

Docket : A.17-11-009  
Exhibit Number : ORA-05-SA-Bach  
Commissioner : C. Rechtschaffen  
ALJ : S. Roscow  
Witness : A. Bach



**OFFICE OF RATEPAYER ADVOCATES**  
**CALIFORNIA PUBLIC UTILITIES COMMISSION**

**The Office of Ratepayer Advocates’  
Report on  
Pacific Gas and Electric Company’s  
Cost of Service and Rates for Gas  
Transmission and Storage  
Services for the Period 2019 - 2021**

Chapter 5: In-Line Inspection

Supporting Attachments

San Francisco, California  
June 29, 2018

## ORA Supporting Attachments

| Page | Document   |
|------|--|
| 1    | Ex. ORA-DR-001-Q01 Atch03 WP 5-157                                     |
| 8    | ORA-DR-059-Q03Atch01 (ORA-DR-001-Q01 Atch03 WP 5-38 incorporated)      |
| 10   | Ex. May 2018 Corrections WP 5-4 (Errata ORA-DR-001-Q01 Atch03 WP 5-38) |
| 11   | ORA-DR-071-Q01Atch01 (ORA-DR-001-Q01 Atch03 WP 5-42 incorporated)      |
| 12   | ORA-DR-001-Q01 Atch03 WP 5-44  |
| 13   | ORA-DR_Oral008-Q01   |
| 14   | ORA-DR_Oral012-Q01   |

**Workpaper Table 5-36**  
**Pacific Gas and Electric Company**  
**2019 Gas Transmission and Storage Rate Case**  
**Workpapers Supporting Chapter 5, Asset Family -Transmission Pipe**  
**Traditional ILI Upgrades Capital Forecast Calculation, MAT 98C**

Line No.

| Cost Summary Table |                         |                   |                                   |
|--------------------|-------------------------|-------------------|-----------------------------------|
| YEAR               | Forecast (2016 \$, NCM) | Escalation Factor | Forecast <sup>(a)</sup> (\$, NCM) |
| 2019               | \$196,165,396           | 1.089             | \$213,526,033                     |
| 2020               | \$196,165,396           | 1.123             | \$220,234,890                     |
| 2021               | \$196,165,396           | 1.156             | \$226,708,348                     |

(a) Differences due to rounding.

| Forecast - 2016 Base \$, New Cost Model   |               |
|---|---------------|
| Average projects per year during rate case to complete upgrade program in 2026 (12 year pace) | 18            |
| Average 2016 \$, NCM Forecast /Project  | \$10,898,078  |
| Average Forecast Per Year   | \$196,165,396 |

| 2019-2021 ILI Upgrade Projects |   |         |         |               |             |                    |       |                  |                              |               |              |
|--------------------------------|---|---------|---------|---------------|-------------|--------------------|-------|------------------|------------------------------|---------------|--------------|
| Run ID                         | Route   | MP1     | MP2     | Total Mileage | HCA Mileage | Max. Diameter (in) | IOC   | Risk Matrix Tier | Forecast - 2016 Base \$, NCM | Op Date Group | Approx. Year |
| BB001                          | 300A  | 0       | 40.87   | 40.85         | 0.70        | 40                 | 23    | T-1              | \$10,898,078                 | 1             | 2019         |
| BB013                          | 300B  | 0       | 40.489  | 40.76         | 0.79        | 40                 | 23    | T-1              | \$10,898,078                 | 1             | 2019         |
| CC001-1                        | 103   | 2.833   | 23.55   | 21.29         | 3.90        | 16                 | 5023  | T-2A             | \$10,898,078                 | 1             | 2019         |
| BB045                          | 400   | 233.87  | 281.59  | 48.26         | 3.41        | 38                 | 978   | T-2A             | \$10,898,078                 | 1             | 2019         |
| E153                           | 153   | 17.632  | 27.88   | 10.49         | 10.49       | 31.38              | 4138  | T-2A             | \$10,898,078                 | 1             | 2019         |
| E153-2                         | 153-2   | 0       | 0.049   |               |             |                    |       |                  |                              |               |              |
| BB582                          | 300A  | 159.331 | 203.02  | 43.64         | 3.29        | 40                 | 387   | T-1              | \$10,898,078                 | 1             | 2019         |
| BB080                          | 401   | 285.687 | 317.964 | 32.29         | 4.71        | 42                 | 1510  | T-2A             | \$10,898,078                 | 2             | 2019         |
| M089                           | 2403-12   | 0       | 2.876   | 2.87          | 1.68        | 12.75              | 1161  | T-2A             | \$10,898,078                 | 2             | 2019         |
| S087                           | 021E  | 114.89  | 125.779 | 10.82         | 5.03        | 8.625              | 2194  | T-2A             | \$10,898,078                 | 2             | 2019         |
| SAC097                         | 0639-01 (MP 0.013 - 1.85) GCUST5774 (MP 0-2.17) | 0.013   | 1.85    | 4.06          | 1.89        | 8.625              | 1599  | T-2A             | \$10,898,078                 | 2             | 2019         |
| ST025                          | 1601-03   | 0       | 6.596   | 6.48          | 0.98        | 8.625              | 1100  | T-2A             | \$10,898,078                 | 2             | 2019         |
| K003                           | 314   | 0       | 24.193  | 24.23         | 0.00        | 12.75              | 26    | T-1              | \$10,898,078                 | 2             | 2019         |
| EB199                          | 021H  | 0       | 1.82    | 1.55          | 1.55        | 27.25              | 435   | T-1              | \$10,898,078                 | 3             | 2019         |
| F022                           | 1202-16   | 0       | 2.591   | 2.56          | 1.41        | 12.75              | 445   | T-2A             | \$10,898,078                 | 3             | 2019         |
| BB054                          | 401   | 233.89  | 285.687 | 51.91         | 3.25        | 42                 | 1069  | T-2A             | \$10,898,078                 | 3             | 2019         |
| BB100                          | 300B  | 161.02  | 203.07  | 43.90         | 3.31        | 40                 | 275   | T-2A             | \$10,898,078                 | 3             | 2019         |
| K004                           | 314   | 24.193  | 43.18   | 19.15         | 0.17        | 12.75              | 62    | T-2A             | \$10,898,078                 | 3             | 2019         |
| BB066                          | 400   | 281.59  | 298.84  | 17.26         | 1.98        | 36                 | 375   | T-2A             | \$10,898,078                 | 3             | 2019         |
| P006                           | 132   | 40.77   | 46.605  | 5.98          | 4.70        | 31.25              | 5851  | T-1              | \$10,898,078                 | 1             | 2020         |
| YO002                          | 118A  | 12.539  | 43.622  | 31.98         | 5.76        | 16                 | 1903  | T-1              | \$10,898,078                 | 1             | 2020         |
| NB019                          | 0405-01   | 0       | 18.749  | 18.81         | 7.52        | 12.186             | 3614  | T-2A             | \$10,898,078                 | 1             | 2020         |
| P875                           | 109   | 30.77   | 43.479  | 15.09         | 14.51       | 30                 | 14395 | T-1              | \$10,898,078                 | 1             | 2020         |
| E1816-50                       | 1816-50   | 0       | 1.118   |               |             |                    |       |                  |                              |               |              |
| CC022-1                        | 1818-01   | 0.105   | 4.34    | 5.74          | 2.42        | 12.75              | 448   | T-2A             | \$10,898,078                 | 1             | 2020         |
| E118A                          | 118A  | 50.39   | 53.87   |               |             |                    |       |                  |                              |               |              |
| E118B                          | 118B  | 0.005   | 38.39   |               |             |                    |       |                  |                              |               |              |
| E118G                          | 118G  | 0       | 6.267   | 47.21         | 12.05       | 16                 | 4968  | T-2A             | \$10,898,078                 | 1             | 2020         |
| CC090-A                        | 1816-01   | 0.04    | 3.44    |               |             |                    |       |                  |                              |               |              |
| E181A                          | 181A  | 15.313  | 20.02   | 8.25          | 3.27        | 12.75              | 3812  | T-2A             | \$10,898,078                 | 2             | 2020         |
| SAC113                         | 119A  | 0.012   | 9.681   |               |             |                    |       |                  |                              |               |              |
| E220                           | 220   | 2.413   | 22.145  | 29.68         | 5.40        | 16                 | 1921  | T-2A             | \$10,898,078                 | 2             | 2020         |
| CC001                          | 103   | 23.55   | 27.765  | 4.34          | 3.61        | 12.75              | 2368  | T-2A             | \$10,898,078                 | 2             | 2020         |
| BB041                          | 400   | 24.73   | 82.375  | 57.58         | 1.25        | 37.5               | 336   | T-2A             | \$10,898,078                 | 2             | 2020         |
| BB044                          | 400   | 197.847 | 233.87  | 36.02         | 0.00        | 38.25              | 55    | T-2B             | \$10,898,078                 | 2             | 2020         |
| YO027                          | 1615-01   | 0.025   | 19.06   | 18.69         | 8.54        | 16                 | 6578  | T-2A             | \$10,898,078                 | 2             | 2020         |
| E1615-04                       | 1615-04   | 0.012   | 7.456   |               |             |                    |       |                  |                              |               |              |
| ST045                          | 7221-10   | 7.456   | 16.17   | 16.10         | 10.34       | 16                 | 2993  | T-2A             | \$10,898,078                 | 3             | 2020         |
| BB043                          | 400   | 149.205 | 197.847 | 48.71         | 1.40        | 37.5               | 43    | T-2A             | \$10,898,078                 | 3             | 2020         |
| BB040                          | 400   | 0.01    | 24.73   | 24.74         | 0.00        | 36                 | 32    | T-3B             | \$10,898,078                 | 3             | 2020         |
| BB052                          | 401   | 149.19  | 197.81  | 48.80         | 1.40        | 42                 | 53    | T-2A             | \$10,898,078                 | 3             | 2020         |
| BB042                          | 400   | 142.6   | 149.205 | 6.60          | 1.64        | 36.75              | 62    | T-2A             | \$10,898,078                 | 3             | 2020         |
| BB053                          | 401   | 197.81  | 233.89  | 36.10         | 0.00        | 42                 | 62    | T-3B             | \$10,898,078                 | 3             | 2020         |
| BB048                          | 401   | 0       | 24.66   | 24.66         | 0.00        | 42                 | 34    | T-3B             | \$10,898,078                 | 1             | 2021         |
| E050A-1                        | 050A-1  | 0       | 2.814   |               |             |                    |       |                  |                              |               |              |
| SAC008                         | 124B  | 0.001   | 23.33   | 26.45         | 4.52        | 12.75              | 3319  | T-1              | \$10,898,078                 | 1             | 2021         |

**Workpaper Table 5-36**  
**Pacific Gas and Electric Company**  
**2019 Gas Transmission and Storage Rate Case**  
**Workpapers Supporting Chapter 5, Asset Family -Transmission Pipe**  
**Traditional ILI Upgrades Capital Forecast Calculation, MAT 98C**

|    |          |         |       |        |       |      |       |      |      |              |   |      |
|----|----------|---------|-------|--------|-------|------|-------|------|------|--------------|---|------|
| 50 | YO078    | 7226-01 | 0     | 5.59   | 5.54  | 1.04 | 8.625 | 538  | T-1  | \$10,898,078 | 1 | 2021 |
| 51 | SAC125   | 123     | 0     | 13.739 | 13.81 | 6.11 | 16    | 2552 | T-2A | \$10,898,078 | 1 | 2021 |
| 52 | SAC123   | 121     | 0     | 11.728 | 11.89 | 3.21 | 8.625 | 1875 | T-1  | \$10,898,078 | 1 | 2021 |
| 53 | SAC204-1 | 173     | 3.217 | 8.48   | 8.38  | 2.98 | 8.625 | 2540 | T-2A | \$10,898,078 | 1 | 2021 |
| 54 | CC047    | 301G    | 0     | 0      | 25.15 | 9.02 | 36    | 1624 | T-2A | \$10,898,078 | 2 | 2021 |
| 55 | SAC083   | 0617-06 | 5.224 | 11.012 | 5.89  | 3.70 | 12.75 | 2411 | T-2A | \$10,898,078 | 2 | 2021 |

**Workpaper Table 5-36  
Pacific Gas and Electric Company  
2019 Gas Transmission and Storage Rate Case  
Workpapers Supporting Chapter 5, Asset Family -Transmission Pipe  
Traditional ILI Upgrades Capital Forecast Calculation, MAT 98C**

Line No.

| 2019-2021 ILI Upgrade Projects (Continued) |          |        |        |               |             |                    |       |                  |                              |               |              |
|--|----------|--------|--------|---------------|-------------|--------------------|-------|------------------|------------------------------|---------------|--------------|
| Run ID                                     | Route    | MP1    | MP2    | Total Mileage | HCA Mileage | Max. Diameter (in) | IOC   | Risk Matrix Tier | Forecast - 2016 Base \$, NCM | Op Date Group | Approx. Year |
| YO054                                      | 7217-01  | 0.03   | 2.828  | 2.86          | 0.23        | 6.625              | 522   | T-2A             | \$10,898,078                 | 2             | 2021         |
| S001                                       | 021A     | 12.044 | 31.84  | 22.91         | 7.80        | 27.13              | 2576  | T-2A             | \$10,898,078                 | 2             | 2021         |
|  | 021C     | 31.84  | 35.051 |               |             |                    |       |                  |                              |               |              |
| SAC204-2                                   | 173      | 8.48   | 17.531 | 5.70          | 2.03        | 6.625              | 1151  | T-2A             | \$10,898,078                 | 2             | 2021         |
| ST049                                      | 1626-01  | 0      | 3.196  | 3.27          | 3.17        | 8.625              | 750   | T-2A             | \$10,898,078                 | 2             | 2021         |
| CC010                                      | 301F     | 0      | 7.941  | 8.07          | 3.48        | 16                 | 1932  | T-2A             | \$10,898,078                 | 3             | 2021         |
| F030                                       | 1209-01  | 0.001  | 10.025 | 9.98          | 1.18        | 6.625              | 754   | T-2A             | \$10,898,078                 | 3             | 2021         |
|  | DFDS3615 | 0      | 0.02   |               |             |                    |       |                  |                              |               |              |
| CC023                                      | 1817-01  | 0      | 8.46   | 8.63          | 3.37        | 20                 | 1397  | T-2A             | \$10,898,078                 | 3             | 2021         |
| M088                                       | 2408-05  | 0.153  | 5.952  | 9.44          | 8.20        | 20                 | 2596  | T-2A             | \$10,898,078                 | 3             | 2021         |
|  | 2408-11  | 0      | 3.574  |               |             |                    |       |                  |                              |               |              |
| S005                                       | 021F     | 0      | 21.16  | 29.23         | 18.85       | 20                 | 10422 | T-2A             | \$10,898,078                 | 3             | 2021         |
|  | 021G     | 13.72  | 20.84  |               |             |                    |       |                  |                              |               |              |
|  | 021G-10  | 0      | 0      |               |             |                    |       |                  |                              |               |              |
| SAC087                                     | 0618-03  | 0      | 3.526  | 3.51          | 1.75        | 12.75              | 1398  | T-2A             | \$10,898,078                 | 3             | 2021         |

| Project Count | 2016 Base \$, NCM | Average 2016 Base \$/Project |
|---------------|-------------------|------------------------------|
| 17            | \$ 185,267,318    | \$ 10,898,078                |

| 2013-2015 Historical ILI Upgrade Cost Analysis  |          |        |                  |   |          |                    |                             |               |   |
|---|----------|--------|------------------|---|----------|--------------------|-----------------------------|---------------|---|
| <i>(2016 projects excluded because not all costs have been accounted in these projects due to trailing costs due to site restoration, etc.)</i> |          |        |                  |   |          |                    |                             |               |   |
| PSRS  | Order    | ID     | Project Total ID | Project Name  | Diameter | Full Upgrade (Y/N) | Final Upgrade Complete Year | Project Count | Project Cost (2016 Base K\$ - New Cost Model) |
| 24009   | 30847124 | I-001  | 131-001          | I-001 L-131 MP 50.5-57.4 Upgrade PH1                                | 34       | Y                  | 2014                        | 1             | \$ 9,414,428                                  |
| 24017   | 30846924 | I-003  | 300B-003         | I-003 L-300B MP 299-351.8 UPGRADE PH-1                              | 36       | Y                  | 2013                        | 1             | \$ 12,645,079                                 |
| 24023   | 30846926 | I-005  | 300A-005         | I-005 L-300A MP 299-352 UPGRADE PH-1                                | 36       | Y                  | 2013                        | 1             | \$ 12,300,795                                 |
| 24025   | 30846928 | I-006  | 132-006          | I-006 L-132 MP 31.96-38.39 UPGRADE PH-1                             | 36       | Y                  | 2013                        | 1             | \$ 5,084,097                                  |
| 19830   | 30677902 | I-013A | 132-013          | I-013D L-132 MP 2.40 Remove Drip                                    | 36       | Y                  | 2014                        | 1             | \$ 27,127,678                                 |
| 19838   | 30712993 | I-015A | 15A-015          | I-015A L-101 MP 11.83-33.68 ILI Upgrade Repl 34" W/24 19.78 Winslow | 34       | Y                  | 2015                        | 1             | \$ 14,738,612                                 |
| 34226   | 31085887 | I-041A | 108-041          | I-041A L-108 Thornton Reg Station ILI Upgrade Receiver              | 26       | Y                  | 2015                        | 1             | \$ 2,547,307                                  |
| 34225   | 31085889 | I-041B | 108-041          | I-041B L-108 Sacramento Gas Load Center ILI Upgrade Launcher        | 26       | Y                  | 2015                        | N/A           | \$ 3,288,793                                  |

**Workpaper Table 5-36**  
**Pacific Gas and Electric Company**  
**2019 Gas Transmission and Storage Rate Case**  
**Workpapers Supporting Chapter 5, Asset Family -Transmission Pipe**  
**Traditional ILI Upgrades Capital Forecast Calculation, MAT 98C**

|    |       |          |        |         |   |    |   |      |     |               |
|----|-------|----------|--------|---------|---|----|---|------|-----|---------------|
| 80 | 34227 | 31085892 | I-041D | 108-041 | I-041D L-108<br>MP 66.80-67.87<br>ILI Upgrade | 26 | Y | 2015 | N/A | \$ 924,083    |
| 81 | 34230 | 31086288 | I-041G | 108-041 | I-041G L-108<br>MP 71.91-74.93<br>ILI Upgrade | 26 | Y | 2015 | N/A | \$ 10,477,495 |

**Workpaper Table 5-36**  
**Pacific Gas and Electric Company**  
**2019 Gas Transmission and Storage Rate Case**  
**Workpapers Supporting Chapter 5, Asset Family -Transmission Pipe**  
**Traditional ILI Upgrades Capital Forecast Calculation, MAT 98C**

Line No.

| <b>2013-2015 Historical ILI Upgrade Cost Analysis (Continued)</b>   |          |        |                  |   |          |                    |                             |               |   |
|---|----------|--------|------------------|---|----------|--------------------|-----------------------------|---------------|---|
| <i>(2016 projects excluded because not all costs have been accounted in these projects due to trailing costs due to site restoration, etc.)</i> |          |        |                  |   |          |                    |                             |               |   |
| PSRS  | Order    | ID     | Project Total ID | Project Name  | Diameter | Full Upgrade (Y/N) | Final Upgrade Complete Year | Project Count | Project Cost (2016 Base K\$ - New Cost Model) |
| 37133   | 31125449 | I-043B | 109-043          | I-043B L-109 MP 0.67 Install 90 Degree Elbows                         | 34       | Y                  | 2015                        | 1             | \$ 4,165,924                                  |
| 37132   | 31125448 | I-043C | 109-043          | I-043C L-109 MP 4.52 20" MLV Replacement                              | 34       | Y                  | 2015                        | N/A           | \$ 954,430                                    |
| 37131   | 31125444 | I-043D | 109-043          | I-043D L-109 MP 2.82 Replace 22" Pipe ILI Upgrade                     | 34       | Y                  | 2015                        | N/A           | \$ 1,856,083                                  |
| 37840   | 31136645 | I-043E | 109-043          | I-043E L-109 MP 23.30 Switching Station ILI Upgrade                   | 34       | Y                  | 2015                        | N/A           | \$ 4,897,311                                  |
| 34239   | 31086479 | I-046A | 617-06-046       |   | 12.75    | Y                  | 2015                        | 1             | \$ 3,025,146                                  |
| 34241   | 31086521 | I-046B | 617-06-046       | I-046B DFM-0617-06 MP 13.01 Blue Ravine Receiver                      | 12.75    | Y                  | 2015                        | N/A           | \$ 3,905,908                                  |
| 31062   | 31040364 | I-046C | 617-06-046       | I-046C DFM-0617-06 MP 11.01-13.01 ILI Upgrade                         | 12.75    | Y                  | 2015                        | N/A           | \$ 1,854,516                                  |
| 34238   | 31086474 | I-047A | 617-06-047       |   | 12.75    | Y                  | 2015                        | 1             | \$ 7,653,545                                  |
| 34376   | 31087562 | I-047B | 617-06-047       | I-047B DFM-0617-03 MP 0.00-1.04 ILI Upgrade                           | 12.75    | Y                  | 2015                        | N/A           | \$ 2,983,268                                  |
| 31063   | 31040414 | I-047C | 617-06-047       | I-047C DFM-0617-08 MP 0.00-3.25 ILI Upgrade                           | 12.75    | Y                  | 2015                        | N/A           | \$ 951,880                                    |
| 34381   | 31087565 | I-047F | 617-06-047       | I-047F DFM-0617-06 MP 5.22, DFM-0617-08 MP 0.00 ILI Upgrade           | 12.75    | Y                  | 2015                        | N/A           | \$ 4,659,946                                  |
| 34383   | 31087566 | I-047G | 617-06-047       | I-047G DFM-0617-08 MP 3.25-3.28, DFM-0617-07 MP 0.00-1.11 ILI Upgrade | 12.75    | Y                  | 2015                        | N/A           | \$ 775,486                                    |
| 34240   | 31086520 | I-047H | 617-06-047       | I-047H DFM-0617-07 MP 1.11 Quarry Receiver                            | 12.75    | Y                  | 2015                        | N/A           | \$ 4,245,701                                  |
| 34220   | 31086284 | I-048A | 132-048          | I-048A L-132A Sierra Vista Station ILI Upgrade Launcher               | 24       | Y                  | 2015                        | 1             | \$ 4,479,290                                  |

**Workpaper Table 5-36**  
**Pacific Gas and Electric Company**  
**2019 Gas Transmission and Storage Rate Case**  
**Workpapers Supporting Chapter 5, Asset Family -Transmission Pipe**  
**Traditional ILI Upgrades Capital Forecast Calculation, MAT 98C**

Line No.

| <b>2013-2015 Historical ILI Upgrade Cost Analysis (Continued)</b>   |          |        |                  |   |          |                    |                             |               |   |
|---|----------|--------|------------------|---|----------|--------------------|-----------------------------|---------------|---|
| <i>(2016 projects excluded because not all costs have been accounted in these projects due to trailing costs due to site restoration, etc.)</i> |          |        |                  |   |          |                    |                             |               |   |
| PSRS  | Order    | ID     | Project Total ID | Project Name  | Diameter | Full Upgrade (Y/N) | Final Upgrade Complete Year | Project Count | Project Cost (2016 Base K\$ - New Cost Model) |
| 34219   | 31086338 | I-048B | 132-048          | I-048B L-132A Rengstorff Station ILI Upgrade Receiver                 | 24       | Y                  | 2015                        | N/A           | \$ 4,727,061                                  |
| 31066   | 31041568 | I-048C | 132-048          | I-048C L-132A MP 0.00-1.49 ILI Upgrade                                | 24       | Y                  | 2015                        | N/A           | \$ 1,881,326                                  |
| 34199   | 31084917 | I-049A | 1202-17-049      | I-049A DFM-1202-17 Tarpey Reg Station ILI Upgrade Receiver            | 16       | Y                  | 2015                        | 1             | \$ 3,040,014                                  |
| 34198   | 31086124 | I-049B | 138C-049         | I-049B L-138C MP 43.40-50.02 ILI Upgrade                              | 16       | Y                  | 2015                        | N/A           | \$ 1,836,390                                  |
| 31047   | 31037504 | I-049C | 1202-17-049      | I-049C DFM-1202-21 MP 0.00-0.10, DFM-1202-16 MP 2.59-4.60 ILI Upgrade | 16       | Y                  | 2015                        | N/A           | \$ 1,323,278                                  |
| 34200   | 31086125 | I-049D | 1202-17-049      | I-049D DFM-1202-17 MP 0.00-2.58 ILI Upgrade                           | 16       | Y                  | 2015                        | N/A           | \$ 145,187                                    |
| 34201   | 31086126 | I-049E | 1202-17-050      |   | 16       | Y                  | 2015                        | N/A           | \$ 1,412,242                                  |
| 34221   | 31086381 | I-051A | 138-051          | I-051A L-138 Fresno Gas Load Center ILI Upgrade Receiver              | 24       | Y                  | 2015                        | 1             | \$ 1,345,619                                  |
| 31044   | 31037502 | I-051B | 138-051          | I-051B L-138 MP 43.58-49.43 ILI Upgrade                               | 24       | Y                  | 2015                        | N/A           | \$ 2,555,349                                  |
| 34228   | 31086286 | I-051C | 138-051          | I-051C L-138 MP 49.42 ILI Upgrade                                     | 24       | Y                  | 2015                        | N/A           | \$ 203,521                                    |
| 40485   | 31179341 | I-051D | 138-051          | I-051D L-138 MP 45.09-45.60 ILI Upgrade                               | 24       | Y                  | 2015                        | N/A           | \$ 892,051                                    |
| 40486   | 31179411 | I-051E | 138-051          | I-051E L-138 MP 45.60-49.43 ILI Upgrade                               | 24       | Y                  | 2015                        | N/A           | \$ 351,906                                    |
| 34223   | 31086067 | I-053A | 119A-053         |   | 20       | Y                  | 2015                        | 1             | \$ 1,512,103                                  |
| 34222   | 31086068 | I-053B | 119A-053         | I-053B L-119A North Sac Underground Holder ILI Upgrade                | 20       | Y                  | 2015                        | N/A           | \$ 1,189,636                                  |
| 31058   | 31037510 | I-053C | 119A-053         | I-053C L-119A MP 9.69-12.15 ILI Upgrade                               | 20       | Y                  | 2015                        | N/A           | \$ 1,380,317                                  |



**Workpaper Table 5-36**  
**Pacific Gas and Electric Company**  
**2019 Gas Transmission and Storage Rate Case**  
**Workpapers Supporting Chapter 5, Asset Family -Transmission Pipe**  
**Traditional ILI Upgrades Capital Forecast Calculation, MAT 98C**

Line No.

| <b>2013-2015 Historical ILI Upgrade Cost Analysis (Continued)</b>   |          |        |                  |  |          |                    |                             |               |   |
|---|----------|--------|------------------|--|----------|--------------------|-----------------------------|---------------|---|
| <i>(2016 projects excluded because not all costs have been accounted in these projects due to trailing costs due to site restoration, etc.)</i> |          |        |                  |  |          |                    |                             |               |   |
| PSRS  | Order    | ID     | Project Total ID | Project Name                                   | Diameter | Full Upgrade (Y/N) | Final Upgrade Complete Year | Project Count | Project Cost (2016 Base K\$ - New Cost Model) |
|   |          |        |                  | I-053D L-119A<br>MP 12.15-16.46<br>ILI Upgrade | 20       | Y                  | 2015                        | N/A           | \$ 720,885                                    |
| 34224   | 31086346 | I-053D | 119A-053         |  |          |                    |                             |               |   |
| 20747   | 30712760 | I-056A | 215-056          |  | 16       | Y                  | 2015                        | 1             | \$ 2,976,120                                  |
|   |          |        |                  | I-056B L-215<br>MP 0.00-20.05<br>ILI Upgrade   | 16       | Y                  | 2015                        | N/A           | \$ 1,178,295                                  |
| 34214   | 31086127 | I-056B | 215-056          |  |          |                    |                             |               |   |
| 34216   | 31086130 | I-056D | 215-056          |  | 16       | Y                  | 2015                        | N/A           | \$ 2,031,570                                  |
|   |          |        |                  | I-066 L-057C<br>MP 0.00 - 6.41<br>ILI Upgrade  | 24       | Y                  | 2014                        | 1             | \$ 1,710,398                                  |
| 31415   | 31011200 | I-066  | 57C-066          |  |          |                    |                             |               |   |
|   |          |        |                  | L-210C ILI<br>Upgrade                          | 24       | Y                  | 2013                        | 1             | \$ 7,897,251                                  |
| 17150   | 30603914 | N/A    | 210C-001         |  |          |                    |                             |               |   |
| Subtotal:   |          |        |                  |  |          |                    |                             | 17            | \$ 185,267,318                                |

| Traditional ILI Projects 2019-2021 |  |             |                |               |           |       |              |                |               |            |              |              |                             |                            |                                |  |
|------------------------------------|--|-------------|----------------|---------------|-----------|-------|--------------|----------------|---------------|------------|--------------|--------------|-----------------------------|----------------------------|--------------------------------|--|
| RUNID                              | ROUTE  | MP Start    | MP Stop        | ILI Run Miles | HCA Miles | IOC   | Max Diameter | Re-Inspection? | Circ. MFL Run | TFI        | EMAT         | SUBTOTAL     | Year of Previous Assessment | Previous Assessment Method | Minimum Re-Assessment Interval |  |
| BB001                              | 300A   | 0           | 40.87          | 40.8          | 0.7       | 23    | 40           | N              | \$ 1,986,259  | \$ -       | \$ 1,633,640 | \$ 3,619,899 | 2016                        | Direct Assessment          | 5                              |  |
| M099                               | 105N   | 7.766       | 22.905         | 15.9          | 15.9      | 12702 | 30           | Y              | \$ 1,805,179  | \$ -       | \$ 1,248,930 | \$ 3,054,109 | 2013                        | In-Line Inspection         | 7                              |  |
| BB027                              | 107  | 26.023      | 38.102         | 12.9          | 12.4      | 6314  | 36           | N              | \$ 1,803,192  | \$ -       | \$ 1,196,230 | \$ 2,999,422 | 2015                        | Direct Assessment          | 7                              |  |
| EB002                              | 153<br>153-2                                       | 17.632<br>0 | 27.88<br>0.049 | 10.5          | 10.5      | 4138  | 31.38        | N              | \$ 1,783,113  | \$ -       | \$ -         | \$ 1,783,113 | 2015                        | Direct Assessment          | 7                              |  |
| NB006                              | 210C   | 19.348      | 32.091         | 13.1          | 7.3       | 3733  | 24           | Y              | \$ 1,780,924  | \$ -       | \$ 1,199,175 | \$ 2,980,099 | 2013                        | In-Line Inspection         | 7                              |  |
| BB025                              | 057B   | 0           | 16.68          | 17.1          | 6.5       | 2498  | 24           | Y              | \$ 1,795,074  | \$ -       | \$ -         | \$ 1,795,074 | 2013                        | In-Line Inspection         | 7                              |  |
| BB013                              | 300B   | 0           | 40.489         | 40.8          | 0.8       | 23    | 40           | N              | \$ 1,985,714  | \$ -       | \$ 1,630,075 | \$ 3,615,789 | 2016                        | Direct Assessment          | 5                              |  |
| SAC192                             | 172A   | 40.079      | 69.802         | 29.9          | 5.7       | 1976  | 21.272       | Y              | \$ 1,828,916  | \$ 121,000 | \$ -         | \$ 1,949,916 | 2013                        | In-Line Inspection         | 7                              |  |
| CC038                              | 301A   | 0           | 24.84          | 25.0          | 8.9       | 1046  | 34.5         | N              | \$ 1,863,566  | \$ -       | \$ -         | \$ 1,863,566 | 2016                        | Direct Assessment          | 7                              |  |
| BB014                              | 300B   | 40.489      | 103.515        | 63.2          | 0.0       | 14    | 34.5         | N              | \$ 2,078,313  | \$ -       | \$ 1,971,075 | \$ 4,049,388 | N/A                         | N/A                        | N/A                            |  |
| BB024                              | 002  | 122.135     | 158            | 36.3          | 4.8       | 759   | 27.75        | Y              | \$ 1,885,816  | \$ -       | \$ 1,563,270 | \$ 3,449,086 | 2013                        | In-Line Inspection         | 7                              |  |
| YO030                              | 215  | 0           | 20.08          | 20.3          | 1.7       | 562   | 16           | N              | \$ 1,782,571  | \$ -       | \$ 1,311,240 | \$ 3,093,811 | 2017                        | Pressure Test              | 7                              |  |
| SAC170                             | 167  | 3.53        | 34.628         | 30.9          | 5.2       | 279   | 17.25        | N              | \$ 1,813,441  | \$ 121,000 | \$ -         | \$ 1,934,441 | N/A                         | N/A                        | N/A                            |  |
| K004                               | 314  | 24.193      | 43.18          | 19.2          | 0.2       | 62    | 12.75        | N              | \$ 1,770,624  | \$ -       | \$ -         | \$ 1,770,624 | N/A                         | N/A                        | N/A                            |  |
| BB003                              | 300A   | 40.87       | 103.721        | 62.8          | 0.0       | 36    | 34.5         | N              | \$ 2,075,493  | \$ -       | \$ 1,974,485 | \$ 4,049,978 | N/A                         | N/A                        | N/A                            |  |
| BB015                              | 300B   | 103.515     | 161.02         | 57.5          | 6.8       | 1039  | 36           | N              | \$ 2,059,415  | \$ -       | \$ 1,889,545 | \$ 3,948,960 | 2016                        | Direct Assessment          | 5                              |  |
| K003                               | 314  | 0           | 24.193         | 24.2          | 0.0       | 26    | 12.75        | N              | \$ 1,780,134  | \$ -       | \$ -         | \$ 1,780,134 | N/A                         | N/A                        | N/A                            |  |
| BB004                              | 300A   | 103.721     | 159.331        | 55.8          | 7.6       | 2292  | 36           | N              | \$ 2,048,945  | \$ -       | \$ 1,865,675 | \$ 3,914,620 | 2016                        | Direct Assessment          | 5                              |  |
| BB582                              | 300A   | 159.331     | 203.02         | 43.6          | 3.3       | 387   | 40           | N              | \$ 2,004,689  | \$ -       | \$ 1,675,645 | \$ 3,680,334 | 2016                        | Direct Assessment          | 5                              |  |
| SAC172                             | 167-3  | 4.12        | 4.389          | 0.3           | 0.0       | 4     | 12.75        | N              | \$ 1,735,713  | \$ -       | \$ -         | \$ 1,735,713 | N/A                         | N/A                        | N/A                            |  |
| EB091                              | SP3  | 167.318     | 198.487        | 33.4          | 24.9      | 21881 | 27.25        | Y              | \$ 1,870,737  | \$ -       | \$ -         | \$ 1,870,737 | 2014                        | In-Line Inspection         | 7                              |  |
| BB100                              | 300B   | 161.02      | 203.07         | 43.9          | 3.3       | 275   | 40           | N              | \$ 2,006,434  | \$ -       | \$ 1,691,300 | \$ 3,697,734 | 2016                        | Direct Assessment          | 5                              |  |
| M098                               | 153  | 0           | 17.632         | 17.8          | 17.8      | 14058 | 35.5         | Y              | \$ 1,828,376  | \$ 200,000 | \$ -         | \$ 2,028,376 | 2014                        | In-Line Inspection         | 7                              |  |
| EB097                              | 105B   | 0           | 11.81          | 11.9          | 9.1       | 8117  | 25.25        | Y              | \$ 1,778,930  | \$ -       | \$ -         | \$ 1,778,930 | 2014                        | In-Line Inspection         | 7                              |  |
| P006                               | 132  | 40.77       | 46.605         | 6.0           | 4.7       | 5851  | 31.25        | N              | \$ 1,762,238  | \$ 200,000 | \$ -         | \$ 1,962,238 | 2014                        | Direct Assessment          | 7                              |  |
| CC001-1                            | 103  | 2.833       | 23.55          | 21.3          | 3.9       | 5023  | 16           | N              | \$ 1,784,804  | \$ 121,000 | \$ -         | \$ 1,905,804 | 2011                        | Direct Assessment          | 7                              |  |
| P002                               | 101  | 0.012       | 11.834         | 12.2          | 10.0      | 3611  | 37.375       | Y              | \$ 1,801,725  | \$ -       | \$ -         | \$ 1,801,725 | 2014                        | In-Line Inspection         | 7                              |  |
| S089                               | 021E   | 64.539      | 93.539         | 30.6          | 6.8       | 3198  | 16           | Y              | \$ 1,806,939  | \$ 121,000 | \$ -         | \$ 1,927,939 | 2014                        | In-Line Inspection         | 7                              |  |
| BB075                              | 114  | 9.034       | 16.583         | 8.2           | 8.2       | 2861  | 24           | Y              | \$ 1,763,765  | \$ 121,000 | \$ -         | \$ 1,884,765 | 2014                        | In-Line Inspection         | 7                              |  |
| S087                               | 021E   | 114.89      | 125.779        | 10.8          | 5.0       | 2194  | 8.625        | N              | \$ 1,748,669  | \$ 112,000 | \$ -         | \$ 1,860,669 | 2016                        | Direct Assessment          | 7                              |  |
| BB503                              | 131  | 50.698      | 57.47          | 7.2           | 7.2       | 1819  | 34           | Y              | \$ 1,770,524  | \$ 200,000 | \$ -         | \$ 1,970,524 | 2014                        | In-Line Inspection         | 7                              |  |
| SAC097                             | 0639-01 (MP 0.013 - 1.85)<br>GCUST5774 (MP 0-2.17) | 0.013       | 1.85           | 4.1           | 1.9       | 1599  | 8.625        | N              | \$ 1,740,257  | \$ 112,000 | \$ -         | \$ 1,852,257 | 2014                        | Direct Assessment          | 7                              |  |
| M089                               | 2403-12  | 0           | 2.876          | 2.9           | 1.7       | 1161  | 12.75        | N              | \$ 1,740,485  | \$ 112,000 | \$ -         | \$ 1,852,485 | 2017                        | Direct Assessment          | 7                              |  |
| ST025                              | 1601-03  | 0           | 6.596          | 6.5           | 1.0       | 1100  | 8.625        | N              | \$ 1,743,261  | \$ -       | \$ -         | \$ 1,743,261 | N/A                         | N/A                        | N/A                            |  |
| BB054                              | 401  | 233.89      | 285.687        | 51.9          | 3.2       | 1069  | 42           | N              | \$ 2,078,082  | \$ -       | \$ 2,307,735 | \$ 4,385,817 | 2015                        | Direct Assessment          | 5                              |  |
| P555                               | 132  | 31.928      | 38.39          | 6.9           | 6.1       | 1019  | 37.25        | Y              | \$ 1,772,259  | \$ -       | \$ -         | \$ 1,772,259 | 2014                        | In-Line Inspection         | 7                              |  |
| BB045                              | 400  | 233.87      | 281.59         | 48.3          | 3.4       | 978   | 38           | N              | \$ 2,019,424  | \$ -       | \$ 1,742,605 | \$ 3,762,029 | 2015                        | Direct Assessment          | 5                              |  |
| BB103                              | 300B   | 299.017     | 353.818        | 54.8          | 1.3       | 52    | 35.5         | Y              | \$ 2,037,953  | \$ -       | \$ 1,851,105 | \$ 3,889,058 | 2014                        | In-Line Inspection         | 7                              |  |
| BB450                              | 401  | 82.369      | 149.151        | 66.6          | 6.2       | 756   | 42           | Y              | \$ 2,187,132  | \$ -       | \$ -         | \$ 2,187,132 | 2014                        | In-Line Inspection         | 7                              |  |
| F022                               | 1202-16  | 0           | 2.591          | 2.6           | 1.4       | 445   | 12.75        | N              | \$ 1,739,920  | \$ 112,000 | \$ -         | \$ 1,851,920 | 2017                        | Direct Assessment          | 7                              |  |
| EB199                              | 021H   | 0           | 1.82           | 1.5           | 1.5       | 435   | 27.25        | N              | \$ 1,741,286  | \$ 200,000 | \$ -         | \$ 1,941,286 | 2017                        | Direct Assessment          | 7                              |  |
| BB115                              | 300A   | 299.022     | 353.822        | 54.9          | 0.8       | 354   | 35.25        | Y              | \$ 2,036,549  | \$ -       | \$ 1,892,025 | \$ 3,928,574 | 2014                        | In-Line Inspection         | 7                              |  |
| BB066                              | 400  | 281.59      | 298.84         | 17.3          | 2.0       | 375   | 36           | N              | \$ 1,826,708  | \$ -       | \$ 1,267,685 | \$ 3,094,393 | 2015                        | Direct Assessment          | 7                              |  |
| BB117                              | 300A   | 354.075     | 393.53         | 39.4          | 1.8       | 57    | 40           | Y              | \$ 1,976,898  | \$ -       | \$ 1,610,855 | \$ 3,587,753 | 2013                        | In-Line Inspection         | 7                              |  |
| BB104                              | 300B   | 354.115     | 393.725        | 40.0          | 0.8       | 20    | 36.75        | Y              | \$ 1,959,284  | \$ -       | \$ 1,618,450 | \$ 3,577,734 | 2013                        | In-Line Inspection         | 7                              |  |
| BB116                              | 300A   | 393.54      | 450.83         | 57.5          | 3.3       | 819   | 36           | Y              | \$ 2,059,213  | \$ -       | \$ 1,888,305 | \$ 3,947,518 | 2014                        | In-Line Inspection         | 7                              |  |
| BB400                              | 400  | 82.375      | 142.579        | 60.1          | 3.1       | 569   | 37.62        | Y              | \$ 2,091,958  | \$ -       | \$ 1,933,565 | \$ 4,025,523 | 2015                        | In-Line Inspection         | 7                              |  |
| BB020                              | 300B   | 450.809     | 502.625        | 52.6          | 22.5      | 18561 | 36           | Y              | \$ 2,029,149  | \$ -       | \$ -         | \$ 2,029,149 | 2013                        | In-Line Inspection         | 7                              |  |
| BB118                              | 300A   | 450.85      | 502.23         | 52.3          | 27.2      | 20973 | 36           | Y              | \$ 2,027,542  | \$ -       | \$ 1,807,240 | \$ 3,834,782 | 2014                        | In-Line Inspection         | 7                              |  |
| BB039                              | 057C   | 0           | 6.4            | 6.4           | 1.0       | 23    | 24           | Y              | \$ 1,757,353  | \$ 121,000 | \$ -         | \$ 1,878,353 | 2014                        | In-Line Inspection         | 7                              |  |
| P003                               | 101  | 11.846      | 33.673         | 22.7          | 22.7      | 24768 | 34           | Y              | \$ 1,849,686  | \$ -       | \$ -         | \$ 1,849,686 | 2015                        | In-Line Inspection         | 7                              |  |
| P875                               | 109  | 30.77       | 43.479         | 15.1          | 14.5      | 14395 | 30           | N              | \$ 1,801,416  | \$ -       | \$ -         | \$ 1,801,416 | 2016                        | Non-Traditional ILI        | 7                              |  |
| BB540                              | 303  | 0.001       | 42.829         | 44.5          | 18.0      | 12314 | 38.32        | Y              | \$ 1,997,712  | \$ 200,000 | \$ -         | \$ 2,197,712 | 2015                        | In-Line Inspection         | 7                              |  |
| YO027                              | 1615-01  | 0.025       | 19.06          | 18.7          | 8.5       | 6578  | 16           | N              | \$ 1,778,670  | \$ -       | \$ -         | \$ 1,778,670 | 2014                        | Direct Assessment          | 7                              |  |

|         |                      |                     |                         |      |      |      |        |   |              |            |              |              |      |                    |     |
|---------|----------------------|---------------------|-------------------------|------|------|------|--------|---|--------------|------------|--------------|--------------|------|--------------------|-----|
| YO019   | 118A<br>118B<br>118G | 50.39<br>0.005<br>0 | 53.87<br>38.39<br>6.267 | 47.2 | 12.0 | 4968 | 16     | N | \$ 1,847,068 | \$ -       | \$ -         | \$ 1,847,068 | 2014 | Direct Assessment  | 7   |
| CC090-A | 1816-01<br>181A      | 0.04<br>15.313      | 3.44<br>20.02           | 8.3  | 3.3  | 3812 | 12.75  | N | \$ 1,750,387 | \$ -       | \$ -         | \$ 1,750,387 | 2016 | Direct Assessment  | 7   |
| NB019   | 0405-01              | 0                   | 18.749                  | 18.8 | 7.5  | 3614 | 12.186 | N | \$ 1,768,430 | \$ -       | \$ -         | \$ 1,768,430 | 2016 | Direct Assessment  | 7   |
| BB034   | 114                  | 28.982              | 34.07                   | 5.1  | 5.1  | 3204 | 36     | Y | \$ 1,761,874 | \$ -       | \$ 1,079,515 | \$ 2,841,389 | 2015 | In-Line Inspection | 7   |
| S098    | 021D                 | 18.64               | 31.808                  | 13.4 | 9.0  | 3026 | 17.25  | Y | \$ 1,768,605 | \$ 121,000 | \$ -         | \$ 1,889,605 | 2015 | In-Line Inspection | 7   |
| ST045   | 1615-04<br>7221-10   | 0.012<br>7.456      | 7.456<br>16.17          | 16.1 | 10.3 | 2993 | 16     | N | \$ 1,772,591 | \$ -       | \$ -         | \$ 1,772,591 | 2016 | Direct Assessment  | 7   |
| CC001   | 103                  | 23.55               | 27.765                  | 4.3  | 3.6  | 2368 | 12.75  | N | \$ 1,743,181 | \$ -       | \$ -         | \$ 1,743,181 | 2011 | Direct Assessment  | 7   |
| BB080   | 401                  | 285.687             | 317.964                 | 32.3 | 4.7  | 1510 | 42     | Y | \$ 1,941,162 | \$ -       | \$ -         | \$ 1,941,162 | 2015 | Direct Assessment  | 5   |
| BB041   | 400                  | 24.73               | 82.375                  | 57.6 | 1.2  | 336  | 37.5   | N | \$ 2,074,455 | \$ -       | \$ 2,276,890 | \$ 4,351,345 | 2015 | Direct Assessment  | 5   |
| BB022   | 002                  | 43.47               | 118.005                 | 75.2 | 3.0  | 532  | 26     | Y | \$ 2,039,691 | \$ 200,000 | \$ -         | \$ 2,239,691 | 2015 | In-Line Inspection | 7   |
| CC022-1 | 1816-50<br>1818-01   | 0<br>0.105          | 1.118<br>4.34           | 5.7  | 2.4  | 448  | 12.75  | N | \$ 1,745,760 | \$ -       | \$ -         | \$ 1,745,760 | 2016 | Direct Assessment  | 7   |
| BB049   | 401                  | 24.66               | 82.369                  | 57.8 | 1.3  | 392  | 42     | Y | \$ 2,120,717 | \$ -       | \$ -         | \$ 2,120,717 | 2015 | Direct Assessment  | 5   |
| BB042   | 400                  | 142.6               | 149.205                 | 6.6  | 1.6  | 62   | 36.75  | N | \$ 1,770,390 | \$ -       | \$ -         | \$ 1,770,390 | 2015 | Direct Assessment  | 5   |
| BB044   | 400                  | 197.847             | 233.87                  | 36.0 | 0.0  | 55   | 38.25  | N | \$ 1,944,644 | \$ -       | \$ -         | \$ 1,944,644 | N/A  | N/A                | N/A |
| BB053   | 401                  | 197.81              | 233.89                  | 36.1 | 0.0  | 62   | 42     | N | \$ 1,967,056 | \$ -       | \$ -         | \$ 1,967,056 | N/A  | N/A                | N/A |
| BB043   | 400                  | 149.205             | 197.847                 | 48.7 | 1.4  | 43   | 37.5   | N | \$ 2,018,193 | \$ -       | \$ 1,856,840 | \$ 3,875,033 | 2015 | Direct Assessment  | 5   |
| BB052   | 401                  | 149.19              | 197.81                  | 48.8 | 1.4  | 53   | 42     | N | \$ 2,055,769 | \$ -       | \$ -         | \$ 2,055,769 | 2015 | Direct Assessment  | 5   |
| BB040   | 400                  | 0.01                | 24.73                   | 24.7 | 0.0  | 32   | 36     | N | \$ 1,867,883 | \$ -       | \$ -         | \$ 1,867,883 | N/A  | N/A                | N/A |
| BB048   | 401                  | 0                   | 24.66                   | 24.7 | 0.0  | 34   | 42     | N | \$ 1,890,393 | \$ -       | \$ -         | \$ 1,890,393 | N/A  | N/A                | N/A |
| SAC018  | 400-3                | 293.41              | 297.876                 | 4.5  | 1.0  | 42   | 36     | N | \$ 1,758,452 | \$ -       | \$ -         | \$ 1,758,452 | 2013 | Direct Assessment  | 7   |
| BB500   | 002<br>002-1         | 39.81<br>43.47      | 43.47<br>43.47          | 3.7  | 0.0  | 2    | 36     | Y | \$ 1,754,196 | \$ -       | \$ -         | \$ 1,754,196 | 2015 | In-Line Inspection | 7   |

**Workpaper Table 5-4**  
**Pacific Gas and Electric Company**  
**2019 Gas Transmission and Storage Rate Case**  
**Workpapers Supporting Chapter 5, Asset Family - Transmission Pipe**  
**Traditional ILI Runs Forecast Calculation, MATs HPB and 34A**

Line No.

| HPB + 34A - Traditional ILI Forecast Summary |                                    |                   |                              |
|--|------------------------------------|-------------------|------------------------------|
| YEAR   | Unescalated Forecast (2016\$, NCM) | Escalation Factor | Escalated Forecast (\$, NCM) |
| 2019   | 62,691,725<br>62,384,725           | 1.069             | 67,046,160<br>66,717,837     |

| HPB - Traditional ILI Forecast Summary |                                    |                   |                              |
|--|------------------------------------|-------------------|------------------------------|
| YEAR                                   | Unescalated Forecast (2016\$, NCM) | Escalation Factor | Escalated Forecast (\$, NCM) |
| 2019                                   | 62,157,228<br>61,850,228           | 1.069             | 66,474,539<br>66,146,215     |

| 34A (StanPac) - Traditional ILI Forecast Summary |                                    |                   |                              |
|--|------------------------------------|-------------------|------------------------------|
| YEAR   | Unescalated Forecast (2016\$, NCM) | Escalation Factor | Escalated Forecast (\$, NCM) |
| 2019   | \$ 534,496                         | 1.069             | \$ 571,621                   |

| Average Annual Cost Analysis - Initial Forecast |                            |
|---|----------------------------|
| PG&E Portion for Rate Case Priod                | 186,471,685<br>185,550,685 |
| StanPac Portion for Rate Case Period            | \$ 1,870,737               |
| Total Forecast for Rate Case Period             | 188,342,423<br>187,421,423 |
| Annual PG&E Portion                             | 62,157,228<br>61,850,228   |
| Annual StanPac Portion                          | \$ 623,579                 |
| 6/7th of StanPac Portion                        | \$ 534,496                 |
| Subtotal of Annual Forecast                     | 62,691,725<br>62,384,725   |

**Assumptions**

- 1) Baseline cost is based on 2014-2016 historic costs for Traditional ILI runs graphed by Diameter (inch)\*Miles v. Total Project Cost. The formula from the exponential fit trendline, which yields the best R<sup>2</sup> value is used. - (2016 \$, NCM = 1,735,226e8.27E-05x, where x is LxD, and L is length in miles and Diameter is pipe diameter in inches.)
- 2) A Circumferential MFL tool will be run on all single diameter pipelines. Because the Circumferential MFL is included in the cost of the EMAT run, it is not added separately.
- 3) The cost of a Circumferential MFL (TFI) run and report is based on average cost estimates provided by ILI vendors (See Table 2 in "UNIT COST CALC" tab.)
- 4) The cost of an Electro-Magnetic Acoustic Transducer (EMAT) run and report is based on costs from the 2015 L400 ILI and on average cost estimates provided by vendors.

| Traditional ILI Projects 2019-2021 |       |          |         |               |           |       |              |                |               |               |              |              |
|------------------------------------|-------|----------|---------|---------------|-----------|-------|--------------|----------------|---------------|---------------|--------------|--------------|
| RUNID                              | ROUTE | MP Start | MP Stop | ILI Run Miles | HCA Miles | IOC   | Max Diameter | Re-Inspection? | Circ. MFL Run | TFI           | EMAT         | SUBTOTAL     |
| BB001                              | 300A  | 0        | 40.87   | 40.8          | 0.7       | 23    | 40           | N              | \$ 1,986,259  | \$ -          | \$ 1,633,640 | \$ 3,619,899 |
| M099                               | 105N  | 7.766    | 22.905  | 15.9          | 15.9      | 12702 | 30           | Y              | \$ 1,805,179  | \$200,000 \$0 | \$ 1,248,930 | \$ 3,054,109 |
| BB027                              | 107   | 26.023   | 38.102  | 12.9          | 12.4      | 6314  | 36           | N              | \$ 1,803,192  | \$200,000 \$0 | \$ 1,196,230 | \$ 2,999,422 |
| EB002                              | 153   | 17.632   | 27.88   | 10.5          | 10.5      | 4138  | 31.38        | N              | \$ 1,783,113  | \$ -          | \$ -         | \$ 1,783,113 |
| NB006                              | 210C  | 19.348   | 32.091  | 13.1          | 7.3       | 3733  | 24           | Y              | \$ 1,780,924  | \$121,000 \$0 | \$ 1,199,175 | \$ 2,980,099 |
| BB025                              | 057B  | 0        | 16.68   | 17.1          | 6.5       | 2498  | 24           | Y              | \$ 1,795,074  | \$ -          | \$ -         | \$ 1,795,074 |
| BB013                              | 300B  | 0        | 40.489  | 40.8          | 0.8       | 23    | 40           | N              | \$ 1,985,714  | \$ -          | \$ 1,630,075 | \$ 3,615,789 |
| SAC192                             | 172A  | 40.079   | 69.802  | 29.9          | 5.7       | 1976  | 21.272       | Y              | \$ 1,828,916  | \$ 121,000    | \$ -         | \$ 1,949,916 |
| CC038                              | 301A  | 0        | 24.84   | 25.0          | 8.9       | 1046  | 34.5         | N              | \$ 1,863,566  | \$ -          | \$ -         | \$ 1,863,566 |
| BB014                              | 300B  | 40.489   | 103.515 | 63.2          | 0.0       | 14    | 34.5         | N              | \$ 2,078,313  | \$ -          | \$ 1,971,075 | \$ 4,049,388 |
| BB024                              | 002   | 122.135  | 158     | 36.3          | 4.8       | 759   | 27.75        | Y              | \$ 1,885,816  | \$200,000 \$0 | \$ 1,563,270 | \$ 3,449,086 |
| YO030                              | 215   | 0        | 20.08   | 20.3          | 1.7       | 562   | 16           | Y              | \$ 1,782,571  | \$ -          | \$ 1,311,240 | \$ 3,093,811 |
| SAC170                             | 167   | 3.53     | 34.628  | 30.9          | 5.2       | 279   | 17.25        | N              | \$ 1,813,441  | \$ 121,000    | \$ -         | \$ 1,934,441 |
| K004                               | 314   | 24.193   | 43.18   | 19.2          | 0.2       | 62    | 12.75        | N              | \$ 1,770,624  | \$ -          | \$ -         | \$ 1,770,624 |
| BB003                              | 300A  | 40.87    | 103.721 | 62.8          | 0.0       | 36    | 34.5         | N              | \$ 2,075,493  | \$ -          | \$ 1,974,485 | \$ 4,049,978 |
| BB015                              | 300B  | 103.515  | 161.02  | 57.5          | 6.8       | 1039  | 36           | N              | \$ 2,059,415  | \$ -          | \$ 1,889,545 | \$ 3,948,960 |
| K003                               | 314   | 0        | 24.193  | 24.2          | 0.0       | 26    | 12.75        | N              | \$ 1,780,134  | \$ -          | \$ -         | \$ 1,780,134 |
| BB004                              | 300A  | 103.721  | 159.331 | 55.8          | 7.6       | 2292  | 36           | N              | \$ 2,048,945  | \$ -          | \$ 1,865,675 | \$ 3,914,620 |
| BB582                              | 300A  | 159.331  | 203.02  | 43.6          | 3.3       | 387   | 40           | N              | \$ 2,004,689  | \$ -          | \$ 1,675,645 | \$ 3,680,334 |
| SAC172                             | 167-3 | 4.12     | 4.389   | 0.3           | 0.0       | 4     | 12.75        | N              | \$ 1,735,713  | \$ -          | \$ -         | \$ 1,735,713 |
| EB091                              | SP3   | 167.318  | 198.487 | 33.4          | 24.9      | 21881 | 27.25        | Y              | \$ 1,870,737  | \$ -          | \$ -         | \$ 1,870,737 |
| BB100                              | 300B  | 161.02   | 203.07  | 43.9          | 3.3       | 275   | 40           | N              | \$ 2,006,434  | \$ -          | \$ 1,691,300 | \$ 3,697,734 |
| M098                               | 153   | 0        | 17.632  | 17.8          | 17.8      | 14058 | 35.5         | Y              | \$ 1,828,376  | \$ 200,000    | \$ -         | \$ 2,028,376 |
| EB097                              | 105B  | 0        | 11.81   | 11.9          | 9.1       | 8117  | 25.25        | Y              | \$ 1,778,930  | \$ -          | \$ -         | \$ 1,778,930 |
| P006                               | 132   | 40.77    | 46.605  | 6.0           | 4.7       | 5851  | 31.25        | N              | \$ 1,762,238  | \$ 200,000    | \$ -         | \$ 1,962,238 |
| CC001-1                            | 103   | 2.833    | 23.55   | 21.3          | 3.9       | 5023  | 16           | N              | \$ 1,784,804  | \$ 121,000    | \$ -         | \$ 1,905,804 |
| P002                               | 101   | 0.012    | 11.834  | 12.2          | 10.0      | 3611  | 37.375       | Y              | \$ 1,801,725  | \$ -          | \$ -         | \$ 1,801,725 |

10

| Non-Traditional ILI Runs Project Summary 2019-2021 |           |           |      |       |       |                 |              |       |                              |              |                             |                            |  |
|--|-----------|-----------|------|-------|-------|-----------------|--------------|-------|------------------------------|--------------|-----------------------------|----------------------------|--|
| RUN ID   | ROUTE     | HCA Miles | IOC  | MP1   | MP2   | TOTAL MILES (L) | DIAMETER (D) | L x D | Forecast Year <sup>(a)</sup> | 2016 \$, NCM | Year of Previous Assessment | Previous Assessment Method | Minimum Re-Assessment Interval (Years) |
| M055   | 105N      | 0.75      | 744  | 27.38 | 28.13 | 0.75            | 34.00        | 25.64 | 2019                         | \$1,953,731  | 2012                        | Direct Assessment          | 7                                      |
| DI017  | 3009-01   | 0.61      | 76   | 0.00  | 0.98  | 1.02            | 34.00        | 34.68 | 2019                         | \$2,386,585  | 2010                        | Direct Assessment          | 7                                      |
| SAC040   | 0609-02   | 0.64      | 402  | 0.00  | 0.65  | 0.64            | 6.63         | 4.26  | 2019                         | \$930,648    | 2014                        | Direct Assessment          | 7                                      |
| SAC043   | 0611-01   | 1.08      | 1037 | 0.00  | 1.09  | 1.09            | 16.00        | 17.36 | 2019                         | \$1,557,633  | 2014                        | Direct Assessment          | 7                                      |
| ST048  | 1617-01   | 1.10      | 561  | 0.00  | 1.05  | 1.30            | 8.63         | 11.24 | 2019                         | \$1,264,646  | 2014                        | Direct Assessment          | 7                                      |
| SAC046   | 0611-05   | 0.14      | 131  | 0.06  | 0.17  | 0.14            | 16.00        | 2.21  | 2019                         | \$832,443    | 2014                        | Direct Assessment          | 7                                      |
| SJ034  | 0833-01   | 0.03      | 103  | 3.55  | 4.23  | 0.68            | 16.00        | 10.83 | 2019                         | \$1,245,196  | 2012                        | Direct Assessment          | 7                                      |
| SAC1135  | 195A3-1   | 0.29      | 135  | 0.04  | 0.33  | 0.29            | 8.63         | 2.48  | 2019                         | \$845,653    | (b)                         | (b)                        | (b)                                    |
| EB004  | 105C      | 1.97      | 2871 | 0.00  | 2.03  | 1.97            | 25.00        | 49.25 | 2019                         | \$3,083,920  | 2012                        | Direct Assessment          | 7                                      |
| M312   | 105N      | 0.27      | 221  | 22.91 | 23.04 | 0.27            | 24.00        | 6.43  | 2019                         | \$1,034,608  | 2012                        | Direct Assessment          | 7                                      |
| DA010  | 8807-02   | 0.57      | 333  | 0.80  | 2.07  | 1.28            | 11.53        | 14.76 | 2019                         | \$1,433,363  | (b)                         | (b)                        | (b)                                    |
| ST002  | 1621-01   | 0.59      | 393  | 0.06  | 1.56  | 1.49            | 10.75        | 15.96 | 2019                         | \$1,490,807  | (b)                         | (b)                        | (b)                                    |
| BB502  | 131       | 0.07      | 61   | 50.54 | 50.70 | 0.07            | 30.00        | 2.13  | 2019                         | \$828,710    | 2012                        | Direct Assessment          | 5                                      |
| SAC013   | 0604-03   | 0.97      | 1024 | 0.29  | 1.98  | 1.54            | 6.63         | 10.22 | 2019                         | \$1,216,019  | 2014                        | Direct Assessment          | 7                                      |
| NB052  | X16558    | 0.03      | 88   | 0.00  | 0.03  | 0.03            | 8.63         | 0.28  | 2020                         | \$740,388    | (b)                         | (b)                        | (b)                                    |
| F041   | 1217-01   | 0.37      | 69   | 1.88  | 2.74  | 0.89            | 6.63         | 5.86  | 2020                         | \$1,007,381  | 2014                        | Direct Assessment          | 7                                      |
| SAC153   | 1518-01   | 0.23      | 250  | 0.00  | 0.80  | 0.82            | 8.63         | 7.07  | 2020                         | \$1,065,263  | 2015                        | Direct Assessment          | 7                                      |
| K555   | 1425      | 0.02      | 14   | 9.10  | 9.13  | 0.02            | 10.75        | 0.25  | 2020                         | \$738,600    | 2013                        | Direct Assessment          | 7                                      |
| SJ019  | 0814-04   | 0.40      | 182  | 0.00  | 0.37  | 0.47            | 12.75        | 5.98  | 2020                         | \$1,012,963  | (b)                         | (b)                        | (b)                                    |
| K006   | 1425      | 0.92      | 486  | 9.13  | 10.05 | 0.92            | 12.75        | 11.72 | 2020                         | \$1,287,565  | 2013                        | Direct Assessment          | 7                                      |
| NV049  | DREG5480  | 1.02      | 488  | 0.00  | 1.09  | 1.13            | 6.63         | 7.45  | 2020                         | \$1,083,480  | 2013                        | Direct Assessment          | 7                                      |
| DI027  | 3022-01   | 0.16      | 28   | 0.02  | 1.00  | 0.98            | 8.63         | 8.46  | 2020                         | \$1,131,724  | 2012                        | Direct Assessment          | 7                                      |
| SAC232   | DREG4327  | 0.81      | 461  | 0.02  | 1.74  | 1.76            | 8.63         | 15.19 | 2020                         | \$1,453,709  | 2014                        | Direct Assessment          | 7                                      |
| SJ011  | 0812-01   | 0.47      | 282  | 0.00  | 0.50  | 0.51            | 24.00        | 12.14 | 2020                         | \$1,307,990  | (b)                         | (b)                        | (b)                                    |
| SAC042   | 0609-03   | 0.42      | 211  | 0.00  | 0.43  | 0.42            | 10.75        | 4.50  | 2020                         | \$942,344    | 2014                        | Direct Assessment          | 7                                      |
| SAC158   | 1520-01   | 0.16      | 131  | 0.00  | 1.18  | 1.17            | 6.63         | 7.74  | 2020                         | \$1,097,431  | (b)                         | (b)                        | (b)                                    |
| M310   | 105N      | 0.84      | 149  | 6.91  | 7.77  | 0.84            | 35.00        | 29.30 | 2020                         | \$2,128,854  | 2012                        | Direct Assessment          | 7                                      |
| GG990  | 174-1-1   | 0.19      | 12   | 1.17  | 1.93  | 0.76            | 10.75        | 8.15  | 2020                         | \$1,116,761  | 2018                        | Non-Traditional ILI        | 7                                      |
| YO098  | DREG4388  | 0.07      | 48   | 0.00  | 0.07  | 0.08            | 8.63         | 0.65  | 2020                         | \$757,726    | 2014                        | Direct Assessment          | 7                                      |
| ST019  | 057A-WT   | 0.16      | 20   | 0.00  | 0.69  | 0.72            | 8.63         | 6.18  | 2020                         | \$1,022,744  | 2017                        | Direct Assessment          | 7                                      |
| NT116  | DREG5287  | 0.00      | 339  | 0.00  | 0.41  | 0.42            | 8.63         | 3.62  | 2021                         | \$900,142    | (b)                         | (b)                        | (b)                                    |
| SAC102   | 0651-01   | 1.41      | 537  | 0.00  | 1.87  | 1.89            | 8.63         | 16.27 | 2021                         | \$1,505,309  | 2017                        | Direct Assessment          | 7                                      |
| YO094  | 7228-36   | 0.83      | 1145 | 0.01  | 1.33  | 1.33            | 8.63         | 11.49 | 2021                         | \$1,276,617  | (b)                         | (b)                        | (b)                                    |
| DI023  | 3015-01   | 0.41      | 482  | 0.01  | 0.97  | 0.98            | 8.63         | 8.46  | 2021                         | \$1,131,724  | (b)                         | (b)                        | (b)                                    |
| SAC231   | DREG4325  | 0.25      | 342  | 0.00  | 0.28  | 0.26            | 6.63         | 1.72  | 2021                         | \$809,207    | 2014                        | Direct Assessment          | 7                                      |
| ST012  | 057A-MD1  | 0.84      | 67   | 0.00  | 1.13  | 1.15            | 12.75        | 14.65 | 2021                         | \$1,427,918  | 2017                        | Direct Assessment          | 5                                      |
| ST009  | 057A-MC   | 0.26      | 20   | 0.00  | 0.42  | 0.45            | 16.00        | 7.14  | 2021                         | \$1,068,302  | 2013                        | Direct Assessment          | 5                                      |
| SAC302B  | 220       | 0.03      | 2    | 32.90 | 34.45 | 1.58            | 8.63         | 13.66 | 2021                         | \$1,380,643  | (b)                         | (b)                        | (b)                                    |
| NT205  | DCUST8825 | 0.04      | 29   | 0.00  | 0.10  | 0.11            | 6.63         | 0.75  | 2021                         | \$762,596    | (b)                         | (b)                        | (b)                                    |
| K013   | DREG4809  | 0.02      | 58   | 0.00  | 0.03  | 0.02            | 12.75        | 0.26  | 2021                         | \$738,971    | (b)                         | (b)                        | (b)                                    |
| SAC051   | 0617-14   | 0.07      | 14   | 0.00  | 0.74  | 0.76            | 12.75        | 9.72  | 2021                         | \$1,191,760  | (b)                         | (b)                        | (b)                                    |
| P040   | 132       | 0.02      | 90   | 38.39 | 38.41 | 0.02            | 24.00        | 0.53  | 2021                         | \$752,037    | 2014                        | Direct Assessment          | 7                                      |
| ST034  | 1606-01   | 0.04      | 1    | 0.09  | 0.14  | 0.05            | 8.63         | 0.41  | 2021                         | \$746,580    | (b)                         | (b)                        | (b)                                    |
| ST056  | DCUST1755 | 0.05      | 11   | 0.00  | 0.16  | 0.15            | 6.63         | 1.01  | 2021                         | \$775,279    | (b)                         | (b)                        | (b)                                    |
| DI041  | GCUST5970 | 0.28      | 1    | 0.19  | 1.32  | 0.99            | 12.75        | 12.61 | 2021                         | \$1,330,281  | 2012                        | Direct Assessment          | 7                                      |
| YO103  | GCUST5916 | 0.05      | 1    | 0.05  | 0.10  | 0.05            | 8.63         | 0.40  | 2021                         | \$745,755    | (b)                         | (b)                        | (b)                                    |
| K047   | GCUST5902 | 0.05      | 14   | 0.02  | 1.02  | 1.005           | 6.625        | 6.66  | 2021                         | \$1,045,431  | (b)                         | (b)                        | (b)                                    |

|               |   |
|---------------|---|
| <b>Notes:</b> |   |
| (a)           | PG&E forecast the Non-Traditional ILI program over the 2019 to 2021 three-year period. PG&E will implement the projects during this time period as required by the assessment due date. |
| (b)           | Newly identified HCA being assessed for the first time.   |

**Workpaper Table 5-9  
Pacific Gas and Electric Company  
2019 Gas Transmission and Storage Rate Case  
Workpapers Supporting Chapter 5, Asset Family - Transmission Pipe  
ILI Direct Exam and Repair Expense Forecast Calculation, MAT HPI**

Line No.

| Summary of ILI DE&R |                                   |                 |                |
|---------------------|-----------------------------------|-----------------|----------------|
| Year                | Subtotal of Expenses (2016\$ NCM) | Escalation Rate | Total Expenses |
| 2019                | \$36,430,596                      | 1.069           | \$38,958,879   |

| Miles Forecasted for Assessment (2018 - 2020) <sup>(a)</sup> |                |
|--|----------------|
| Program  | Miles          |
| Traditional ILI  | 1819.80        |
| Non-Traditional ILI  | 27.11          |
| <b>Total Miles</b>   | <b>1846.91</b> |
| Estimated Number of Digs (2019 - 2021)                       | 465            |
| Total ILI DE&R Expenses (2016\$ NCM)                         | \$109,291,787  |
| Subtotal of Annual Expenses (2016\$ NCM)                     | \$36,430,596   |

(a) Miles come from PG&E's ILI forecast for 2018 combined with the ILI forecast miles for 2019 through 2020 from this GT&S Rate Case. Digs are assumed to be completed the year following the ILI runs.

| Unit Cost and Dig Rate Analysis        |                                 |                |                 |
|--|---------------------------------|----------------|-----------------|
| Year                                   | Miles of Associated Inspections | Number of Digs | Total Digs Cost |
| 2012                                   | 176.47                          | 62             | \$ 10,471,864   |
| 2013                                   | 243.47                          | 35             | \$ 6,499,426    |
| 2014                                   | 306.54                          | 80             | \$ 21,370,033   |
| 2015                                   | 264.65                          | 58             | \$ 17,017,736   |
| 2016                                   | 6.05                            | 16             | \$ 3,635,002    |
| Total                                  | 997.18                          | 251            | \$ 58,994,061   |
| <b>Average Digs per Mile Assessed:</b> |                                 | <b>0.252</b>   | <b>N/A</b>      |
| <b>Average Cost Per Dig:</b>           |                                 | <b>\$</b>      | <b>235,036</b>  |

| Completed Digs Projects |              |                 |                 |                     |                    |        |        |               |            |                     |
|-------------------------|--------------|-----------------|-----------------|---------------------|--------------------|--------|--------|---------------|------------|---------------------|
| Year                    | Order Number | Line            | Trad / NT       | Start Station       | Stop Station       | MP1    | MP2    | Total Miles   | Total Digs | Costs in 2016\$ NCM |
| 2012                    | 41668200     | L-021E          | Traditional     | Soda Springs        | Masonite           | 93.54  | 114.89 | 20.34         | 33         | \$3,582,527         |
| 2012                    | 41616088     | L-108           | Traditional     | Vernalis            | N Davis Rd         | 0.03   | 37.15  | 37.07         | 4          | \$1,154,992         |
| 2012                    | 41534743     | L-1509-05       | Traditional     | Green Leaf          | Calpine Sunsweet   | 0.00   | 6.49   | 6.48          | 7          | \$782,101           |
| 2012                    | 41498570     | L-210B          | Traditional     | Creed               | Napa Y             | 1.40   | 25.97  | 25.98         | 7          | \$1,538,235         |
| 2012                    | 41616089     | L-300A          | Traditional     | PLS4                | PLS5               | 4.14   | 299.00 | 43.39         | 5          | \$2,101,624         |
| 2012                    | 41616090     | L-300B          | Traditional     | PLS4                | PLS5               | 256.65 | 298.96 | 43.21         | 6          | \$1,312,383         |
| 2013                    | 41661855     | L-002           | Traditional     | Brentwood           | New Westley Town   | 158.00 | 122.14 | 36.34         | 4          | \$659,725           |
| 2013                    | 41661849     | L-057B          | Traditional     | McDonald Island     | Brentwood          | 0.00   | 16.68  | 16.74         | 6          | \$729,251           |
| 2013                    | 41521150     | L-105N          | Traditional     | Abrea Street        | San Leandro Sub    | 7.76   | 22.85  | 16.06         | 3          | \$1,021,684         |
| 2013                    | 41720555     | L-172A          | Traditional     | Hershey             | Swingle            | 40.08  | 69.80  | 29.78         | 4          | \$687,244           |
| 2013                    | 41963737     | L-210C          | Traditional     | Cordelia            | Hermann            | 19.47  | 32.09  | 12.85         | 5          | \$1,351,309         |
| 2013                    | 41871410     | L-300A          | Traditional     | Kettleman           | Panoche            | 354.10 | 393.50 | 39.41         | 5          | \$756,313           |
| 2013                    | 42072114     | L-300B          | Traditional     | Kettleman           | Panoche            | 354.09 | 393.73 | 39.90         | 2          | \$538,883           |
| 2013                    | 41661854     | L-300B          | Traditional     | Hollister           | Milpitas           | 450.81 | 502.62 | 52.39         | 6          | \$755,018           |
| 2014                    | 42101652     | L-300A          | Traditional     | Hollister           | Milpitas           | 450.83 | 502.12 | 52.08         | 5          | \$2,563,068         |
| 2014                    | 42101322     | L-300A          | Traditional     | Panoche             | Hollister          | 393.53 | 450.83 | 57.31         | 7          | \$5,052,040         |
| 2014                    | 42101658     | L-101           | Traditional     | Milpitas            | Palo Alto          | 0.01   | 11.62  | 12.31         | 2          | \$1,430,552         |
| 2014                    | 42280022     | L-114           | Traditional     | Antioch             | Brentwood          | 9.03   | 16.58  | 8.23          | 3          | \$465,465           |
| 2014                    | 42193163     | L-177A (NT)     | Non-Traditional | L-177A MP 8.88      | L-177A MP 9.10     | 8.88   | 9.10   | 0.22          | 2          | \$160,309           |
| 2014                    | 97002221     | L-SP3           | Traditional     | Delta Fair          | San Pablo          | 167.32 | 198.49 | 33.27         | 3          | \$1,004,070         |
| 2014                    | 42361620     | L-300A          | Traditional     | PLS5                | Kettleman CS       | 299.01 | 353.82 | 57.55         | 7          | \$1,818,589         |
| 2014                    | 42379555     | L-300B          | Traditional     | PLS5                | Kettleman CS       | 299.00 | 353.00 | 54.91         | 5          | \$1,347,808         |
| 2014                    | 42101322     | 2014 Immediates | Traditional     | N/A                 | N/A                | N/A    | N/A    | N/A           | 33         | \$5,052,040         |
| 2014                    | 42101657     | L-021E          | Traditional     | L-021E MP 64.54     | L-021E MP 93.54    | 64.54  | 93.54  | 30.66         | 13         | \$2,476,092         |
| 2015                    | 42480592     | L-303           | Traditional     | Antioch             | Irvington          | 0.00   | 42.86  | 44.78         | 1          | \$301,611           |
| 2015                    | 42557589     | L-002           | Traditional     | Dinuba              | Zacharias          | 43.45  | 118.20 | 75.23         | 16         | \$4,591,811         |
| 2015                    | 42567963     | L-101           | Non-Traditional | L-101 MP 44.24      | L-101 MP 44.61     | 44.24  | 44.61  | 0.37          | 4          | \$2,006,929         |
| 2015                    | 42311405     | L-101           | Traditional     | L-101 MP 11.85      | L-101 MP 32.57     | 11.85  | 32.57  | 20.72         | 6          | \$2,468,809         |
| 2015                    | 42278917     | L-105B          | Traditional     | Crockett            | San Pablo          | 0.02   | 11.81  | 11.85         | 3          | \$1,186,333         |
| 2015                    | 41661856     | L-153           | Traditional     | Irvington           | Fairway            | 0.00   | 17.63  | 17.86         | 8          | \$2,619,037         |
| 2015                    | 42466229     | L-21D           | Traditional     | Adobe               | Laguna Santa Rosa  | 18.65  | 31.81  | 13.30         | 8          | \$274,230           |
| 2015                    | 42596039     | L-107           | Traditional     | L-107 MP 26.02      | L-107 MP 38.12     | 26.02  | 38.12  | 12.66         | 2          | \$22,877            |
| 2015                    | 42426266     | L-142N          | Non-Traditional | L-142N MP 13.64     | L-142N MP 13.96    | 13.64  | 13.96  | 0.32          | 3          | \$525,225           |
|                         |              |                 |                 |                     |                    | 26.00  | 26.44  |               |            |                     |
|                         |              |                 |                 |                     |                    | 27.60  | 27.76  | 0.63          | 2          | \$1,713,358         |
| 2015                    | 42668375     | L-153/153-2     | Non-Traditional | L-153 MP 26.00      | L-153-2 MP 27.76   | 27.60  | 27.76  | 0.63          | 2          | \$1,713,358         |
| 2015                    | 42369875     | L-401           | Traditional     | L-401 MP 82.37      | L-401 MP 149.15    | 82.37  | 149.15 | 66.93         | 5          | \$1,307,516         |
| 2016                    | 42671516     | L-147           | Traditional     | L-147 MP 0.03       | L-147 MP 3.57      | 0.03   | 3.57   | 4.03          | 12         | \$3,188,098         |
| 2016                    | 42671550     | DFM-0617-06     | Traditional     | DFM0617-06 MP 11.01 | DFM0617-06 MP 2.02 | 11.01  | 13.01  | 2.02          | 4          | \$446,904           |
| <b>Totals:</b>          |              |                 |                 |                     |                    |        |        | <b>997.18</b> | <b>251</b> | <b>\$58,994,061</b> |

**PACIFIC GAS AND ELECTRIC COMPANY  
Gas Transmission and Storage Rate Case 2019  
Application 17-11-009  
Data Response**

|                        |                                     |                   |                               |
|------------------------|-------------------------------------|-------------------|-------------------------------|
| PG&E Data Request No.: | ORA_Oral008-Q01                     |                   |                               |
| PG&E File Name:        | GTS-RateCase2019_DR_ORA_Oral008-Q01 |                   |                               |
| Request Date:          | May 25, 2018                        | Requester DR No.: | Oral008                       |
| Date Sent:             | May 29, 2018                        | Requesting Party: | Office of Ratepayer Advocates |
| PG&E Witness:          | Bennie Barnes                       | Requester:        | Alan Bach                     |

**QUESTION 1**

Referring to ORA\_059-Q03 attachment: Could you explain the N/A values in columns O through Q to me? Are these newly installed pipe?

**ANSWER 1**

“N/A” in columns O through Q indicates that the ILI section has not been previously assessed. For rows containing no HCA miles, an integrity assessment was not required. For the rows containing greater than 0 miles of HCA, the HCA was recently identified, and the first-time assessment is scheduled to be performed in the 2019 – 2021 time period.

**PACIFIC GAS AND ELECTRIC COMPANY**  
**Gas Transmission and Storage Rate Case 2019**  
**Application 17-11-009**  
**Data Response**

|                        |                                     |                   |                               |
|------------------------|-------------------------------------|-------------------|-------------------------------|
| PG&E Data Request No.: | ORA_Oral012-Q01                     |                   |                               |
| PG&E File Name:        | GTS-RateCase2019_DR_ORA_Oral012-Q01 |                   |                               |
| Request Date:          | June 13, 2018                       | Requester DR No.: | Oral011                       |
| Date Sent:             | June 27, 2018                       | Requesting Party: | Office of Ratepayer Advocates |
| PG&E Witness:          | Bennie Barnes                       | Requester:        | Alan Bach                     |

**QUESTION 1**

Please confirm, for the spread sheet in this data request response, the year of previous assessment and minimum reassessment interval for Run IDs and BB502 are correct (i.e. cells M5, O5, M16, O16). Currently, it appears the sections of pipe associated with these runs were due for a reassessment in 2017, but had their last assessment in 2010 and 2012 respectively.

Typo: left out that besides BB502 I am also referring to Run ID DI017 (which corresponds to cells M5 and M16).

**ANSWER 1**

PG&E notes that ORA\_Oral012-Q01 is a follow-up to PG&E's response to ORA\_071-Q01 and its associated attachment GTS-RateCase2019\_DR\_ORA\_071-Q01Atch01.

Please see the explanations below for RUN IDs DI017 and BB502. Please note that PG&E utilized the results from the 2015 Gas Transmission Piggability Study to form the basis of its 2019 GT&S Rate Case forecast. The snap shot of data used in the Piggability Study was taken in June of 2015.

Route number 3009-01 (RUN ID DI017) was downrated to distribution pressure in May of 2016. PG&E's requirement to reassess the line on a particular timeline was eliminated when the downrate to distribution pressure was completed. The previous assessment and minimum reassessment intervals provided in GTS-RateCase2019\_DR\_ORA\_071-Q01Atch01 for this RUN ID are correct based on the source of the aforementioned snapshot of data used to form the forecast. Note that annually, PG&E assesses integrity risk on its system and updates its assessment plans, thus keeping the forecast amounts approximately the same as the original plan.

After the creation of the Non-Traditional ILI plan for this rate case period, PG&E utilized PHMSA FAQ-84 to determine assessment requirements for this portion of Route number 131 (RUN ID BB502) as station pipe. Following FAQ-84, a reassessment was no longer required on the timeline prescribed in 49 CFR 192 Subpart O. The integrity re-assessment plan changed and is now based on the integrity management requirements for station pipe from FAQ-84. The previous assessment and minimum reassessment intervals provided in GTS-RateCase2019\_DR\_ORA\_071-Q01Atch01 for



this RUN ID are correct based on the source of the aforementioned snapshot of data used to form the forecast. Note that annually, PG&E assesses integrity risk on its system and updates its assessment plans, thus keeping the forecast amounts approximately the same as the original plan.