SCG-02-WP

Workpapers Supporting the Prepared Direct Testimony of

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(Execution of Programs/Projects and Activities to Address Risk; Public Version)

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Final Workpaper for VIPP and BSRP

Vintage Integrity Plastic Plan (VIPP) and Bare Steel Replacement Plan (BSRP)

I. Program Execution

During the TY 2019 GRC Cycle, as part of the Distribution Integrity Management Program (DIMP), SoCalGas enhanced pipeline safety by replacing high-risk non-state-of-the-art (NSOTA) pipelines under the Vintage Integrity Plastic Plan (VIPP) and Bare Steel Replacement Plan (BSRP). VIPP targets pre-1986 Aldyl-A plastic pipes found to exhibit brittle-like cracking characteristics and low ductile wall tendencies.[1] BSRP addresses the threat of failure associated with corrosion on bare steel piping, which does not have protective coating or cathodic protection.

The Distribution Program Management Office (PMO) and DIMP Program Management departments work together to make sure project targets, budgets, and strategies are aligned with DIMP objectives. This coordinated approach is implemented through the VIPP and BSRP, which is executed in three key phases: Risk Assessment, Engineering Planning, and Project Construction. The risk assessment and risk analytics entails the following:

A. *Risk Assessment and Risk Analytics:*

For the TY 2019 GRC, the DREAMS risk prioritization tool used relative risk scores of NSOTA pipe based on factors affecting safe pipeline operations, including historical performance (leakage), pipe attributes, construction practices, and location relative to populated areas. The DREAMS risk prioritization tool's relative risk model leveraged

[1] Pipeline Safety: Updated Notification of the Susceptibility to Premature Brittle-Like Cracking of Older Plastic Pipe. PHSMA (dated September 6, 2007); available at https://www.federalregister.gov/documents/2007/09/06/07-4309/pipeline-safety-updated-notification-of-the-susceptibility-to-premature-brittle-like-cracking-of

data from Enterprise Geographic Information Systems (eGIS) and repaired leak records to identify DIMP segments for replacement through VIPP and BSRP.

At the start of the TY 2019 GRC, SoCalGas leveraged the DREAMS risk prioritization tool to target individual high-risk pipe segments based on their relative risk scores. In 2019, SoCalGas transitioned to a grid-based approach which aggregated the risk scores of individual pipe segments into 1-mile to 1-mile grids. The grids were assigned a risk score based on the normalized risk scores of their constituent pipe segments. To enhance prioritization, SoCalGas utilized a web-based portal to plan replacement of pipe within high-risk locations in the natural gas distribution network. The transition to grid-based risk prioritization sought to optimize planning, design, and execution, as well as enhance efficiency, lower costs, and reduce safety risks.

Pipeline segments identified by the process as meeting criteria for replacement were communicated to DIMP for engineering and construction. Through using data quality, data management, analytic abilities, program effectiveness, and communication, Integrity Management and the DIMP PMO successfully provided DIMP Planning with qualified segments and replaced pipe within the high-risk grids.

B. *Engineering and Planning:*

Determining VIPP and BSRP program scope entails identifying pipes that have the potential to cause incidents or hazardous leaks, estimating project costs, calculating the project scope, and/or scope changes that determine segment lengths. The proposed project is analyzed by the PMO Team and scope is validated through evaluation of existing pipeline documentation. Sometimes, the segment lengths offset or the rerouting of pipelines from a project scope may result in a “new” mileage adjustment that is either greater or less than the original project scope. Engineering and design factors further influence changes in project mileage that lead to the final project scope.

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I. Initiation & Planning:

Once the segments are determined, they are provided to Distribution Planning. A Job Request is filled out and submitted. The Planner then assesses the site for feasibility & footage by identifying existing substructures, jurisdiction, landowners, and right-of-way constraints. These findings will assist the Planner in determining the routing, design, duration, and estimated cost of the project. Once approved, a Job Request is updated with the appropriate SAP Notification number. The DIMP PMO team will continue to oversee monitoring and approving new segments submitted accordingly.

The Planner prepares the construction package during the planning phase, which consists of referencing site findings, project design, and initiating a construction package. The Planner coordinates with construction personnel on the final construction sketch and gas handling plan.

The second phase consists of submitting permits (see Part II below) and the land right acquirement process. Permits typically involve long lead times, negotiations of conditions, and sometimes last-minute agency requirements that are incorporated into project design which can impact the project schedule. In addition, there are additional site visits associated with permit applications and job walks with agency inspectors. Inspectors can and do change permit conditions, which may impact the project schedule or scope.

Once the permit is approved and received, the Planner prepares a DIMP Construction Package. The Lead Planner and Supervisor review the package before the Manager assigns the job for construction.
Once the design is complete, materials are selected based on the design specifications for each project, considering factors such as pipe material at tie-in locations, job scope, and pipe diameter. Planning will collaborate with

Engineering to confirm the design for more complex jobs that exceed certain footage or scope. Materials are typically sourced after the detailed design is finished and permits and authorizations are obtained. However, some materials, such as larger diameter fittings that are uncommon, are ordered ahead of time for timely project completion.

II. Permits:

VIPP and BSRP projects are primarily located in franchised rights-of-way (i.e., streets) but can be located on private and federal land. VIPP and BSRP projects are constructed throughout SoCalGas's service territory, which leads to geographical diversity and a concomitantly wide array of challenges. These varying locations result in the need to acquire numerous permits. Each of the various types of permits may bring varying challenges to project execution, but generally, the issues center on the lead time to obtain permits, and the particular requirements of the permits.

Some projects may require multiple additional permits ranging from environmental agencies (e.g., water, wildlife, cultural etc.) to land-rights authorities like Caltrans. These permits/agreements have long lead times and can restrict projects to certain schedules. At a minimum, VIPP and BSRP require a permit from the municipal agency where the replacement is being executed before a project can commence construction. Although SoCalGas factors in anticipated permit processing time based on their experience in the project planning process, unanticipated delays can extend the length of time anticipated.

To illustrate the complexity of permit requirements, consider a project to be completed in streets. Typically, an excavation permit is needed from the local jurisdiction to establish work times, allowable length of the project, dates when work may not be performed during heavy traffic conditions ("holiday moratoriums"), etc. A permit would also be needed for traffic control (e.g., arrow boards, delineations, lane closures, etc.). If the project is subject to multiple jurisdictions (city streets, county streets, Caltrans jurisdiction on freeway underpasses/crossings) the various jurisdictional agencies may all require permits, and each may have its own requirements.

Permitting agencies' requirements can also change project scope, thereby necessitating a redesign. This results in delays and adds cost. Pavement repairs may be extended to full lane repairs or overlays, which add to paving costs. Specialized pavement types, such as rubberized asphalt, have been required for repairs, which also raise restoration costs.

Navigating the complexities of permitting presents a challenge, especially when dealing with varying city requirements and city staff resource constraints. Below are some strategies put in place to address these challenges:

a. Educating Cities: Some permitting agencies are not fully informed about VIPP and BSRP program scope of work and education may be needed to minimize permit rejections.
b. Escalating Challenging Permits: When encountering permits that pose significant challenges – whether due to unique requirements, regulatory complexities, or other factors – the project teams partner with other SoCalGas stakeholders such as Public Affairs. Their experience and insights help address roadblocks and negotiate with stakeholders. Additionally, this collaborative approach fosters smoother interactions with city officials and expedites the permitting process.
c. Engaging and Collaborating: Building strong relationships with cities is essential. Face-to-face meetings are often requested to facilitate

communication, negotiation, and mutual understanding. By engaging directly, communications and processes can be streamlined.

III. Scope Changes:

Projects are planned to manage cost, however unforeseen constructability or scheduling hurdles are often revealed throughout the planning process. Partial or complete redesign may be required due to frequently encountered challenges including permit or land use restrictions, environmental constraints, customer impacts, traffic and other community impacts, system constraints, or pipe conditions identified once pipe is exposed through potholing. At this juncture, a project is sometimes sectionalized, and the sections that can be remediated as soon as practicable are scheduled for construction. The remaining sections are postponed until the identified obstacles are addressed. Redesign efforts add to the project cost but result in a cost-effective solution, given all the unique conditions and constraints of each project. The Distribution PMO works with other departments to effectively implement scope changes and mitigate additional costs.

The final project design considers cost-effectiveness, system operating efficiencies, mitigation of customer and community impacts, and system capacity constraints. Scope changes are reviewed, authorized, and documented. The scope change requires a clear business justification for the addition/subtraction of footage.

IV. Cost Estimate:

Estimating activities are initiated in the planning phase, where Compatible Units (CUs) are reflective of the estimated costs for preliminary design & mapping activities. Subsequently, at the initial design drawings, an estimate is prepared. The estimate is used initially for guidance then Planning implements CUs for updated cost estimates. The Lead Planner and Supervisor review the CUs as the project is ready for construction.

V. Installer Selection:

Installers include both external contractors and internal company crews. Selection is guided by considerations such as proximity to the work site, availability of personnel, and alignment with specific project requirements. This approach promotes operational flexibility and supports efficient execution to meet project demands.

C. <u>VIPP and BSRP Project Construction:</u>

Construction field activities begin with the preparation of construction area for work, which sometimes involves survey and locating, trenching, excavating, and potholing activities where various portions of the pipeline must be exposed prior to construction to confirm the location of pipe features. Once the construction area is prepared, pipeline laying and paving can proceed.

Construction activities are planned to efficiently execute the construction phase of the project. Company construction inspectors oversee the construction activities, performance, and safety of contractors for timely completion of each construction phase of the project. They also monitor the invoicing process of each project for accurate billing and timely allocation of funds. Sections I through VII detail the construction process.

I. Survey and Locating

Surveying and locating activities play a crucial role in determining the boundaries between public and private land. This is particularly important when it comes to placing a new pipeline on public land. If it is not possible to install the pipeline on public land, the necessary steps must be taken to secure an easement for private property. Before construction activities begin, survey and locate crews mark out

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the boundary line between public and private land. Additionally, surveying activities help determine the boundaries for temporary construction easements. Once the survey is complete, the next step is to identify the exact location of the pipelines and substructures before construction begins. Figure 1 shows part of the process of identifying substructures. Substructures must be located to identify if substructures conflict with the installation of the new gas line. This is done through a process called potholing, which involves excavating a small hole over the pipeline or substructures to validate their location and depth. Multiple excavations (detailed in part II) in pavement must be dug to prevent damage of substructures. Overall, surveying and locating activities are essential for the proper placement of pipelines and maintaining the integrity of boundaries between public and private land.

Figure 1. Substructure Identification

II. Trenching and Excavating

Trenching activities are a crucial part of the construction process. The trenching operation begins by outlining and saw cutting both sides of the trench. The paving is then removed, and a backhoe is used to excavate the road base and soil. In some cases, such as when exposing foreign substructures, hand digging may be necessary instead of mechanical digging. The trench is excavated to a depth that provides sufficient cover for the new pipeline and is typically around 18-24 inches wide.

In some cases, boring the pipeline instead of using open trenching can be advantageous. This is particularly useful when crossing under a freeway or a major highway. Boring operations eliminate the need for an open trench and cause minimal disruption to vehicle traffic. Additionally, by replacing trenching with boring operations, the amount of paving restoration required is significantly reduced. Boring operations involve bell-hole preparation and require a specialized crew and equipment. Figure 2 depicts a trenchless installation technique that eliminates the need for an open trench. Figure 3 depicts a pulling installation method which is a type of trenchless installation, used when soil conditions are hard and other methods cannot be used.

Figure 2. Trenchless Pipeline Installation Method

Figure 3. Pulling Installation Method

For certain trenching projects, shoring systems are required. Shoring becomes necessary when the excavation exceeds a depth of 5 feet or when the soil conditions are unstable. Examples of situations where shoring may be needed include railroad crossings or conflicts with storm drains.

City requirements may also apply to trenching projects, and these requirements are specified in the city excavation permit. They may include restrictions on working hours, the duration of open excavations, and the use of steel plates to cover open excavations. Figure 4 shows recess steel plates flush on a heavily traveled roadway, as required by the city in some instances. These plates cover open excavations, and recessing helps prevent loud noise complaints and vehicle damage at higher speed limits.

Figure 4. Recess Steel Plates over an Excavation

III. Pipeline Laying, Bending, and Welding

For both steel and plastic pipes, the joints are welded or fused together and placed on temporary supports. The welding and fusing process is carried out by the pipe crew and a dedicated welding crew. In cases where DIMP is replacing large-diameter steel pipes, special pipeline equipment called side booms are used by the pipe crew to lift each joint of pipe, align it with another joint, and make the initial weld pass known as the stringer bead. Before the welding

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process can begin on steel pipes, ultrasonic testing (UT testing) is required to assess the wall thickness. This step verifies that the proper wall thickness is achieved before welding. If the desired thickness is not met, the weld location is adjusted to another spot on the pipe.

IV. Backfill and Paving

Once all the welds and pipe coatings have passed inspection, and the survey crews have recorded the locations of the pipe, fittings, and valves, the backfilling process can commence. To provide protection, the pipeline is surrounded by a bed of sand. Additionally, a minimum of 12 inches of zero-sack slurry is placed on top of the pipe. The specific type of backfill material and the compaction requirements are determined by the city permit, which also includes specifications for the final asphalt paving. The specific backfill material is based on permit requirements, soil conditions, or job specific requirements. Figure 5 shows the removal of additional asphalt during paving restorations. This is required in city standards for paving restoration structural reasons.

Figure 5. Removal of Asphalt During Paving

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V. Final Tie-In and Commissioning

The final pipeline tie-ins are installed and undergo inspection. The line is then tested for odorization. Figure 6 depicts SCG crew placing a customer's houseline on natural gas tank to prevent interruption to customer's service as part of the tie-in process. Additionally, pressure control fittings are installed to provide gas service to the newly installed gas main (Figure 7). Odor conditioning is employed only for steel pipes with a diameter of 6 inches or greater and a length of 1,000 feet or more. Both newly installed steel and plastic pipes are subjected to a Cursory Odor Check. If no gas odor is detected, the Engineering Analysis Center (EAC) is contacted to address the issue. Once the odorization is successfully achieved, the tie-in process is considered complete. The new section of the main is fully pressurized and operational, allowing for all services to be connected to the new main. Customer Services can then perform gas restores for all affected residences. Finally, the pipeline identified for DIMP replacement can be abandoned.

Figure 6. Houseline placed on Natural Gas Tank

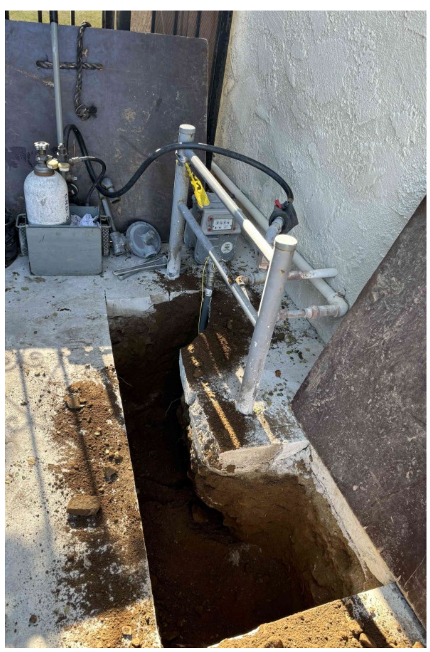

Figure 7. Installation of Pressure Control Fitting

VI. Cleanup, Restoration, and Commissioning

After the pipeline is returned to service, site restoration is completed within 20 days. This includes demobilization, repaving, and landscaping per permit and landowner requirements. The construction team finalizes paperwork before project reconciliation.

VII. Changes During Construction

Pipeline replacements in urban areas face challenges such as space constraints, substructure conflicts, and traffic control. While some issues are planned for, unexpected challenges may arise, requiring adjustments beyond the original scope and estimated costs. Construction Managers document any changes or issues that arise in the field. Smaller unforeseen costs are managed with a Change Order, while major costs require PMO and Integrity Management approval. PMO assesses cost impacts, coordinates decisions, and advises Planning and Construction on how to proceed.

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VIII. VIPP and BSRP Closeout and Reconciliation

The DIMP VIPP and BSRP reconciliation process focuses on assessing, processing, and archiving information as the package proceeds with close-out. Firstly, a package review is performed once a project has been completed. The construction inspector will start the review of the as-built, gas handling, gas service order (GSO), and other documents from the project package. Any unforeseen challenges during the construction phase will be depicted in the as-built, gas handling, GSO, and other documents. Once the construction inspector completes the package review, the construction project specialist will further review the documents to verify accurate information and prevent delays during the reconciliation process. As the construction project specialist completes their review, the package is delivered to the corresponding planning office. Planning will then assess the information provided in the package. Any discrepancies encountered will be communicated with the construction project specialist and construction inspector to resolve and update package documents. Once planning completes its review, it will be provided to the Work Order Control (WOC) team to process and archive package document information.

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II. VIPP and BSRP Mileage Replacement

Table 1 below details forecasted mileage under VIPP and BSRP versus actuals.

Table 1. VIPP and BSRP Mileage – Forecast v. Actuals

	GRC Forecasted	Actuals				
	2019	2019	2020	2021	2022	2023
Total VIPP Mileage	78	46	82	97	109	106
Total BSRP Mileage	29	28	33	43	47	49
Combined Program Mileage	107	74	115	140	156	155

III. Actual Costs

Actual costs include Labor, Material, and Services incurred to execute the program. Table 2 are the actual loaded costs incurred between 2019-2023.[2]

Table 2. VIPP and BSRP 2019-2023 Actual Costs[3]

	VIPP			BSRP		
Direct Costs ($)	**Capital[4]**	**O&M**	**Total Actual**	**Capital[5]**	**O&M**	**Total Actual**
Company Labor	45,153,251	4,153,003	49,306,254	23,219,353	4,794,797	28,014,150
Contract Costs	405,660,709	2,273,074	407,933,783	274,900,096	4,141,770	279,041,865
Material	5,667,431	450,127	6,117,558	4,903,276	500,695	5,403,972
Other Direct Charges	15,401,427	2,336,901	17,738,328	10,649,037	2,321,139	12,970,176
Total Direct Costs	**471,882,817**	**9,213,106**	**481,095,923**	**313,671,762**	**11,758,401**	**325,430,163**
Indirect Costs ($)	**Capital[6]**	**O&M**	**Total Actual**	**Capital[7]**	**O&M**	**Total Actual**
Overheads	175,729,420	2,434,927	178,164,347	123,168,589	2,496,323	125,664,912
AFUDC	5,686,648	0	5,686,648	4,423,717	0	4,423,717
Property Taxes	809,108	0	809,108	652,506	0	652,506
Total Indirect Costs	**182,225,177**	**2,434,927**	**184,660,103**	**128,244,813**	**2,496,323**	**130,741,136**
Total Costs ($)	**Capital[8]**	**O&M**	**Total Actual**	**Capital[9]**	**O&M**	**Total Actual**
Total Loaded Costs	**654,107,994**	**11,648,032**	**665,756,026**	**441,916,575**	**14,254,724**	**456,171,299**

[2] Certain indirect costs and CWIP do not contribute to the DIMPBA revenue requirement that is presented in the Prepared Direct Testimony of Rae Marie Yu (Chapter III).
[3] Values may not add to total due to rounding.
[4] Ibid.
[5] Ibid.
[6] Ibid.
[7] Ibid.
[8] Ibid.
[9] Ibid.

Distribution Riser Inspection Project (DRIP)

I. Program Execution

The DRIP PAAR addresses the threat of failure of anodeless risers, which are service line components that have shown a propensity to fail before the end of their useful lives. SoCalGas applies an epoxy wrap to the anodeless riser which provides a barrier against above-ground corrosion. In addition, mini riser vaults (MRVs) are installed on risers that are set low. There are approximately 2,400,000 anodeless riser units that have the potential to be an integrity threat due to premature failure.

To address the issue concerning the threat of failure of anodeless risers, SoCalGas has created a program to mitigate these risks through Inspections and Evaluations.

Figure 6 is a high-level workflow of the DRIP Process. Specifics of the inspection and evaluation process are detailed below.

Inspections and Evaluations: Inspectors operate out of designated regions: NW (Northwest) or SE (Southeast). Inspectors will assess site conditions based on ease of access, safety of access, size of the area, and required work. SoCalGas strategically planned inspections based off of geographical areas for cost efficiency.

Riser inspection proceeds as follows:

The contractor first identifies the riser as anodeless or steel. If the riser is anodeless, the contractor performs the inspection and remediation process. If the riser is identified as steel, the contractor updates the electronic order and the process is complete.

The contractor will check the riser and meter set assembly (MSA) for indications of a gas leak. If gas leak indications are present, the contractor will notify the appropriate company personnel who can initiate a leak investigation. The leak investigation, and any repairs, are performed in conjunction but are not under DRIP scope.

Figure 1 depicts an anodeless riser before remediation, and Figures 2 and 3 depict anodeless risers after an epoxy wrap is applied.

Figure 1. Anodeless Riser Before Remediation

Figures 2 and 3. Anodeless Riser After Remediation

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If the service valve is below final grade of earth or is low in paving, different actions are taken. Actions may include raising the service valve to apply the epoxy wrap. Figures 4 and 5 depict before and after a low in paving solution.

Figure 4. Before Low in Paving Solution

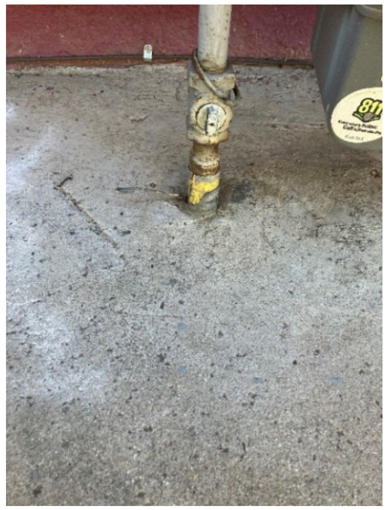
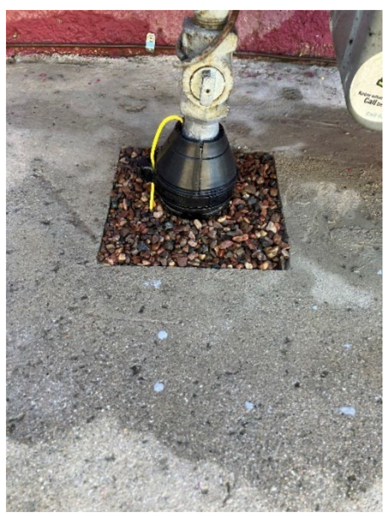


Figure 5. After Low in Paving Solution



SoCalGas DRIP Team Leads and Inspectors perform Quality Control/Quality Assurance on a random sampling of remediations performed by contractors. This entails a field visit to verify the work was properly performed.

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Figure 6. DRIP Process Workflow

[redacted]

II. DRIP Inspections

Actual counts represent riser locations where mitigation has been performed, reducing the likelihood of premature failure of the risers, as well as the threat to public safety and property damage. Table 1 details the number of DRIP inspections completed during 2019-2023.

Table 1. DRIP Inspections – Forecast v. Actuals

	GRC Forecasted	Actuals				
	2019	2019	2020	2021	2022	2023
Inspections	180,000 - 190,000	205,333	194,446	196,886	207,533	211,432

III. Actual Costs

Actual costs include Labor, Material, and Services incurred to execute the program. Table 2 are the actual loaded costs incurred between 2019-2023.[1]

Table 2. DRIP 2019-2023 Actual Costs[2]

Direct Costs ($)	Capital Costs	O&M Costs	Total Actual Costs
Company Labor	0	17,793,704	17,793,704
Contract Costs	0	50,290,921	50,290,921
Material	0	2,908,005	2,908,005
Other Direct Charges	0	287,142	287,142
Total Direct Costs	**0**	**71,279,772**	**71,279,772**
Indirect Costs ($)	**Capital Costs**	**O&M Costs**	**Total Actual Costs**
Overheads	0	13,590,576	13,590,576
AFUDC	0	0	0
Property Taxes	0	0	0
Total Indirect Costs	**0**	**13,590,576**	**13,590,576**
Total Costs ($)	**Capital Costs**	**O&M Costs**	**Total Actual Costs**
Total Loaded Costs	**0**	**84,870,348**	**84,870,348**

[1] Certain indirect costs and CWIP do not contribute to the DIMPBA revenue requirement that is presented in the Prepared Direct Testimony of Rae Marie Yu (Chapter III).
[2] Values may not add to total due to rounding.

Final Workpaper for GIPP

Gas Infrastructure Protection Project (GIPP)

I. Program Execution

The Gas Infrastructure Protection Project (GIPP) addresses potential third-party vehicular damage to above-ground gas distribution facilities. Above-ground facilities refer to commercial and high-pressure meter set assemblies (MSAs). Vehicular impacts to above-ground facilities are identified as an "outside force damage" threat. During the TY 2019 GRC Cycle, SoCalGas identified, evaluated, and mitigated the threat to above-ground facilities by constructing barriers; relocating facilities; or installing excess flow valves on 19,976 above-ground facilities. GIPP mitigations additionally reduce risk to the public by providing enhanced visibility and physical warning.

The GIPP is executed to protect above-ground facilities from damage and/or reduce the potential consequences caused by escaping natural gas after vehicular collisions. To address this threat of vehicular damage to SoCalGas above-ground facilities, the GIPP mitigates these risks through:

- Review of Internal Data
- Inspections and Evaluations
- Mitigation

Figure 1 below provides an overview of the GIPP Process workflow, including internal data review, inspections, and mitigations of above-ground facilities.

Review of Internal Data: SoCalGas reviewed historical claims data where above-ground facilities were impacted by vehicular traffic to determine the characteristics for an algorithm that ranks the probability of occurrence. The results identified commercial and industrial (C&I) and high-pressure (HP) residential gas facilities as most vulnerable. SoCalGas analyzed the data and identified the C&I and HP residential facilities that were likely to require some type of mitigation, including installation of protective barriers, installation of excess flow valves, relocations, or abandonment.

Inspections and Evaluations: Above-ground C&I and HP residential facilities are evaluated using an algorithm that includes a categorization of factors that results in a risk assessment for any given facility at any proximity to vehicular traffic. Factors affecting the level of risk involve proximity to the intersection, speed & volume of traffic, and the design and quality of existing barriers. The results from the risk assessment are validated through field inspections and assessments. These inspections and assessments determine whether no action, standard mitigation, or non-standard mitigation are required. If determined to be necessary, SoCalGas meter protection is intended to provide protection for above-ground facilities from reasonably anticipated vehicular or other potentially damaging traffic through enhanced visibility and physical warning. Meter protection includes domestic meter guards, bollards, K-rails, W-rails, block walls, engineered walls, and vaults.

Mitigation: Selection of above-ground facility protection is based on site-specific variables and foreseeable risk of vehicle incidents. Figure 1 below details the selection and workflow process. Standard mitigation refers to the installation of meter guards or guard posts and is the primary form of mitigation. Non-standard mitigation refers to measures implemented when the facility is exposed to high-speed traffic and standard mitigations will not sufficiently protect the assets. In these situations, other mitigations such as facility relocation or the installation of specially designed protective devices may be necessary and are determined on a case-by-case basis. Table 1 summarizes the mitigation guidelines and different types of mitigations.

After reviewing an above-ground facility on site and determining whether a standard or non-standard mitigation is required, the following types of construction activities are performed in accordance with SoCalGas policy and best practices.

Construction inspectors provide oversight during the construction process so that mitigations are installed in accordance with design and standards. The GIPP team

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assesses program effectiveness through an evaluation of samples of completed mitigations. The mitigations are inspected for evidence of deterrence or damage and are documented to evaluate program effectiveness. This is an indicator that damage to the gas facility was potentially avoided by stopping vehicle collisions.

Final Workpaper for GIPP

Figure 1. GIPP Process Workflow

[redacted]

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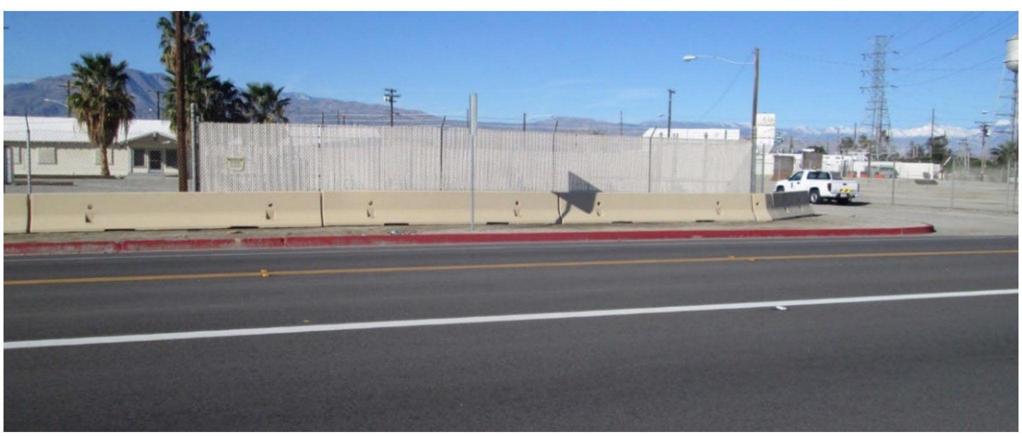
Table 1. Mitigation Guidelines

Mitigation Type	Asset Type	Potential Action (s)
Standard Mitigation	Medium/High Pressure	• Bollard Installation that does not require pipeline work.
Non-Standard Mitigation	Medium/High Pressure	• Protect in place by installing a wall, K-Rails, or W-Rails, which do not require pipeline work. • Relocate the gas facility. • Abandon the gas facility. • Install excess flow valve.

Figure 2. Bollards/ Standard Mitigation

Figures 3 and 4. Bollards/ Standard Mitigation After a Year in Service

Figure 5. K-Rail /Non-Standard Mitigation



II. GIPP Mitigations

Table 2 below details forecasted above-ground facility mitigations versus actuals.

Table 2. GIPP Above-ground Facility Mitigations – Forecast v. Actuals

	GRC Forecasted	Actuals				
	2019	2019	2020	2021	2022	2023
Non-Standards Mitigations		138	366	304	691	653
Standard Mitigations		5,521	4,011	2,082	3,127	3,096
Total Mitigations	4,400	5,659	4,377	2,386	3,818	3,749

The GIPP is in the latter portion of the program and there is an increase in non-standard mitigations. Non-standard mitigations are complex, requiring more design and engineering and longer project execution times. This leads to additional variation in total annual mitigations and the eventual decrease in annual counts, as seen in Table 2. To support this phase, 16,710 site assessments in 2019-2021 were conducted to validate conditions and identify potential risks at above-ground facilities before mitigation decisions are made.

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III. Actual Costs

Actual costs include Labor, Material, and Services incurred to execute the program. Table 3 are the actual loaded costs incurred between 2019-2023.[1]

Table 3. GIPP 2019-2023 Actual Costs Breakdown[2]

Direct Costs ($)	Capital Costs[3]	O&M Costs	Total Actual Costs
Company Labor	9,378,881	3,367,306	12,746,187
Contract Costs	37,609,723	930,043	38,539,767
Material	6,260,958	788,957	7,049,915
Other Direct Charges	4,946,742	1,182,807	6,129,549
Total Direct Costs	**58,196,305**	**6,269,113**	**64,465,418**
Indirect Costs ($)	**Capital Costs[4]**	**O&M Costs**	**Total Actual Costs**
Overheads	23,654,721	2,575,950	26,230,671
AFUDC	2,038,241	0	2,038,241
Property Taxes	401,803	0	401,803
Total Indirect Costs	**26,094,765**	**2,575,950**	**28,670,715**
Total Costs ($)	**Capital Costs[5]**	**O&M Costs**	**Total Actual Costs**
Total Loaded Costs	**84,291,070**	**8,845,063**	**93,136,132**

[1] Certain indirect costs and CWIP do not contribute to the DIMPBA revenue requirement that is presented in the Prepared Direct Testimony of Rae Marie Yu (Chapter III).
[2] Values may not add to total due to rounding.
[3] Capital costs are inclusive of CWIP.
[4] Ibid.
[5] Ibid.

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Sewer Lateral Inspection Project (SLIP)

I. Program Execution

The Sewer Lateral Inspection Project (SLIP) addresses the potential threat to pipeline integrity if trenchless gas pipeline installation inadvertency crosses a sewer lateral and penetrates, or bores, through it, creating a "cross bore". Depending on the encroachment of the pipeline, the damage to the sewer lateral can create an immediate blockage or a blockage that slowly and progressively worsens. The blockage may worsen enough to clog drains, requiring unplugging of the sewer line. Attempts to clear what is seemingly normal sewer debris and blockage may cause damage to the pipeline and leak gas into the sewer line. The unwanted gas migration can result in a hazardous condition that poses risks to gas infrastructure and the public.

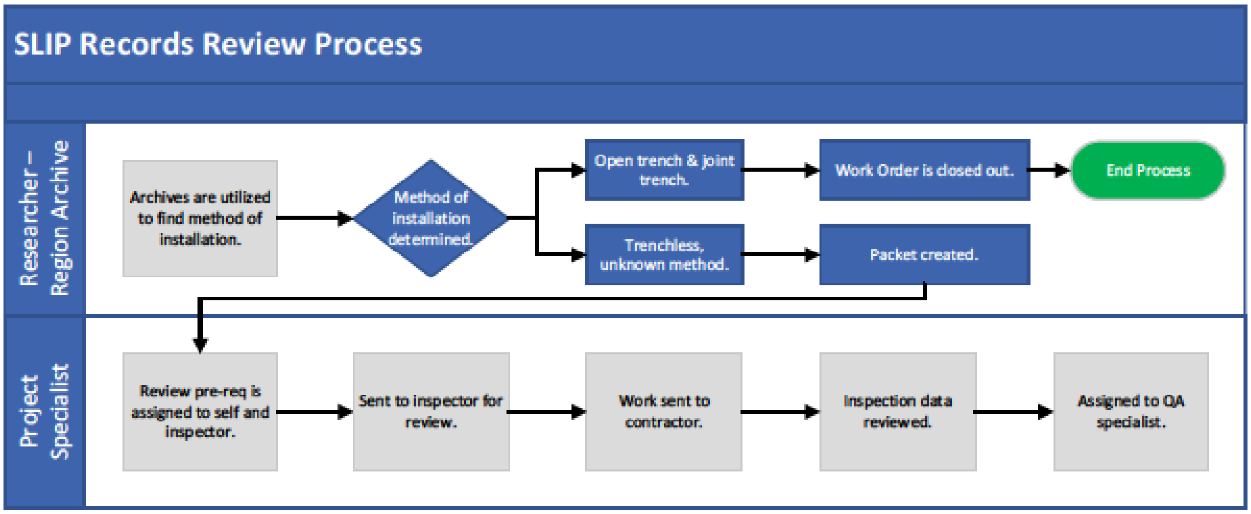
The SLIP mitigates the risks of potential cross bores through:

- Review of Internal Data
- Inspections and Evaluations
- Remediation/Construction

In addition, to identifying and addressing cross bores, SoCalGas conducts public outreach to proactively educate plumbing contractors, equipment rental companies, and municipalities of this potential issue.

Review of Internal Data: The first step in the SLIP process consists of a comprehensive review of pipeline installation records (e.g., Enterprise Geographic Information Systems (eGIS), construction documents) to determine whether the pipeline was installed using trenchless technology. The possibility of a cross bore exists wherever trenchless technology was utilized to install gas pipeline. Through this review of records, areas to be inspected are identified and inspections are scheduled. The process of records review is summarized in Figure 1.

Figure 1. SLIP Records Review Process



<u>Inspections and Evaluations</u>: Sewer laterals are inspected if they are adjacent to plastic mains installed utilizing trenchless technology. Areas requiring field inspection are scheduled upon receiving authorization (e.g., permitting) from the agency operating the sewer facilities. Efforts are made to balance work across the service territory and to minimize the impacts to the municipalities and/or sewer agencies and customers.

The primary means of verification is through a visual inspection of the sewer pipe utilizing inspection cameras. In areas where cameras are not able to confirm the absence of a cross bore, the verification is accomplished through the identification of the sewer lateral and natural gas pipeline locations through physical means (using pipeline locating equipment or excavation) or through review of mapping resources. The process of field inspections is summarized in Figure 2.

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Figure 2. SLIP Field Inspection Process Workflow

[redacted]

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Remediation/ Construction: If a cross bore is identified, the cross bore is either repaired or, if appropriate, the pipe segment may be replaced. Cross bores are scheduled for immediate repair/replacement and notification is made to the customer so that tools are not utilized to clear the sewer line. Figures 3 and 4 are examples of a discovered cross bores. Figure 5 is an example of a repaired cross bore.

Figures 3 and 4. Discovered Cross Bores

Figure 5. Repaired Cross Bore

The remediation of a cross bore necessitates the repair of the sewer lateral and ensuring that the gas facility is no longer in conflict. Generally, this does not require any relocation of gas facilities. The remediation involves field work on customer property or the public right-of-way, which may require sewer agency permits, city permits, and sewer customer interruption.

In the rare case an alteration of the gas facility is necessary, there is typically no interruption of the customer's gas service.

For the remediation of a cross bore, an excavation permit is generally required because the sewer and gas pipelines need to be excavated and exposed for remediation. If the sewer pipeline is owned by an agency (versus a sewer lateral owned by a property owner), then a permit may be required from the agency to perform a repair on their pipeline.

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Each construction location presents unique requirements that are necessary for successful and safe construction, and construction crews must comply with any specific requirements imposed by the permitting agency. These specific requirements may include night work permits which may take many months to secure and final permit requirements may not be known until shortly before construction begins. Permits typically involve long lead times, negotiation of conditions, and sometimes last-minute agency requirements. Permits are issued by local, state, or federal agencies and address natural resources — land, air, water, vegetation, and wildlife — as well as the interests of the public (e.g., noise permits).

II. SLIP Records Review and Inspections

The SLIP control provides safety benefits by mitigating the risks to public safety and property damage. Table 1 details the forecasted records review and inspections versus actuals. Record reviews beyond GRC forecasted levels will result in earlier identification of required field inspections and resolution of potential risks.[1] The SLIP has identified cross bores each year as shown in the final row of Table 1.

Table 1. SLIP Records Reviews, Inspections and Discovered Cross Bores – Forecast vs. Actuals

	GRC Forecasted	Actuals				
		2019	2020	2021	2022	2023
Record Reviews	500,000	452,181	631,043	614,633	399,653	333,323
Field Inspections	60,000	48,672	62,835	66,411	76,274	72,657
Discovered Cross Bores		65	43	46	55	59

[1] Advice No. 6224-G. Request for Recovery of the post-2011 Distribution Integrity Management Program Balancing Account (DIMPBA) Balance (dated November 17, 2023); https://tariffsprd.socalgas.com/view/filing/?utilId=SCG&bookId=GAS&flngKey=4644&flngId=6224-G&flngStatusCd=Approved

III. Actual Costs

Actual costs include Labor, Material, and Services incurred to execute the program. Table 2 are the actual loaded costs incurred between 2019-2023.[2]

Table 2. SLIP 2019-2023 Actual Costs[3]

Direct Costs ($)	Capital Costs	O&M Costs	Total Actual Costs
Company Labor	0	8,374,081	8,374,081
Contract Costs	0	51,850,101	51,850,101
Material	0	290,215	290,215
Other Direct Charges	0	400,166	400,166
Total Direct Costs	**0**	**60,914,564**	**60,914,564**
Indirect Costs ($)	**Capital Costs**	**O&M Costs**	**Total Actual Costs**
Overheads	0	6,466,258	6,466,258
AFUDC	0	0	0
Property Taxes	0	0	0
Total Indirect Costs	**0**	**6,466,258**	**6,466,258**
Total Costs ($)	**Capital Costs**	**O&M Costs**	**Total Actual Costs**
Total Loaded Costs ($)	**0**	**67,380,822**	**67,380,822**

[2] Certain indirect costs and CWIP do not contribute to the DIMPBA revenue requirement that is presented in the Prepared Direct Testimony of Rae Marie Yu (Chapter III).
[3] Values may not add to total due to rounding.

APPENDIX

Acronym	Term	Definition
	Aldyl-A Polyethylene	Aldyl-A is a is a trademarked name referring to a polyethylene pipeline product manufactured by the DuPont chemical company. Aldyl-A polyethylene (PE) pipe is used in natural gas distribution systems. Certain vintages are known for their susceptibility to degradation over time (due to low ductile inner wall characteristics and/or low resistance to slow crack growth) necessitating replacement in high-risk areas.
	Anodeless Riser	Distribution service component used for transitioning from underground polyethylene (PE) piping to above ground steel piping. They are designed to not the require cathodic protection by eliminating buried gas-carrying steel piping.
	Boring	The trenchless method of installing a pipeline where an underground path for the pipeline is created with minimal disturbance to the surface.
CP	Cathodic Protection	A technique by which the external surface of underground metallic pipe may be protected against corrosion by applying an electrical current to the metal surface, making it the cathode of an electrochemical cell.
CU	Compatibility Unit	An SAP term for materials (individual or multiple) and/or labor units needed to build the job. CU's are similar to AU's. (Assembly Units, or AUs, are individual material or labor units needed to build the job).
	Cross Bore	A cross bore is where, during installation, a pipeline inadvertently penetrates an existing sewer line, posing risks to pipeline integrity and public safety.
	Cursory Odor Check	A quick release of natural gas into atmosphere that is sniffed to determine if odorant is detectable by smell.
	Dynamic Segmentation	Dynamic segmentation refers to dividing a pipeline into unique segments based on varying characteristics, such as test pressure, pipe material, or operating pressure. This method supports risk assessment and project planning by prioritizing high-risk or poor-performing segments.
eGIS	Enterprise Geographic Information System	A geographic information system (GIS) application that organizes, relates, and displays gas distribution asset data within spatial, network, and mapped environments.
	Epoxy Composite Wrap	A wrap made of lightweight, high-strength material that is applied to an anodeless riser, providing a barrier against above-ground corrosion.

APPENDIX

Acronym	Term	Definition
EFV	Excess Flow valve	A device installed on a gas service line that limits or shuts off the flow of gas if it detects a sudden, excessive increase in flow—typically caused by a break or severe damage to the service line.
GIS	Geographic Information System	An application that organizes, relates, and displays data within spatial, network, and mapped environments.
GSO	Gas Service Order	A form used to authorize and document any gas service pipeline work, including installation, modification, or abandonment of pipelines.
HPPD	High Pressure Pipeline Database	A geographic information system (GIS) database that stores attribute and characteristic data for pipelines that operate over 60 psig.
	Lay-Down Yard	A designated area on a construction site where materials, tools, equipment, and vehicles are temporarily stored until needed.
LDIW	Low Ductile Inner Wall	A characteristic affecting Aldyl-A polyethylene pipe, with an oxidized inner surface that predisposes it to initiate cracks faster (brittleness). This brittleness and resulting shortened crack initiation time leads to dramatically reduced overall pipeline longevity through a failure mechanism known as slow crack growth.
MSA	Meter Set Assembly	The meter, regulator(s), and associated fittings required to connect the gas service riser to a customer's piping system.
MRV	Mini Riser Vault	A casing comprised of a body and cap designed to serve as a barrier against soil and debris intrusion.
NDE	Non-Destructive Examination	An inspection technique that does not damage the item being examined. This technique includes visual, radiography, ultrasonic, electromagnetic and dye penetrant methods.
	Odorization/ Odor Conditioning	The process of adding a detectable odor to odorless gas to help identify leaks and maintain safety within the pipeline.
	Potholing	An excavation technique used to locate known subsurface structures. Potholing is most often used when a contractor needs to verify the depth, size, or type of underground utility.

APPENDIX

Acronym	Term	Definition
PCF	Pressure Control Fitting	A fitting placed on the pipe to provide functionality in controlling the flow of pressure or gas in the pipe by interrupting or introducing the flow of gas in an active pipeline system.
	Radiographic Inspection	A non-destructive testing method that uses X-rays or gamma rays to examine the internal structure of materials or components, detecting flaws such as cracks without damaging the structure.
	Riser	Pipeline system component used for transitioning from underground piping systems to above ground steel piping systems.
	Service Valve (Stopcock)	An above ground shut-off valve located on the inlet side of the gas regulator or meter. It allows personnel to control the flow of gas to the customer's piping system, enabling isolation for maintenance, emergency shut-off, or service activation.
	Shoring	Techniques or systems to structurally support an excavation to prevent collapse.
	Soap Test	A leak test performed where soapy water is lathered over the welds or joints in the search for leaks.
UT	Ultrasonic Testing	NDE method that uses high-frequency sound waves to inspect pipelines and fittings, such as welds, to detect discontinuities. It is also used to measure wall thickness in order to determine if areas are affected by corrosion.

BEFORE THE PUBLIC UTILITIES
COMMISSION OF THE STATE OF CALIFORNIA

DECLARATION OF SHAENA WALKER
REGARDING CONFIDENTIALITY OF CERTAIN DOCUMENTS
PURSUANT TO D.21-09-020

I, Shaena Walker, do declare as follows:

1. I am the Director of Distribution PMO & Resource Management for Southern California Gas Company (SoCalGas). I have been delegated authority to sign this declaration by Amy Kitson, Vice President of Gas Engineering and System Integrity for SoCalGas. I have reviewed the confidential information included within SoCalGas-02-WP Workpapers Supporting the Prepared Direct Testimony of Mark Forster and Shaena Walker (Technical – Programs/Projects and Activities to Address Risk) ("DIMP Workpapers"). I am personally familiar with the facts and representations in this Declaration and, if called upon to testify, I could and would testify to the following based upon my personal knowledge and/or belief.

2. I hereby provide this Declaration in accordance with Decision ("D.") 21-09-020 and General Order ("GO") 66-D Revision 2 to demonstrate that the confidential information ("Protected Information") provided in the DIMP Workpapers is within the scope of data protected as confidential under applicable law.

3. In accordance with the legal authority described in Appendix A, the Protected Information should be protected from public disclosure.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge.

Executed this 15th day of August, 2025 at Los Angeles, California.

Shaena Walker

Shaena Walker
Director of Distribution PMO &
Resource Management
Southern California Gas Company

APPENDIX A

SoCalGas Request for Confidentiality on the following Protected Information in its Distribution Integrity Management Program (DIMP) Workpapers, Supporting the Prepared Direct Testimony of Mark Forster and Shaena Walker

Location of Data	Applicable Confidentiality Provisions	Basis for Confidentiality
SoCalGas-02-WP Workpapers ("DIMP Workpapers") supporting the Prepared Direct Testimony of Mark Forster and Shaena Walker (Execution of Programs/Projects and Activities to Address Risk) have been marked/highlighted as confidential pursuant to PUC Section 583, GO 66-D, and D. 21-09-020: Confidential Information: Trade Secrets (Business Process Flows and Standard Operating Procedures)	California Public Records Act (CPRA) Exemption, Gov't Code § 7924.510(f) (Trade Secrets) CPRA Exemption, Gov't Code § 7927.705 ("Records, the disclosure of which is exempted or prohibited pursuant to federal or state law") • Cal. Civil Code §§ 3426 et seq. (Uniform Trade Secrets Act) • D.13-11-025, 2013 WL 6202871 (2013) ("The contracting IOU should not be required to allow use or provide access to data or test results if such use or disclosure could compromise the safe operation or confidential operating details of any IOUs' infrastructure.") • O2 Micro Int'l Ltd. v. Monolithic Power Sys., Inc., 420 F. Supp. 2d 1070, 1089–1090 (N.D. Cal. 2006) ("It does not matter if a portion of the trade secret is generally known, or even that every individual portion of the trade secret is generally known, so long as the combination of all such information is not generally known.") • Cal. Int'l Chem. Co. v. Sister H. Corp., 168 F.3d 498, at *3-4 (9th Cir. 1999) (unpub.) (affirming the finding of confidentiality where a company's pool treatment system, the use of which was licensed per non-disclosure agreements, and training manuals, which contained valuable information that was developed over the years)	It is SoCalGas's practice to designate portions of their Standard Operating Procedures (SOP) (i.e., Gas Standards) as confidential because this data is considered proprietary, not currently published by PHMSA, and, if made publicly available, could potentially present a risk to public and pipeline safety, as well as a potential financial loss of future revenue as these documents could be monetized. The functions of these SOPs are not common knowledge, especially when they are associated with specific utility equipment and facilities. Such documents could potentially serve as a roadmap to nefarious activities if misused. Additionally, SOPs and training curricula documents are a collection of knowledge that have evolved over time. They may contain descriptions of unique systems of processes, technology, innovations, and procedures that the utilities have developed and improved upon over several decades. They may have evolved and been compiled from countless hours of ratepayer-funded activities, including field experience and laboratory testing, evaluating industry best practices, development of technical knowledge, and integration of manufacturer information. They have been finely tuned, over time, by knowledge gained and lessons learned. As such, they have intrinsic commercial value to an operator of a natural gas utility or someone who wants to know how to work on or operate portions of a gas utility system. Contractors, other utilities, or companies in the natural gas industry could use these documents for their own training or operational programs

	• Joshua David Mellberg LLC v. Will, 96 F. Supp. 3d 953, 965 (D. Ariz. 2015) (under the Uniform Trade Secrets Act, training materials and business plans may qualify as trade secrets). • By-Buk Co. v. Printed Cellophane Tape Co., 163 Cal. App. 2d 157, 166–67 (1958) (finding plaintiff's manufacturing methods were trade secrets and stating, "It is undoubtedly true that if [defendant] had used the same thought, labor and ingenuity which were used by plaintiff it might have been able to secure the same results that plaintiff did. But this fact does not destroy plaintiff's right not to have its processes wrongfully disclosed to others and used to its detriment.") • Navarro v. Eskanos & Adler, No. C-06-02231, 2007 WL 902550, at *6 (N.D. Cal. Mar. 22, 2007) (holding the "best practices" section and other portions of a debt collection agency's Training and Procedures Guide were confidential trade secrets).	and could be willing to purchase them. This information is subject to reasonable efforts to maintain its confidentiality by the use of non-disclosure agreements with contractors and vendors. Disclosure of this information could place the utilities at an unfair competitive advantage by creating a lost opportunity for reducing costs for utility ratepayers because these procedures were paid for by ratepayers and now they will be "free" to anyone that wants to use them for their own economic gain instead of potential revenues to offset the cost of training and procedure development for the utility.