees.

Engineering and Project Management include activities that are captured in different areas of the estimates. Costs were determined based on an execution strategy, anticipated construction duration and planned activities. See attached estimate provided in response to Question 8F.

"IS DR-005 Q08F CONFIDENTIAL 2000 BlythetoCactus City Ph2 Stage3 Est 05-07-17_redacted.xlsm."

- l. SoCalGas objects to the portion of the question that asks, "why it is required to inflate the cost estimates with contingency adders," because the inclusion of contingency is standard in the industry to capture costs that, although not individually itemized, are reasonably anticipated to be incurred on construction projects. Subject to and without waiving the foregoing objection, SoCalGas responds as follows:

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SoCalGas Response 5-8.1:-Continued

Yes, there are contingency adders included. The contingency categories are productivity, scope, pricing and duration. The following are the cost components within which contingencies are applied:

- Site Mobilization
- Site Preparation
- Site Facilities
- Site Management / Best Management Practices (BMPs)
- Pipe Transportation / Handling
- Traffic Control
- Site Right-of-Way (ROW) Clearing
- Utility Locates
- Site Excavations
- Remove Existing / Install New Pipeline Features
- Cathodic Protection
- Isolate Existing Pipeline
- Hydrotest Pipeline
- Tie-In Pipeline / Reconnect Taps
- Backfill Excavations
- Site Restoration
- Site Demobilization
- Field Overhead
- Other Contractor
- SoCalGas Labor - Mgmt. & Non-Labor
- SoCalGas Labor - Union T/H
- Material- Pipe & Fittings
- Material-Valves
- Material- Other
- Engineering / Design Services
- Project Management / Project Services
- Construction Management
- Surveying / As-builts
- Environmental Services
- Pressure Test Certification Services
- Water Storage
- X-ray / Non-destructive evaluation (NDE)
- Land Services
- CNG / LNG
- Spreadboss
- Miscellaneous Services
- Permits
- Other Non-Labor Costs
- Allowances

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SoCalGas Response 5-8.1:-Continued

Contingency is a direct cost to the project and is anticipated to be spent over the course of engineering, design, procurement, and construction. Per the Association for the Advancement of Cost Engineering (AACEi), contingency is defined as:

An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience. Contingency usually excludes: 1) Major scope changes such as changes in end product specification, capacities, building sizes, and location of the asset or project; 2) Extraordinary events such as major strikes and natural disasters; 3) Management reserves; and 4) Escalation and currency effects. Some of the items, conditions, or events for which the state, occurrence, and/or effect is uncertain include, but are not limited to, planning and estimating errors and omissions, minor price fluctuations (other than general escalation), design developments and changes within the scope, and variations in market and environmental conditions. Contingency is generally included in most estimates, and is expected to be expended.¹

- m. As shown in the capital workpapers, 2017-2019 capital expenditures depicted in witness testimony are presented as direct costs for labor and non-labor, and in the cases where standard escalation is not applicable, are classified as non-standard escalation or ‘NSE.’ As such, the only additional adder included in the labor forecast is vacation and sick (V&S) time. A standard V&S rate is applied to the forecasted labor cost of a project, as shown in the applicable capital workpaper.
- n. No. There are no indirect cost included in these cost estimates.
- o. Workpapers associated with SoCalGas and SDG&E’s RAMP Report can be accessed using the following steps:
Visit the RAMP proceeding on SDG&E’s website:
<https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas>.
 - Click on “Discovery.”
 - Click on “CUE.”
 - The risk reduction workpapers are shown as “CUE DR-01 RAMP RSE Workpapers.” The cost-related workpapers are labeled as “CUE DR-01 Cost Workpapers.”

¹ See AACEi Recommended Practice 10S-90, *Cost Engineering Terminology*, available for free to the general public at <https://web.aacei.org/docs/default-source/rps/10s-90.pdf?sfvrsn=18>.

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SoCalGas Response 5-8.o:-Continued

In addition, as stated in the Direct Testimony of RAMP to GRC Integration witness Jamie York (Exhibit SCG-02-R/SDGE-02-R, Chapter 3), “much information from the RAMP Report was transcribed and is shown in the GRC witness’ workpapers to provide context as well as a comparison reference to the RAMP Report itself. Such information includes the RAMP risk the particular activity was associated with, the name of the mitigation as presented in the RAMP Report, the estimated range of costs put forth in the RAMP for the mitigation activity, the funding source (i.e., CPUC-GRC, FERC), the work type (e.g., mandated) and citation (e.g., General Order 165), and the 2016 embedded historical cost estimate.” (Exhibit SCG-02-R/SDGE-02-R, Chapter 3 at p. JKY-7 lines 3-10.)

- p. As mentioned in the RAMP Report Chapter A at p. SDGE/SCG A-2, “The purpose of RAMP is not to request funding. Any finding requests will be made in the GRC. RAMP mitigation forecasts are providing only to estimate a range that will be refined with supporting testimony in the GRC.” Accordingly, the project assumptions and estimated costs put forth in the RAMP Report were superseded by the requests made in supporting testimony in the Test Year 2019 GRC. For the locations of the requested projects in the RAMP Report, please refer to the response to part m above.
- q. SoCalGas objects to Question 5-8.q. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-8.q. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-8.q. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal codes and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

The design, construction and testing of the pipeline is governed by state regulations which flow from federal regulations. 49 Code of Federal Regulations (CFR), Section 192, Subpart J. sets forth the minimum strength testing and record keeping requirements for pipelines.

- r. SoCalGas objects to Question 5-8.r. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-8.r. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-8.r. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

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SoCalGas Response 5-8.r:-Continued

Yes. See the Natural Gas Pipeline Safety Act of 2011 and California Public Utilities Commission decisions in R.11-02-019 and A.11-11.002.

- s. SoCalGas objects to Question 5-8.s. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-8.s. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-8.s. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

SoCalGas is unaware of any applicable proposed state or federal regulations.

- t. SoCalGas and SDG&E object to this request as out of scope. Subject to and without waiving the foregoing objection, SoCalGas and SDG&E responds as follows:

Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio calculations were not presented in the TY 2019 GRC. This approach is consistent with guidance stemming from the RAMP proceeding, as shown in the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1): “Through the SED Evaluation Report and comments submitted in response to both the SED Evaluation Report and the Companies’ RAMP Report, stakeholders agreed that the RSEs are evolving, should be further refined in the S-MAP, and have limited usefulness in their current state.” (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1 at p. DD-17 lines 18-21.) SoCalGas and SDG&E’s comments in the RAMP proceeding stated “the Utilities do not plan to include their nascent RSE calculations in the upcoming TY 2019 GRC. However, the Utilities will work with the parties and the Commission in the S-MAP proceeding toward furthering development of a more useful effectiveness metric in the next RAMP.” (I.16-10-015/I.16-10-016. SoCalGas and SDG&E Opening Comments (April 24, 2017), at 4-5; and SoCalGas and SDG&E Reply Comments (May 9, 2017), at 6-8.) Please see the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1) and the Direct Testimony of Jamie York (Exhibit SCG-02-R/SDG&E-02-R, Chapter 3) for more information regarding the Commission’s guidance in presenting the first-ever risk-informed GRC.

- u. Line 2000 Blythe to Cactus City consists of 64.026 miles of Category Four pipe and 0.624 miles of Category One pipe.

This is a Phase 2A project and, as stated on pg. RDP-A-7 of SCG-15. Phase 2A addresses pipe located in Class 1 and 2 non-high consequence areas.

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SoCalGas Response 5-8:-Continued

- v. The attached documents include Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. See attached KMZ files.

“IS DR-005 Q08V CONFIDENTIAL 2000 BlythetoCactus City .kmz file.”

- w. There are 2 buildings within 300 feet of the pipe associated with Line 2000 Blythe to Cactus City Hydrotest Pressure Test Project.
- x. Economies of scale were considered and planned into the projects on the same pipeline. The sections defined as a project are delineated based on the approximate schedule for each project.

Some factors that affect decisions on length of individual projects include gas system availability, permit acquisition and restrictions, land acquisition and restrictions, number of project personnel. In addition, the distance between individual projects on the same pipeline also factor into the decisions, for example, the line 2000 Chino Hills and Line 2000 E of Cactus City projects are approx. 115 miles apart.

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5-9. Please refer to the PSEP supplemental workpaper of SCG witness Richard Phillips, Exhibit No. SCG-15-WPS, at the pages associated with the Line 2001 W Section C Pressure Test Project.

- a. Please explain why this project must be completed in the proposed time frame i.e., during the 2019 GRC cycle, rather than spread over a greater number of years, i.e., during future GRC cycles.
- b. Please explain how the Focus on Reasonable Rates and Continuous Improvement, as described on page 4 of the Application and page 3 of the Direct Testimony of Bret Lane, was considered for this project. Additionally, please provide the revenue requirement impact of this project for each year in the GRC cycle (2019, 2020, 2021, 2022) and all supporting documentation.
- c. Please explain why the proposed number of individual test sections are required for this project. Is it feasible and reliable to complete this pressure test with fewer test sections? Please provide a detailed narrative explaining the response, and support for those positions.
- d. Please explain how the number of individual test sections impacts the overall budget of the project. Is the forecast developed based on the specific cost to pressure test each individual section?
- e. Please provide a detailed breakdown of each of the cost estimate components presented (Materials, Construction, Environmental Survey/Permitting/Monitoring, Land & Right-of-Way Acquisition, Company Labor, and Other Capital Costs) for each year separately, including prior to 2018. For the costs incurred prior to 2018 please identify in what year the cost was incurred. This detailed breakdown should explicitly detail the number of units or hours included in the estimate, as well as cost per unit or cost per hour of each item that is required to arrive at the total labor and non-labor costs associated with this cost estimate component. Further, please provide a detailed explanation of the activity associated with each cost component and why it is required to be included in this cost estimate. For all cost components, any assumptions or additional information identified in the PSEP supplemental workpaper should clearly be shown in the detailed cost estimate breakdown provided in response to this discovery.
- f. Please provide the split between O&M and Capital for each cost component and explain how that split was determined. Additionally, provide a workpaper showing the calculation of this split.
- g. Please provide the cost model utilized to determine the cost estimates provided in response to part d. above. If available in Excel spreadsheet format, provide with all formulas and links intact.

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Question 5.9 - Continued

- h. Please explain the nature of the work conducted for this project prior to 2018. For each item identify the year in which the work was completed.
- i. Provide the unit cost per test head. Please explain why SoCalGas determined the number of test heads identified is required to complete the project. Please explain why more test heads than the number of test sections was deemed necessary to complete this pressure test project. Please explain why these test heads cannot be re-used for multiple test segments.
- j. If not provided in part d. above, please provide a detailed breakdown of the costs associated with the Field Overhead portion of the Construction cost component, the SoCalGas Labor portion of Company Labor cost component, and the SoCalGas Field Labor portion of Company Labor cost component.
- k. Please explain how it was determined that the costs associated with Other Capital Costs are required, as the other cost components have assumptions identified that represent the same services; Engineering, Project Management, Construction Management, and Surveying are included in other cost components. Please provide all supporting workpapers and documentation that were utilized to determine both the need and level cost associated with each item included in Other Capital Costs
- l. Please explain if there are any contingency adders included in these cost estimates. If so, please explain what contingencies are included, what cost components these contingencies are applied to, and why it is required to inflate the cost estimates with contingency adders.
- m. Please explain if any overhead or profit adders are included in these cost estimates. If so, please explain what overhead is included, what cost components these adders are applied to, and why it is required to inflate the cost estimates with overhead and profit adders.
- n. Please explain if there are any additional indirect costs included in these cost estimates not discussed previously.

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Question 5.9 - Continued

- o. Please provide all workpapers from the 2016 RAMP Report associated with this project.
- p. Please identify the exact locations in the 2016 RAMP report that discuss this project.
- q. Is this project mandated by any approved Federal regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- r. Is this project mandated by any approved California regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- s. Is this project mandated by any proposed State or Federal regulations? If so, please identify these proposed regulations and explain how this project makes SoCalGas compliant with these regulations.
- t. Please provide the Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio (as they are defined by the 2016 RAMP report) associated with this project. Additionally, explain how the scores in these metrics led SoCalGas to the decision that the 2019 GRC was the appropriate time to propose this project.
- u. Please explain what Category (1-4) and Class (1-4), as described in the workpaper glossary, this pipeline belongs to.
- v. Please provide the GIS data (a .gpd geodatabase or the individual .shp shape files will suffice, as will .kmz or .kml files) associated with this project and used to display the Project Map for this project.
- w. Please provide the number of buildings intended for human occupancy that exist within 300 feet of the pipeline associated with this project.
- x. Please explain if there are any economies of scale benefits captured for other pipeline pressure test projects associated with the same pipeline. If not, please provide a detailed narrative explaining why benefits associated with economies of scale would not be applicable to other pressure tests conducted on the same pipeline.

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- a. The proposed schedule is consistent with the Commission requirement set forth in D.11-06-017 on page 19 that PSEP be completed “as soon as practicable” and the directives in the Natural Gas Pipeline Safety Act of 2011 that the plan “shall include a timeline for completion that is as soon as practicable” (Pub. Util. Code § 958).
- b. One of the primary objectives of PSEP, is to maximize the cost effectiveness of safety investments for the benefit of customers, as indicated on pages RDP-A-5, RDP-A-15, RDP-A-16, RDP-A-20, RDP-A-21 and RDP-57 of SCG-15. The forecasted costs of are based on project specific estimates that were developed for each pipeline project, based on detailed engineering and project planning analysis.

SoCalGas does not forecast its revenue requirement for individual projects or work activities at the level of detail requested. Page RDP-A-21 of Exhibit SCG-15 describes the process of normalizing the forecasted PSEP O&M expenditures for the test year. The normalized 2019 PSEP O&M expenditures as well as any PSEP capital expenditures projected to be in service by TY 2019 were an input to the overall forecasted TY 2019 SoCalGas revenue requirement.

Beyond 2019, an attrition mechanism is established to escalate revenue requirement throughout the post-test years until a new rate case can be filed and approved. In the case of PSEP, a specific revenue requirement “adder” was included in the Post-Test Year request for the entirety of the PSEP capital forecasts projected to be in-service in the post-test years. Revenue requirement was not forecasted on a PSEP project by project basis. Please see the Direct testimony of Jawaad Malik (Exhibit SCG-44) beginning on page JAM-9 for Post-Test Year Ratemaking. Details for PSEP for 2020-2022 can be found in the PSEP workpapers of Jawaad Malik (Exhibit SCG-44-WP) starting on page SCG-44 WP JAM PSEP-1.

- c. The number of test sections was determined for each pipeline based on its operating characteristics, operating percent Specified Minimum Yield Strength (SMYS) and planned maximum test pressure. This process was used for all the hydrotest projects in the filing. The differences in the number of test sections are due to the unique elevation profile along each pipeline. Engineering judgment is used to plan the projects based on the profile and the conditions stated.

As stated on Page WP-I-A115 of SCG-15-WP-S, the project requires 13 individual test sections to address test pressure limitations due to elevation changes totaling 970 feet (1,090 feet at highest elevation and 120 feet at lowest elevation). Elevation is a key determining factor for selecting the number of test breaks in any given project.

SoCalGas Response 5-9:-Continued

- d. The number of individual test sections increases the overall budget of a project by

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increasing the schedule, scope of work, and the duration based field support staff such as: environmental monitors, inspectors, cost analysts, construction team leads, etc. The forecast was developed based on the project's scope of work and not just the specific cost to pressure test each individual section.

Each overall budget is impacted by the number of test sections. Additional test sections require additional test heads, water handling, pipe handling, etc. to complete each additional test. The detailed estimate is based on each project's anticipated conditions, scope, etc.

- e. Please see attached estimate in response to Question 9F for a detailed breakdown of costs. Costs incurred prior to 2018 were incurred in 2017.

Material is required for test heads, replacement sections, and to perform hydro-testing operations.

Environmental is included for abatement activities, water sampling, environmental monitors, and industrial hygienists.

Surveying/Permitting/Monitoring is required to locate the pipeline, update GIS databases, monitor for protected species, and to acquire work permits with municipalities and environmental agencies.

Company Labor is required to schedule, perform cost controlling, estimating, project management, contract issuing and field oversight.

Other Capital Costs are required to perform project engineering and design, project management, environmental services, and survey services.

“IS DR-005 Q09F CONFIDENTIAL 2001WC Ph2 Stage 3 Est 12-05-16_redacted.xlsm.”

- f. **The attached document includes Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. Note that the attached files have also been redacted to remove non-responsive, non-relevant employee information.**

Please see illustrative example in the response to Question 2F, indicating where in the attached spreadsheets this information can be obtained for each project.

“IS DR-005 Q09F CONFIDENTIAL 2001WC Ph2 Stage 3 Est 12-05-16_redacted.xlsm.”

- g. Please see the attachment provided in response to Question 9F.

“IS DR-005 Q09F CONFIDENTIAL 2001WC Ph2 Stage 3 Est 12-05-16_redacted.xlsm.”

- h. Work performed prior to 2018 is associated with the planning and engineering design for projects anticipated to be in construction in 2019. For details on PSEP's planning and engineering design work please refer to SCG-15 Direct Testimony (Phillips) at pp. RDP-A-23 and 24.

SoCalGas Response 5-9:-Continued

- i. Each test section requires two test heads, one at each end to isolate the section for

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testing. The number of test heads required for each project was based on the engineering analysis and judgment of each individual project, and is proportional to the number of test sections for a given project. Projects with multiple test sections may reuse tests heads based on schedule duration (i.e., the timing of the individual tests), water management plans and other factors.

For line 2001WC, the unit cost for a test head is \$10, 918 (Direct Cost without contingency, taxes, or freight).

- j. Please see the attachment provided in response to Question 9F.
Field Overhead - see worksheet tab “Construction Contractor.”
SoCalGas Labor - see worksheets “Engr” and “CM.”

“IS DR-005 Q09F CONFIDENTIAL 2001WC Ph2 Stage 3 Est 12-05-16_redacted.xlsm.”

- k. It is typical on PSEP projects to have a project team comprised of both, full-time Company employees and Contract employees. “Other Capital Costs” represents costs for contracted Purchased Services (i.e., contract employees hired to augment staffing of SoCalGas/SDG&E company employees.

Engineering and Project Management include activities that are captured in different areas of the estimates. Costs were determined based on an execution strategy, anticipated construction duration and planned activities. See attached estimate provided in response to Question 9F.

“IS DR-005 Q09F CONFIDENTIAL 2001WC Ph2 Stage 3 Est 12-05-16_redacted.xlsm.”

- l. SoCalGas objects to the portion of the question that asks, “why it is required to inflate the cost estimates with contingency adders,” because the inclusion of contingency is standard in the industry to capture costs that, although not individually itemized, are reasonably anticipated to be incurred on construction projects. Subject to and without waiving the foregoing objection, SoCalGas responds as follows:

Yes, there are contingency adders included. The contingency categories are productivity, scope, pricing and duration. The following are the cost components within which contingencies are applied:

- Site Mobilization
- Site Preparation
- Site Facilities
- Site Management / Best Management Practices (BMPs)
- Pipe Transportation / Handling
- Traffic Control

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- Site Right-of-Way (ROW) Clearing
- Utility Locates
- Site Excavations
- Remove Existing / Install New Pipeline Features
- Cathodic Protection
- Isolate Existing Pipeline
- Hydrotest Pipeline
- Tie-In Pipeline / Reconnect Taps
- Backfill Excavations
- Site Restoration
- Site Demobilization
- Field Overhead
- Other Contractor
- SoCalGas Labor - Mgmt. & Non-Labor
- SoCalGas Labor - Union T/H
- Material- Pipe & Fittings
- Material-Valves
- Material- Other
- Engineering / Design Services
- Project Management / Project Services
- Construction Management
- Surveying / As-builts
- Environmental Services
- Pressure Test Certification Services
- Water Storage
- X-ray / Non-destructive evaluation (NDE)
- Land Services
- CNG / LNG
- Spreadboss
- Miscellaneous Services
- Permits
- Other Non-Labor Costs
- Allowances

Contingency is a direct cost to the project and is anticipated to be spent over the course of engineering, design, procurement, and construction. Per the Association for the Advancement of Cost Engineering (AACEi), contingency is defined as:

An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience.

SoCalGas Response 5-9:-Continued

Contingency usually excludes: 1) Major scope changes such as changes in end product specification, capacities, building sizes, and location of the asset or

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project; 2) Extraordinary events such as major strikes and natural disasters; 3) Management reserves; and 4) Escalation and currency effects. Some of the items, conditions, or events for which the state, occurrence, and/or effect is uncertain include, but are not limited to, planning and estimating errors and omissions, minor price fluctuations (other than general escalation), design developments and changes within the scope, and variations in market and environmental conditions. Contingency is generally included in most estimates, and is expected to be expended.¹

- m. As shown in the capital workpapers, 2017-2019 capital expenditures depicted in witness testimony are presented as direct costs for labor and non-labor, and in the cases where standard escalation is not applicable, are classified as non-standard escalation or ‘NSE.’ As such, the only additional adder included in the labor forecast is vacation and sick (V&S) time. A standard V&S rate is applied to the forecasted labor cost of a project, as shown in the applicable capital workpaper.

- n. No. There are no indirect cost included in these cost estimates.

- o. Workpapers associated with SoCalGas and SDG&E’s RAMP Report can be accessed using the following steps:
Visit the RAMP proceeding on SDG&E’s website:
<https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas>.
 - Click on “Discovery.”
 - Click on “CUE.”
 - The risk reduction workpapers are shown as “CUE DR-01 RAMP RSE Workpapers.” The cost-related workpapers are labeled as “CUE DR-01 Cost Workpapers.”

In addition, as stated in the Direct Testimony of RAMP to GRC Integration witness Jamie York (Exhibit SCG-02-R/SDGE-02-R, Chapter 3), “much information from the RAMP Report was transcribed and is shown in the GRC witness’ workpapers to provide context as well as a comparison reference to the RAMP Report itself. Such information includes the RAMP risk the particular activity was associated with, the name of the mitigation as presented in the RAMP Report, the estimated range of costs put forth in the RAMP for the mitigation activity, the funding source (i.e., CPUC-GRC, FERC), the work type (e.g., mandated) and citation (e.g., General Order 165), and the 2016 embedded historical cost estimate.” (Exhibit SCG-02-R/SDGE-02-R, Chapter 3 at p. JKY-7 lines 3-10.)

¹ See AACEi Recommended Practice 10S-90, *Cost Engineering Terminology*, available for free to the general public at <https://web.aacei.org/docs/default-source/rps/10s-90.pdf?sfvrsn=18>.

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SoCalGas Response 5-9:-Continued

p. As mentioned in the RAMP Report Chapter A at p. SDGE/SCG A-2, “The purpose of RAMP is not to request funding. Any finding requests will be made in the GRC. RAMP mitigation forecasts are providing only to estimate a range that will be refined with supporting testimony in the GRC.” Accordingly, the project assumptions and estimated costs put forth in the RAMP Report were superseded by the requests made in supporting testimony in the Test Year 2019 GRC. For the locations of the requested projects in the RAMP Report, please refer to the response to part m above.

q. SoCalGas objects to Question 5-9.q. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-9.q. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-9.q. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal codes and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

The design, construction and testing of the pipeline is governed by state regulations which flow from federal regulations. 49 Code of Federal Regulations (CFR), Section 192, Subpart J. sets forth the minimum strength testing and record keeping requirements for pipelines.

r. SoCalGas objects to Question 5-9.r. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-9.r. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-9.r. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

Yes. See the Natural Gas Pipeline Safety Act of 2011 and California Public Utilities Commission decisions in R.11-02-019 and A.11-11.002.

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- s. SoCalGas objects to Question 5-9.s. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-9.s. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-9.s. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

SoCalGas is unaware of any applicable proposed state or federal regulations.

- t. SoCalGas and SDG&E object to this request as out of scope. Subject to and without waiving the foregoing objection, SoCalGas and SDG&E responds as follows:

Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio calculations were not presented in the TY 2019 GRC. This approach is consistent with guidance stemming from the RAMP proceeding, as shown in the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1): “Through the SED Evaluation Report and comments submitted in response to both the SED Evaluation Report and the Companies’ RAMP Report, stakeholders agreed that the RSEs are evolving, should be further refined in the S-MAP, and have limited usefulness in their current state.” (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1 at p. DD-17 lines 18-21.) SoCalGas and SDG&E’s comments in the RAMP proceeding stated “the Utilities do not plan to include their nascent RSE calculations in the upcoming TY 2019 GRC. However, the Utilities will work with the parties and the Commission in the S-MAP proceeding toward furthering development of a more useful effectiveness metric in the next RAMP.” (I.16-10-015/I.16-10-016. SoCalGas and SDG&E Opening Comments (April 24, 2017), at 4-5; and SoCalGas and SDG&E Reply Comments (May 9, 2017), at 6-8.) Please see the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1) and the Direct Testimony of Jamie York (Exhibit SCG-02-R/SDG&E-02-R, Chapter 3) for more information regarding the Commission’s guidance in presenting the first-ever risk-informed GRC.

- u. Line 2001W-C consist of 13.830 miles of Category Four pipe and .023 miles of Category One pipe.

This is a Phase 2A project and, as stated on pg. RDP-A-7 of SCG-15. Phase 2A addresses pipe located in Class 1 and 2 non-high consequence areas.

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SoCalGas Response 5-9:-Continued

- v. **The attached documents include Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023.** See attached KMZ files.

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- w. There are 13 buildings within 300 feet of the pipe associated with Line 2001 W Section C Pressure Test Project.
- x. Economies of scale were considered and planned into the projects on the same pipeline. The sections defined as a project are delineated based on the approximate schedule for each project.

Some factors that affect decisions on length of individual projects include gas system availability, permit acquisition and restrictions, land acquisition and restrictions, number of project personnel. In addition, the distance between individual projects on the same pipeline also factor into the decisions, for example, the line 2000 Chino Hills and Line 2000 E of Cactus City projects are approx. 115 miles apart.

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5-10. Please refer to the PSEP supplemental workpaper of SCG witness Richard Phillips, Exhibit No. SCG-15-WPS, at the pages associated with the Line 2001 West Section D Pressure Test Project.

- a. Please explain why this project must be completed in the proposed time frame i.e., during the 2019 GRC cycle, rather than spread over a greater number of years, i.e., during future GRC cycles.
- b. Please explain how the Focus on Reasonable Rates and Continuous Improvement, as described on page 4 of the Application and page 3 of the Direct Testimony of Bret Lane, was considered for this project. Additionally, please provide the revenue requirement impact of this project for each year in the GRC cycle (2019, 2020, 2021, 2022) and all supporting documentation.
- c. Please explain why the proposed number of individual test sections are required for this project. Is it feasible and reliable to complete this pressure test with fewer test sections? Please provide a detailed narrative explaining the response, and support for those positions.
- d. Please explain how the number of individual test sections impacts the overall budget of the project. Is the forecast developed based on the specific cost to pressure test each individual section?
- e. Please provide a detailed breakdown of each of the cost estimate components presented (Materials, Construction, Environmental Survey/Permitting/Monitoring, Land & Right-of-Way Acquisition, Company Labor, and Other Capital Costs) for each year separately, including prior to 2018. For the costs incurred prior to 2018 please identify in what year the cost was incurred. This detailed breakdown should explicitly detail the number of units or hours included in the estimate, as well as cost per unit or cost per hour of each item that is required to arrive at the total labor and non-labor costs associated with this cost estimate component. Further, please provide a detailed explanation of the activity associated with each cost component and why it is required to be included in this cost estimate. For all cost components, any assumptions or additional information identified in the PSEP supplemental workpaper should clearly be shown in the detailed cost estimate breakdown provided in response to this discovery.
- f. Please provide the split between O&M and Capital for each cost component and explain how that split was determined. Additionally, provide a workpaper showing the calculation of this split.
- g. Please provide the cost model utilized to determine the cost estimates provided in response to part d. above. If available in Excel spreadsheet format, provide with all formulas and links intact.

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- h. Please explain the nature of the work conducted for this project prior to 2018. For each item identify the year in which the work was completed.
- i. Provide the unit cost per test head. Please explain why SoCalGas determined the number of test heads identified is required to complete the project. Please explain why more test heads than the number of test sections was deemed necessary to complete this pressure test project. Please explain why these test heads cannot be re-used for multiple test segments.
- j. If not provided in part d. above, please provide a detailed breakdown of the costs associated with the Field Overhead portion of the Construction cost component, the SoCalGas Labor portion of Company Labor cost component, and the SoCalGas Field Labor portion of Company Labor cost component.
- k. Please explain how it was determined that the costs associated with Other Capital Costs are required, as the other cost components have assumptions identified that represent the same services; Engineering, Project Management, Construction Management, and Surveying are included in other cost components. Please provide all supporting workpapers and documentation that were utilized to determine both the need and level cost associated with each item included in Other Capital Costs
- l. Please explain if there are any contingency adders included in these cost estimates. If so, please explain what contingencies are included, what cost components these contingencies are applied to, and why it is required to inflate the cost estimates with contingency adders.
- m. Please explain if any overhead or profit adders are included in these cost estimates. If so, please explain what overhead is included, what cost components these adders are applied to, and why it is required to inflate the cost estimates with overhead and profit adders.
- n. Please explain if there are any additional indirect costs included in these cost estimates not discussed previously.
- o. Please provide all workpapers from the 2016 RAMP Report associated with this project.
- p. Please identify the exact locations in the 2016 RAMP report that discuss this project.

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Question 5.10 - Continued

- q. Is this project mandated by any approved Federal regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- r. Is this project mandated by any approved California regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- s. Is this project mandated by any proposed State or Federal regulations? If so, please identify these proposed regulations and explain how this project makes SoCalGas compliant with these regulations.
- t. Please provide the Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio (as they are defined by the 2016 RAMP report) associated with this project. Additionally, explain how the scores in these metrics led SoCalGas to the decision that the 2019 GRC was the appropriate time to propose this project.
- u. Please explain what Category (1-4) and Class (1-4), as described in the workpaper glossary, this pipeline belongs to.
- v. Please provide the GIS data (a .gpd geodatabase or the individual .shp shape files will suffice, as will .kmz or .kml files) associated with this project and used to display the Project Map for this project.
- w. Please provide the number of buildings intended for human occupancy that exist within 300 feet of the pipeline associated with this project.
- x. Please explain if there are any economies of scale benefits captured for other pipeline pressure test projects associated with the same pipeline. If not, please provide a detailed narrative explaining why benefits associated with economies of scale would not be applicable to other pressure tests conducted on the same pipeline.

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SCG Response 5-10:

- a. The proposed schedule is consistent with the Commission requirement set forth in D.11-06-017 on page 19 that PSEP be completed “as soon as practicable” and the directives in the Natural Gas Pipeline Safety Act of 2011 that the plan “shall include a timeline for completion that is as soon as practicable” (Pub. Util. Code § 958).
- b. One of the primary objectives of PSEP, is to maximize the cost effectiveness of safety investments for the benefit of customers, as indicated on pages RDP-A-5, RDP-A-15, RDP-A-16, RDP-A-20, RDP-A-21 and RDP-57 of SCG-15. The forecasted costs of are based on project specific estimates that were developed for each pipeline project, based on detailed engineering and project planning analysis.

SoCalGas does not forecast its revenue requirement for individual projects or work activities at the level of detail requested. Page RDP-A-21 of Exhibit SCG-15 describes the process of normalizing the forecasted PSEP O&M expenditures for the test year. The normalized 2019 PSEP O&M expenditures as well as any PSEP capital expenditures projected to be in service by TY 2019 were an input to the overall forecasted TY 2019 SoCalGas revenue requirement.

Beyond 2019, an attrition mechanism is established to escalate revenue requirement throughout the post-test years until a new rate case can be filed and approved. In the case of PSEP, a specific revenue requirement “adder” was included in the Post-Test Year request for the entirety of the PSEP capital forecasts projected to be in-service in the post-test years. Revenue requirement was not forecasted on a PSEP project by project basis. Please see the Direct testimony of Jawaad Malik (Exhibit SCG-44) beginning on page JAM-9 for Post-Test Year Ratemaking. Details for PSEP for 2020-2022 can be found in the PSEP workpapers of Jawaad Malik (Exhibit SCG-44-WP) starting on page SCG-44 WP JAM PSEP-1.

- c. The number of test sections was determined for each pipeline based on its operating characteristics, operating percent Specified Minimum Yield Strength (SMYS) and planned maximum test pressure. This process was used for all the hydrotest projects in the filing. The differences in the number of test sections are due to the unique elevation profile along each pipeline. Engineering judgment is used to plan the projects based on the profile and the conditions stated.

As stated on Page WP-I-A128 of SCG-15-WP-S, the project requires 16 individual test sections to address test pressure limitations due to elevation changes totaling 1,300 feet (2,370 feet at highest elevation and 1,070 feet at lowest elevation). Elevation is a key determining factor for selecting the number of test breaks in any given project.

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- d. The number of individual test sections increases the overall budget of a project by increasing the schedule, scope of work, and the duration based field support staff such as: environmental monitors, inspectors, cost analysts, construction team leads, etc. The forecast was developed based on the project's scope of work and not just the specific cost to pressure test each individual section.

Each overall budget is impacted by the number of test sections. Additional test sections require additional test heads, water handling, pipe handling, etc. to complete each additional test. The detailed estimate is based on each project's anticipated conditions, scope, etc.

- e. Please see attached estimate in response to Question 10F for a detailed breakdown of costs. Costs incurred prior to 2018 were incurred in 2017.
Material is required for test heads, replacement sections, and to perform hydro-testing operations.
Environmental is included for abatement activities, water sampling, environmental monitors, and industrial hygienists.
Surveying/Permitting/Monitoring is required to locate the pipeline, update GIS databases, monitor for protected species, and to acquire work permits with municipalities and environmental agencies.
Company Labor is required to schedule, perform cost controlling, estimating, project management, contract issuing and field oversight.
Other Capital Costs are required to perform project engineering and design, project management, environmental services, and survey services.

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- f. **The attached document includes Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. Note that the attached files have also been redacted to remove non-responsive, non-relevant employee information.**

Please see illustrative example in the response to Question 2F, indicating where in the attached spreadsheets this information can be obtained for each project.

“IS DR-005 Q10F CONFIDENTIAL 2001WD Ph2 Stage 3 Est 01-19-17_redacted.xlsm.”

- g. Please see the attachment provided in response to Question 10F.

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- h. Work performed prior to 2018 is associated with the planning and engineering design for projects anticipated to be in construction in 2019. For details on PSEP's planning and engineering design work please refer to SCG-15 Direct Testimony (Phillips) at pp. RDP-A-23 and 24.
- i. Each test section requires two test heads, one at each end to isolate the section for testing. The number of test heads required for each project was based on the engineering analysis and judgment of each individual project, and is proportional to the number of test sections for a given project. Projects with multiple test sections may reuse tests heads based on schedule duration (i.e., the timing of the individual tests), water management plans and other factors.

For line 2001WD, the unit cost for a test head is \$19,375.28 (Direct Cost without contingency, taxes, or freight).

- j. Please see the attachment provided in response to Question 10F.
Field Overhead - see worksheet tab "Construction Contractor."
SoCalGas Labor - see worksheets "Engr" and "CM."

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- k. It is typical on PSEP projects to have a project team comprised of both, full-time Company employees and Contract employees. "Other Capital Costs" represents costs for contracted Purchased Services (i.e., contract employees hired to augment staffing of SoCalGas/SDG&E company employees.

Engineering and Project Management include activities that are captured in different areas of the estimates. Costs were determined based on an execution strategy, anticipated construction duration and planned activities. See attached estimate provided in response to Question 10F.

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- l. SoCalGas objects to the portion of the question that asks, "why it is required to inflate the cost estimates with contingency adders," because the inclusion of contingency is standard in the industry to capture costs that, although not individually itemized, are reasonably anticipated to be incurred on construction projects. Subject to and without waiving the foregoing objection, SoCalGas responds as follows:

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- Site Mobilization
- Site Preparation
- Site Facilities
- Site Management / Best Management Practices (BMPs)
- Pipe Transportation / Handling
- Traffic Control
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- Utility Locates
- Site Excavations
- Remove Existing / Install New Pipeline Features
- Cathodic Protection
- Isolate Existing Pipeline
- Hydrotest Pipeline
- Tie-In Pipeline / Reconnect Taps
- Backfill Excavations
- Site Restoration
- Site Demobilization
- Field Overhead
- Other Contractor
- SoCalGas Labor - Mgmt. & Non-Labor
- SoCalGas Labor - Union T/H
- Material- Pipe & Fittings
- Material-Valves
- Material- Other
- Engineering / Design Services
- Project Management / Project Services
- Construction Management
- Surveying / As-builts
- Environmental Services
- Pressure Test Certification Services
- Water Storage
- X-ray / Non-destructive evaluation (NDE)
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An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience. Contingency usually excludes: 1) Major scope changes such as changes in end product specification, capacities, building sizes, and location of the asset or project; 2) Extraordinary events such as major strikes and natural disasters; 3) Management reserves; and 4) Escalation and currency effects. Some of the items, conditions, or events for which the state, occurrence, and/or effect is uncertain include, but are not limited to, planning and estimating errors and omissions, minor price fluctuations (other than general escalation), design developments and changes within the scope, and variations in market and environmental conditions. Contingency is generally included in most estimates, and is expected to be expended.¹

- m. As shown in the capital workpapers, 2017-2019 capital expenditures depicted in witness testimony are presented as direct costs for labor and non-labor, and in the cases where standard escalation is not applicable, are classified as non-standard escalation or ‘NSE.’ As such, the only additional adder included in the labor forecast is vacation and sick (V&S) time. A standard V&S rate is applied to the forecasted labor cost of a project, as shown in the applicable capital workpaper.
- n. No. There are no indirect cost included in these cost estimates.
- o. Workpapers associated with SoCalGas and SDG&E’s RAMP Report can be accessed using the following steps:
Visit the RAMP proceeding on SDG&E’s website:
<https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas>.
 - Click on “Discovery.”
 - Click on “CUE.”
 - The risk reduction workpapers are shown as “CUE DR-01 RAMP RSE Workpapers.” The cost-related workpapers are labeled as “CUE DR-01 Cost Workpapers.”

¹ See AACEi Recommended Practice 10S-90, *Cost Engineering Terminology*, available for free to the general public at <https://web.aacei.org/docs/default-source/rps/10s-90.pdf?sfvrsn=18>.

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SCG Response 5-10.o:-Continued

In addition, as stated in the Direct Testimony of RAMP to GRC Integration witness Jamie York (Exhibit SCG-02-R/SDGE-02-R, Chapter 3), “much information from the RAMP Report was transcribed and is shown in the GRC witness’ workpapers to provide context as well as a comparison reference to the RAMP Report itself. Such information includes the RAMP risk the particular activity was associated with, the name of the mitigation as presented in the RAMP Report, the estimated range of costs put forth in the RAMP for the mitigation activity, the funding source (i.e., CPUC-GRC, FERC), the work type (e.g., mandated) and citation (e.g., General Order 165), and the 2016 embedded historical cost estimate.” (Exhibit SCG-02-R/SDGE-02-R, Chapter 3 at p. JKY-7 lines 3-10.)

- p. As mentioned in the RAMP Report Chapter A at p. SDGE/SCG A-2, “The purpose of RAMP is not to request funding. Any finding requests will be made in the GRC. RAMP mitigation forecasts are providing only to estimate a range that will be refined with supporting testimony in the GRC.” Accordingly, the project assumptions and estimated costs put forth in the RAMP Report were superseded by the requests made in supporting testimony in the Test Year 2019 GRC. For the locations of the requested projects in the RAMP Report, please refer to the response to part m above.
- q. SoCalGas objects to Question 5-10.q. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-10.q. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-10.q. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal codes and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

The design, construction and testing of the pipeline is governed by state regulations which flow from federal regulations. 49 Code of Federal Regulations (CFR), Section 192, Subpart J. sets forth the minimum strength testing and record keeping requirements for pipelines.

- r. SoCalGas objects to Question 5-10.r. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-11.r. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-11.r. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

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SCG Response 5-10.r:-Continued

Yes. See the Natural Gas Pipeline Safety Act of 2011 and California Public Utilities Commission decisions in R.11-02-019 and A.11-11.002.

- s. SoCalGas objects to Question 5-10.s. on the ground that it seeks information that is beyond the scope of permissible discovery contemplated by Rule 10.1 of the Rules of Practice and Procedure of the California Public Utilities Commission. Question 5-10.s. seeks legal conclusions rather than the production of evidence of a factual matter. SoCalGas further objects to Question 5-10.s. to the extent it requires SoCalGas to search its files for matters of public record, including in state and federal code and proceedings (regulations, decisions, orders, etc.). This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

SoCalGas is unaware of any applicable proposed state or federal regulations.

- t. SoCalGas and SDG&E object to this request as out of scope. Subject to and without waiving the foregoing objection, SoCalGas and SDG&E responds as follows:

Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio calculations were not presented in the TY 2019 GRC. This approach is consistent with guidance stemming from the RAMP proceeding, as shown in the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1): “Through the SED Evaluation Report and comments submitted in response to both the SED Evaluation Report and the Companies’ RAMP Report, stakeholders agreed that the RSEs are evolving, should be further refined in the S-MAP, and have limited usefulness in their current state.” (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1 at p. DD-17 lines 18-21.) SoCalGas and SDG&E’s comments in the RAMP proceeding stated “the Utilities do not plan to include their nascent RSE calculations in the upcoming TY 2019 GRC. However, the Utilities will work with the parties and the Commission in the S-MAP proceeding toward furthering development of a more useful effectiveness metric in the next RAMP.” (I.16-10-015/I.16-10-016. SoCalGas and SDG&E Opening Comments (April 24, 2017), at 4-5; and SoCalGas and SDG&E Reply Comments (May 9, 2017), at 6-8.) Please see the Revised Direct Testimony of Diana Day (Exhibit SCG-02-R/SDG&E-02-R, Chapter 1) and the Direct Testimony of Jamie York (Exhibit SCG-02-R/SDG&E-02-R, Chapter 3) for more information regarding the Commission’s guidance in presenting the first-ever risk-informed GRC.

- u. Line 2001 W-D consist of 16.341 miles of Category Four pipe and 1.502 miles of Category One pipe.

This is a Phase 2A project and, as stated on pg. RDP-A-7 of SCG-15. Phase 2A addresses pipe located in Class 1 and 2 non-high consequence areas.

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SCG Response 5-10:-Continued

- v. **The attached documents include Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. See attached KMZ files.**

“IS DR-005 Q10V CONFIDENTIAL 2001WD .kmz.”

- w. There are 8 buildings within 300 feet of the pipe associated with Line 2001 West Section D Pressure Test Project.
- x. Economies of scale were considered and planned into the projects on the same pipeline. The sections defined as a project are delineated based on the approximate schedule for each project.
Some factors that affect decisions on length of individual projects include gas system availability, permit acquisition and restrictions, land acquisition and restrictions, number of project personnel. In addition, the distance between individual projects on the same pipeline also factor into the decisions, for example, the line 2000 Chino Hills and Line 2000 E of Cactus City projects are approx. 115 miles apart.

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5-11. Please refer to the PSEP supplemental workpaper of SCG witness Richard Phillips, Exhibit No. SCG-15-WPS, at the pages associated with the Line 2001 W Section E Pressure Test Project.

- a. Please explain why this project must be completed in the proposed time frame i.e., during the 2019 GRC cycle, rather than spread over a greater number of years, i.e., during future GRC cycles.
- b. Please explain how the Focus on Reasonable Rates and Continuous Improvement, as described on page 4 of the Application and page 3 of the Direct Testimony of Bret Lane, was considered for this project. Additionally, please provide the revenue requirement impact of this project for each year in the GRC cycle (2019, 2020, 2021, 2022) and all supporting documentation.
- c. Please explain why the proposed number of individual test sections are required for this project. Is it feasible and reliable to complete this pressure test with fewer test sections? Please provide a detailed narrative explaining the response, and support for those positions.
- d. Please explain how the number of individual test sections impacts the overall budget of the project. Is the forecast developed based on the specific cost to pressure test each individual section?
- e. Please provide a detailed breakdown of each of the cost estimate components presented (Materials, Construction, Environmental Survey/Permitting/Monitoring, Land & Right-of-Way Acquisition, Company Labor, and Other Capital Costs) for each year separately, including prior to 2018. For the costs incurred prior to 2018 please identify in what year the cost was incurred. This detailed breakdown should explicitly detail the number of units or hours included in the estimate, as well as cost per unit or cost per hour of each item that is required to arrive at the total labor and non-labor costs associated with this cost estimate component. Further, please provide a detailed explanation of the activity associated with each cost component and why it is required to be included in this cost estimate. For all cost components, any assumptions or additional information identified in the PSEP supplemental workpaper should clearly be shown in the detailed cost estimate breakdown provided in response to this discovery.
- f. Please provide the split between O&M and Capital for each cost component and explain how that split was determined. Additionally, provide a workpaper showing the calculation of this split.
- g. Please provide the cost model utilized to determine the cost estimates provided in response to part d. above. If available in Excel spreadsheet format, provide with all formulas and links intact.

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Question 5.11 - Continued

- h. Please explain the nature of the work conducted for this project prior to 2018. For each item identify the year in which the work was completed.
- i. Provide the unit cost per test head. Please explain why SoCalGas determined the number of test heads identified is required to complete the project. Please explain why more test heads than the number of test sections was deemed necessary to complete this pressure test project. Please explain why these test heads cannot be re-used for multiple test segments.
- j. If not provided in part d. above, please provide a detailed breakdown of the costs associated with the Field Overhead portion of the Construction cost component, the SoCalGas Labor portion of Company Labor cost component, and the SoCalGas Field Labor portion of Company Labor cost component.
- k. Please explain how it was determined that the costs associated with Other Capital Costs are required, as the other cost components have assumptions identified that represent the same services; Engineering, Project Management, Construction Management, and Surveying are included in other cost components. Please provide all supporting workpapers and documentation that were utilized to determine both the need and level cost associated with each item included in Other Capital Costs
- l. Please explain if there are any contingency adders included in these cost estimates. If so, please explain what contingencies are included, what cost components these contingencies are applied to, and why it is required to inflate the cost estimates with contingency adders.
- m. Please explain if any overhead or profit adders are included in these cost estimates. If so, please explain what overhead is included, what cost components these adders are applied to, and why it is required to inflate the cost estimates with overhead and profit adders.
- n. Please explain if there are any additional indirect costs included in these cost estimates not discussed previously.
- o. Please provide all workpapers from the 2016 RAMP Report associated with this project.
- p. Please identify the exact locations in the 2016 RAMP report that discuss this project.

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Question 5.11 - Continued

- q. Is this project mandated by any approved Federal regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- r. Is this project mandated by any approved California regulations? If so, please identify the regulations and explain how this project makes SoCalGas compliant with these regulations.
- s. Is this project mandated by any proposed State or Federal regulations? If so, please identify these proposed regulations and explain how this project makes SoCalGas compliant with these regulations.
- t. Please provide the Risk Reduction, Risk Spend Efficiency and Risk Mitigated to Cost Ratio (as they are defined by the 2016 RAMP report) associated with this project. Additionally, explain how the scores in these metrics led SoCalGas to the decision that the 2019 GRC was the appropriate time to propose this project.
- u. Please explain what Category (1-4) and Class (1-4), as described in the workpaper glossary, this pipeline belongs to.
- v. Please provide the GIS data (a .gpd geodatabase or the individual .shp shape files will suffice, as will .kmz or .kml files) associated with this project and used to display the Project Map for this project.
- w. Please provide the number of buildings intended for human occupancy that exist within 300 feet of the pipeline associated with this project.
- x. Please explain if there are any economies of scale benefits captured for other pipeline pressure test projects associated with the same pipeline. If not, please provide a detailed narrative explaining why benefits associated with economies of scale would not be applicable to other pressure tests conducted on the same pipeline.

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SoCalGas Response 5-11:

- a. The proposed schedule is consistent with the Commission requirement set forth in D.11-06-017 on page 19 that PSEP be completed “as soon as practicable” and the directives in the Natural Gas Pipeline Safety Act of 2011 that the plan “shall include a timeline for completion that is as soon as practicable” (Pub. Util. Code § 958).
- b. One of the primary objectives of PSEP, is to maximize the cost effectiveness of safety investments for the benefit of customers, as indicated on pages RDP-A-5, RDP-A-15, RDP-A-16, RDP-A-20, RDP-A-21 and RDP-57 of SCG-15. The forecasted costs of are based on project specific estimates that were developed for each pipeline project, based on detailed engineering and project planning analysis.

SoCalGas does not forecast its revenue requirement for individual projects or work activities at the level of detail requested. Page RDP-A-21 of Exhibit SCG-15 describes the process of normalizing the forecasted PSEP O&M expenditures for the test year. The normalized 2019 PSEP O&M expenditures as well as any PSEP capital expenditures projected to be in service by TY 2019 were an input to the overall forecasted TY 2019 SoCalGas revenue requirement.

Beyond 2019, an attrition mechanism is established to escalate revenue requirement throughout the post-test years until a new rate case can be filed and approved. In the case of PSEP, a specific revenue requirement “adder” was included in the Post-Test Year request for the entirety of the PSEP capital forecasts projected to be in-service in the post-test years. Revenue requirement was not forecasted on a PSEP project by project basis. Please see the Direct testimony of Jawaad Malik (Exhibit SCG-44) beginning on page JAM-9 for Post-Test Year Ratemaking. Details for PSEP for 2020-2022 can be found in the PSEP workpapers of Jawaad Malik (Exhibit SCG-44-WP) starting on page SCG-44 WP JAM PSEP-1.

- c. The number of test sections was determined for each pipeline based on its operating characteristics, operating percent Specified Minimum Yield Strength (SMYS) and planned maximum test pressure. This process was used for all the hydrotest projects in the filing. The differences in the number of test sections are due to the unique elevation profile along each pipeline. Engineering judgment is used to plan the projects based on the profile and the conditions stated.

As stated on Page WP-I-A139 of SCG-15-WP-S, the project requires five individual test sections to address test pressure limitations due to elevation changes totaling 860 feet (1,880 feet at highest elevation and 1,020 feet at lowest elevation). Elevation is a key determining factor for selecting the number of test breaks in any given project.

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SCG Response 5-11:-Continued

- d. The number of individual test sections increases the overall budget of a project by increasing the schedule, scope of work, and the duration based field support staff such as: environmental monitors, inspectors, cost analysts, construction team leads, etc. The forecast was developed based on the project's scope of work and not just the specific cost to pressure test each individual section.

Each overall budget is impacted by the number of test sections. Additional test sections require additional test heads, water handling, pipe handling, etc. to complete each additional test. The detailed estimate is based on each project's anticipated conditions, scope, etc.

- e. Please see attached estimate in response to Question 11F for a detailed breakdown of costs. Costs incurred prior to 2018 were incurred in 2017.

Material is required for test heads, replacement sections, and to perform hydro-testing operations.

Environmental is included for abatement activities, water sampling, environmental monitors, and industrial hygienists.

Surveying/Permitting/Monitoring is required to locate the pipeline, update GIS databases, monitor for protected species, and to acquire work permits with municipalities and environmental agencies.

Company Labor is required to schedule, perform cost controlling, estimating, project management, contract issuing and field oversight.

Other Capital Costs are required to perform project engineering and design, project management, environmental services, and survey services.

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- f. **The attached document includes Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023. Note that the attached files have also been redacted to remove non-responsive, non-relevant employee information.**

Please see illustrative example in the response to Question 2F, indicating where in the attached spreadsheets this information can be obtained for each project.

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- g. Please see the attachment provided in response to Question 11F.

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SCG Response 5-11:-Continued

- h. Work performed prior to 2018 is associated with the planning and engineering design for projects anticipated to be in construction in 2019. For details on PSEP's planning and engineering design work please refer to SCG-15 Direct Testimony (Phillips) at pp. RDP-A-23 and 24.
- i. Each test section requires two test heads, one at each end to isolate the section for testing. The number of test heads required for each project was based on the engineering analysis and judgment of each individual project, and is proportional to the number of test sections for a given project. Projects with multiple test sections may reuse tests heads based on schedule duration (i.e., the timing of the individual tests), water management plans and other factors.

For line 2001WE, the unit cost for a test head is \$10,780.23 (Direct Cost without contingency, taxes, or freight).

- j. Please see the attachment provided in response to Question 11F.
- **Field Overhead** - see worksheet tab "Construction Contractor."
 - **SoCalGas Labor** - see worksheets "Engr" and "CM."

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- k. It is typical on PSEP projects to have a project team comprised of both, full-time Company employees and Contract employees. "Other Capital Costs" represents costs for contracted Purchased Services (i.e., contract employees hired to augment staffing of SoCalGas/SDG&E company employees.

Engineering and Project Management include activities that are captured in different areas of the estimates. Costs were determined based on an execution strategy, anticipated construction duration and planned activities. See attached estimate provided in response to Question 2F.

"IS DR-005 Q11F CONFIDENTIAL 2001WE Ph2 Stage 3 Est 03-10-17_redacted.xlsm."

- l. SoCalGas objects to the portion of the question that asks, "why it is required to inflate the cost estimates with contingency adders," because the inclusion of contingency is standard in the industry to capture costs that, although not individually itemized, are reasonably anticipated to be incurred on construction projects. Subject to and without waiving the foregoing objection, SoCalGas responds as follows:

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SCG Response 5-11.1:-Continued

Yes, there are contingency adders included. The contingency categories are productivity, scope, pricing and duration. The following are the cost components within which contingencies are applied:

- Site Mobilization
- Site Preparation
- Site Facilities
- Site Management / Best Management Practices (BMPs)
- Pipe Transportation / Handling
- Traffic Control
- Site Right-of-Way (ROW) Clearing
- Utility Locates
- Site Excavations
- Remove Existing / Install New Pipeline Features
- Cathodic Protection
- Isolate Existing Pipeline
- Hydrotest Pipeline
- Tie-In Pipeline / Reconnect Taps
- Backfill Excavations
- Site Restoration
- Site Demobilization
- Field Overhead
- Other Contractor
- SoCalGas Labor - Mgmt. & Non-Labor
- SoCalGas Labor - Union T/H
- Material- Pipe & Fittings
- Material-Valves
- Material- Other
- Engineering / Design Services
- Project Management / Project Services
- Construction Management
- Surveying / As-builts
- Environmental Services
- Pressure Test Certification Services
- Water Storage
- X-ray / Non-destructive evaluation (NDE)
- Land Services
- CNG / LNG
- Spreadboss
- Miscellaneous Services
- Permits
- Other Non-Labor Costs
- Allowances

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SCG Response 5-11.I:-Continued

Contingency is a direct cost to the project and is anticipated to be spent over the course of engineering, design, procurement, and construction. Per the Association for the Advancement of Cost Engineering (AACEi), contingency is defined as:

An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience. Contingency usually excludes: 1) Major scope changes such as changes in end product specification, capacities, building sizes, and location of the asset or project; 2) Extraordinary events such as major strikes and natural disasters; 3) Management reserves; and 4) Escalation and currency effects. Some of the items, conditions, or events for which the state, occurrence, and/or effect is uncertain include, but are not limited to, planning and estimating errors and omissions, minor price fluctuations (other than general escalation), design developments and changes within the scope, and variations in market and environmental conditions. Contingency is generally included in most estimates, and is expected to be expended.¹

- m. As shown in the capital workpapers, 2017-2019 capital expenditures depicted in witness testimony are presented as direct costs for labor and non-labor, and in the cases where standard escalation is not applicable, are classified as non-standard escalation or ‘NSE.’ As such, the only additional adder included in the labor forecast is vacation and sick (V&S) time. A standard V&S rate is applied to the forecasted labor cost of a project, as shown in the applicable capital workpaper.

- n. No. There are no indirect cost included in these cost estimates.

- o. Workpapers associated with SoCalGas and SDG&E’s RAMP Report can be accessed using the following steps:
Visit the RAMP proceeding on SDG&E’s website:
<https://www.sdge.com/regulatory-filing/20016/risk-assessment-and-mitigation-phase-report-sdge-socalgas>.
 - Click on “Discovery.”
 - Click on “CUE.”
 - The risk reduction workpapers are shown as “CUE DR-01 RAMP RSE Workpapers.” The cost-related workpapers are labeled as “CUE DR-01 Cost Workpapers.”

¹ See AACEi Recommended Practice 10S-90, *Cost Engineering Terminology*, available for free to the general public at <https://web.aacei.org/docs/default-source/rps/10s-90.pdf?sfvrsn=18>.

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SCG Response 5-11.o:-Continued

In addition, as stated in the Direct Testimony of RAMP to GRC Integration witness Jamie York (Exhibit SCG-02-R/SDGE-02-R, Chapter 3), “much information from the RAMP Report was transcribed and is shown in the GRC witness’ workpapers to provide context as well as a comparison reference to the RAMP Report itself. Such information includes the RAMP risk the particular activity was associated with, the name of the mitigation as presented in the RAMP Report, the estimated range of costs put forth in the RAMP for the mitigation activity, the funding source (i.e., CPUC-GRC, FERC), the work type (e.g., mandated) and citation (e.g., General Order 165), and the 2016 embedded historical cost estimate.” (Exhibit SCG-02-R/SDGE-02-R, Chapter 3 at p. JKY-7 lines 3-10.)

- p. As mentioned in the RAMP Report Chapter A at p. SDGE/SCG A-2, “The purpose of RAMP is not to request funding. Any finding requests will be made in the GRC. RAMP mitigation forecasts are providing only to estimate a range that will be refined with supporting testimony in the GRC.” Accordingly, the project assumptions and estimated costs put forth in the RAMP Report were superseded by the requests made in supporting testimony in the Test Year 2019 GRC. For the locations of the requested projects in the RAMP Report, please refer to the response to part m above.
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SCG Response 5-11.r:-Continued

This information is available equally to Indicated Shippers. Subject to and without waiving the foregoing objections, SoCalGas responds as follows:

Yes. See the Natural Gas Pipeline Safety Act of 2011 and California Public Utilities Commission decisions in R.11-02-019 and A.11-11.002.

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SCG Response 5-11:-Continued

- u. Line 2001 W Section E consist of 8.828 miles of Category Four pipe and .052 miles of Category One pipe.

This is a Phase 2A project and, as stated on pg. RDP-A-7 of SCG-15. Phase 2A addresses pipe located in Class 1 and 2 non-high consequence areas.

- v. **The attached documents include Confidential and Protected Materials pursuant to PUC Section 583, GO 66-D, and D.17-09-023.** See attached KMZ files.

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- w. There is 1 building within 300 feet of the pipe associated with Line 2001 W Section E Pressure Test Project.
- x. Economies of scale were considered and planned into the projects on the same pipeline. The sections defined as a project are delineated based on the approximate schedule for each project.

Some factors that affect decisions on length of individual projects include gas system availability, permit acquisition and restrictions, land acquisition and restrictions, number of project personnel. In addition, the distance between individual projects on the same pipeline also factor into the decisions, for example, the line 2000 Chino Hills and Line 2000 E of Cactus City projects are approx. 115 miles apart.