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Proceeding: 2028 General Rate Case
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REDACTED

**SUPPLEMENTAL WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF DEVIN K. ZORNIZER
(GAS MAJOR PROJECTS)**

ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

VOLUME 1 OF 6

JUNE 2026



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**Introduction to Workpapers Supporting the Prepared
Direct Testimony of Gas Major Projects**

I. INTRODUCTION

The purpose of the introduction is to provide additional details for the supplemental workpapers supporting the zero-based forecasts for PSEP and GTSR Part 1 and reasonableness review for PSEP.

As described in testimony, SoCalGas PSEP and GTSR Projects are managed according to the Stage Gate Review Process¹ which sequences and schedules project workflow deliverables. Key design, management and execution actions and activities occur within and across the various stages. The Stage Gate Review Process for projects presented for review in this Application consisted of discrete stages with specific objectives for each stage, and an evaluation gate at the end of each stage to verify that those objectives have been met prior to proceeding to the next stage.

These workpapers are presented in the five sections that follow:

- Section II comprises SoCalGas's **PSEP & GTSR Forecast Project Workpaper Structure**. This section provides a description of the workpaper format.
- Section III comprises SoCalGas's **PSEP Reasonableness Review Project Workpaper Structure**. This section provides a description of the workpaper format.
- Appendix A contains a **Summary of Standard Planning and Construction Practices for Replacement, Hydrotest, Valve and Abandonment Projects**. This provides a synopsis of typical pre-construction and construction activities that occur during SoCalGas's pipeline and valve enhancement projects.
- Appendix B contains the **Glossary of Terms and Acronyms** that will assist in defining specific construction and financial terminology used throughout the workpapers.

¹ Refer to SoCalGas Direct Testimony of Devin Zornizer (Gas Major Projects), Section II.2.a.

II. SOCIALGAS PSEP & GTSR FORECAST PROJECT WORKPAPER STRUCTURE

The project workpapers that follow provide detailed information regarding the estimated cost for each of the four PSEP Phase 1B projects, 15 PSEP Phase 2A projects and 49 GTSR Part 1 projects that are included. The methodology used to develop these costs includes components that follow the guiding principles of Stages One (Project Initiation) through Three (Begin Detailed Planning) of the Five Stage Review process, which was established to promote efficient project execution. As stated in testimony, rather than presenting a forecast that relies on the execution of specific projects in specific years, SoCalGas is instead requesting authorization to establish a revenue requirement based on an anticipated level of executable spending from a portfolio of projects.

The Table of Forecast Projects provide a summary of relevant data for each project included in this Application: Line Number, Phase, project type (replacement, pressure test, abandonment, de-rate), direct costs (O&M, capital and total), mileage, and diameter.

Table 1 – PSEP Pipeline Projects in the 2028 Forecast

Project Workpaper Title	Phase	Project Type	O&M Costs	Capital Costs	Total Costs	Mileage (Miles)
Line 85 North Lake Station to Grapevine Road	1B	Replace	\$0	\$184,530,629	\$184,530,629	30.008
Line 85 Elk Hills Road to Lake Station	1B	Replace	\$0	\$133,613,406	\$133,613,406	13.036
Line 159	2A	Replace	\$1,837,164	\$971,559	\$2,808,723	0.132
Line 225 North Coles Levee	2A	Replace	\$0	\$7,625,419	\$7,625,419	0.092
Line 235 East Section 1	2A	Test	\$42,402,866	\$17,855,436	\$60,258,302	58.072
Line 235 East Section 2	2A	Test	\$34,110,532	\$18,640,203	\$52,750,735	56.346
Line 235 West Littlerock Station	2A	Replace	\$0	\$10,248,698	\$10,248,698	0.097
Line 404	2A	Test	\$5,372,467	\$3,383,200	\$8,755,668	6.088
Line 406	2A	Test	\$23,578,590	\$21,138,550	\$47,250,345	15.350
Line 1004 Section 2	1B	Replace	\$0	\$48,941,428	\$48,941,428	2.566
Line 3000 East	2A	Test	\$49,403,905	\$52,668,520	\$102,072,425	89.522
Line 4000	2A	Test	\$54,114,264	\$39,002,013	\$93,116,278	37.467
Supply Line 36-9-09 North Sections 11 & 13	2A	Test	\$4,542,789	\$1,835,370	\$6,378,159	1.446
Supply Line 36-1032 Section 14-Z	1B	Replace	\$34,662	\$2,598,392	\$2,633,054	1.057
Supply Line 38-362	2A	Test	\$7,716,314	\$2,017,792	\$9,912,182	7.309
Supply Line 38-539	2A	Replace	\$0	\$54,827,226	\$54,827,226	12.898

Project Workpaper Title	Phase	Project Type	O&M Costs	Capital Costs	Total Costs	Mileage (Miles)
Supply Line 38-952	2A	Test / Replace	\$2,932,882	\$20,981,618	\$23,914,500	9.226
Supply Line 44-306/ Supply Line 44-307 Retrofit	1B	Retrofit	\$0	\$117,283,014	\$117,283,014	1.025
Supply Line 44-729	2A	Replace	\$0	\$3,743,501	\$3,743,501	0.005
Supply Line 44-788 Station	2A	Replace	\$0	\$4,917,844	\$4,917,844	0.051

Table 2 – GTSR Part 1 Pipeline Projects in the 2028 Forecast

Project Workpaper Title	Project Type	O&M Costs	Capital Costs	Total Costs	Mileage (Miles)
Line 127	Test	\$0	\$6,495,866	\$6,495,866	1.248
Line 159	Test	\$0	\$5,252,737	\$5,252,737	0.604
Line 235 West	Test	\$0	\$30,081,741	\$30,081,741	8.794
Line 293	Test	\$0	\$3,792,092	\$3,792,092	0.363
Line 404	Test	\$0	\$ 38,671,223	\$ 38,671,223	10.941
Line 406	Test	\$0	\$20,135,796	\$20,135,796	7.820
Line 407	Test	\$0	\$14,497,851	\$14,497,851	4.962
Line 408	Replace	\$0	\$6,614,696	\$6,614,696	0.161
Line 1003	Replace	\$0	\$7,845,532	\$7,845,532	0.153
Line 1004	Test	\$0	\$14,494,590	\$14,494,590	3.420
Line 1015	Test	\$0	\$19,147,638	\$19,147,638	9.092
Line 1016	Replace	\$0	\$4,317,251	\$4,317,251	0.015
Line 1017	Test	\$0	\$50,312,149	\$50,312,149	6.686
Line 1018 Mission Viejo	Test	\$0	\$16,265,972	\$16,265,972	10.019
Line 1018 Santa Ana	Test	\$0	\$18,300,102	\$18,300,102	12.423
Line 1024	Test	\$0	\$6,170,646	\$6,170,646	0.449
Line 1172	Test	\$0	\$4,598,118	\$4,598,118	0.793
Line 1192	Replace	\$0	\$4,401,511	\$4,401,511	0.042
Line 2000 Moreno Valley	Test	\$0	\$8,521,804	\$8,521,804	0.314
Line 2003 South LA to Culver City	Test	\$0	\$16,792,589	\$16,792,589	11.690
Line 2003 Culver City to West LA	Test	\$0	\$13,031,703	\$13,031,703	4.557
Line 2003 Pico Rivera to South LA	Test	\$0	\$19,113,840	\$19,113,840	10.981
Line 3000 West	Test	\$0	\$15,939,966	\$15,939,966	1.278
Line 3006	Replace	\$0	\$4,444,100	\$4,444,100	0.026
Line 8045	Replace	\$0	\$5,626,042	\$5,626,042	0.127
Supply Line 30-09A	Replace	\$0	\$5,176,615	\$5,176,615	0.147
Supply Line 30-58	Replace	\$0	\$2,351,907	\$2,351,907	0.004
Supply Line 30-6291	Replace	\$0	\$1,041,556	\$1,041,556	0.0004

Project Workpaper Title	Project Type	O&M Costs	Capital Costs	Total Costs	Mileage (Miles)
Supply Line 32-28	Replace	\$0	\$5,553,315	\$5,553,315	0.174
Supply Line 32-3203BP1	Replace	\$0	\$220,603	\$220,603	0.0007
Supply Line 32-8037BP1	Replace	\$0	\$449,296	\$449,296	0.007
Supply Line 33-120	Test	\$0	\$7,732,462	\$7,732,462	0.307
Supply Line 35-20	Test	\$0	\$6,239,818	\$6,239,818	1.840
Supply Line 35-22	Test	\$0	\$2,391,240	\$2,391,240	0.289
Supply Line 36-6267	Replace	\$0	\$2,263,056	\$2,263,056	0.012
Supply Line 36-1001-IBP1	Replace	\$0	\$1,185,283	\$1,185,283	0.0008
Supply Line 36-6601-I	Replace	\$0	\$1,360,925	\$1,360,925	0.017
Supply Line 36-9-06	Test	\$0	\$8,239,595	\$8,239,595	0.474
Supply Line 36-9-14	Replace	\$0	\$1,930,903	\$1,930,903	0.024
Supply Line 36-9-22	Replace	\$0	\$1,606,166	\$1,606,166	0.105
Supply Line 38-576	Replace	\$0	\$1,285,080	\$1,285,080	0.007
Supply Line 41-11	Test	\$0	\$6,851,495	\$6,851,495	2.124
Supply Line 41-182	Replace	\$0	\$1,900,104	\$1,900,104	0.003
Supply Line 41-59	Replace	\$0	\$1,350,497	\$1,350,497	0.001
Supply Line 41-6501	Test	\$0	\$3,644,948	\$3,644,948	0.473
Supply Line 41-6505	Replace	\$0	\$1,289,347	\$1,289,347	0.002
Supply Line 41-66	Replace	\$0	\$1,448,796	\$1,448,796	0.004
Supply Line 43-1106	Replace	\$0	\$224,986	\$224,986	0.171
Supply Line 45-8036	Replace	\$0	\$215,121	\$215,121	0.007

Forecast project costs are estimated following AACE International Recommended Practice No. 97R-18, which defines classes of estimates based on project definition and anticipated accuracy. The projects addressed in the workpapers that follow were primarily estimated at a Class 3 level, with a small number of GTSR projects estimated at a Class 4 level². Each forecast workpaper follows the below format to provide relevant project details and the underlying assumptions informing the Basis of Estimate (BOE) for each project. An explanation describing each section's objective is as follows:

Project Cost Summary – Provides an overview of Direct O&M, Direct Capital, and Total Direct project costs.

Project Description – Provides overview of project scope, location, and unique project attributes.

² A Class 4 estimate is based on 1-15% project definition and typically results in final project costs that are within +50% to -30% of the estimated cost. In contrast, Class 3 estimates are based on 10-40% project definition and typically result in final project costs that are within +30% to -20% of the estimated amount.

Alternatives Considered – Describes alternatives to hydrotesting or replacement such as derating and/or abandonment).

Forecast Methodology – Describes the basis of estimated costs and the categories of costs considered in developing all project estimates.

Schedule – Describes the basis for the schedule used across all project estimates.

Overview and Satellite Maps – Two maps are provided (when applicable): a conventional map to provide the reader with general location of the project, and a satellite map that shows the type of terrain (urban, rural, river crossings, highways, etc.) the project traverses.

Project Mileage Table – The mileage for the project broken down by phase and accelerated and incidental miles, as defined in the glossary.

Material Cost Table – Estimate based on the type and quantities of material required for each project.

Construction Cost Table – Based upon input from construction contractors, assumptions made in the development of the construction component of the project, which generally account for approximately 50% of total project cost. General assumptions include a geographically based construction cost estimate, estimated construction schedule duration, working days and hours taking into consideration any working hour restrictions, type of pipe installation method for replacement projects, and other pertinent construction assumptions. Additional detailed construction information, including site mobilization/facilities, site management, material handling, traffic control, substructure location, postconstruction pressure test, final pipeline tie-in, abandonment of existing pipeline, paving, site restoration, site demobilization, and construction field overhead assumptions.

Environmental Survey / Permitting / Monitoring / Abatement Cost Table – Based upon evaluation of the project by PSEP Environmental Services, assumptions and associated costs regarding anticipated permitting, surveys, and monitoring, hazardous/non-hazardous waste containment/disposal, Permit fees, and mitigation fees. Identified environmental issues unique to the project are also listed.

Permits Cost Table – Provides assumptions and estimated costs for temporary construction encroachment within a municipality, city, county, state, or federal right of way or franchise.

Land & Right-of-Way Acquisition Cost Table – Assumptions include need for new easements, construction yards for the storage of material and construction trailers and associated permits and legal services.

Company Labor Cost Table – Anticipated activity and level of effort for SoCalGas management and represented personnel in support of the project.

Other Project Costs – Estimated costs of contracted Project Management and Engineering services.

III. SOCALGAS REASONSONABLENESS REVIEW PROJECT WORKPAPER STRUCTURE

The project workpapers that follow provide detailed components of the workpapers for the 16 PSEP Pipeline pressure test, replacement and valve enhancement projects subject to reasonableness review. These projects were primarily completed between January 2020 and December 2025. Trailing costs or adjustments posted after December 31, 2025 are not reflected in the totals shown in Table 2 below nor in the workpapers. These supplemental workpapers also fulfill the additional requirements set forth in D.24-12-074, including the provision of providing more information regarding FTEs and cost variance explanations.

Table 3 – PSEP Pipeline Hydrotest, Replacement and Valve Enhancement Projects for the 2028 GRC Reasonableness Review

Pipeline Workpaper Title	Project Scope (miles, rounded)			
	Hydrotest	Replace	Abandon	Derate
Alhambra Station Piping Replacement Project		0.006		
Line 1004 Section 1 and Section 3 Hydrotest Project	2.490	0.014		
Line 2001 West Santa Ana River Replacement Project		0.533	0.026	
Storage Line 128 Project	0.273	0.193		
Supply Line 31-08 Section 1 Replacement Project		0.006	0.002	
Supply Line 31-09-C Hydrotest Project	1.329	0.016	0.001	
Supply Line 31-25 Replacement Project		0.156	0.001	
Supply Line 31-6349 Replacement Project		0.0006		
Supply Line 32-09 [REDACTED] Replacement Project		0.005		
Supply Line 33-750 Haskell Station Replacement Project		0.095	0.022	
Supply Line 33-750 Hydrotest Project	0.917	0.009		
Supply Line 35-20-AB Replacement Project		0.081	0.001	
Supply Line 36-9-09 North Section 5B-01 Replacement Project		0.141	0.002	
Supply Line 38-1102 Replacement Project		0.017	0.018	
Supply Line 44-675 Lateral Replacement Project		0.024		
Wilmington Valve Enhancement Project - [REDACTED]	N/A	N/A	N/A	N/A

Each workpaper is divided into five sections: A) Project Introduction; B) Engineering, Design and Planning; C) Construction; D) Project Costs; and V) Conclusion.

A general explanation is provided for each section's objective is as follows:

A. PROJECT INTRODUCTION

1. Background and Summary

This section includes a high-level summary of the project scope which is also summarized in *Table 1: General Project Information*, providing overall project details such as mileage, pipe diameter and other attributes, construction start/stop, project costs, etc. The pipe vintage listed reflects the vintage of the Category 4 Criteria mileage³.

In addition, maps and satellite images are included to provide a perspective of the project in relation to the community it impacts and demonstrate the reasonable inclusion of accelerated and incidental pipe when remediating the Category 4 Criteria pipe segments and, when applicable, the rerouted pipeline alignment. Schematic drawings are sometimes included to illustrate and magnify pipeline interconnections and features that are not discernable from the map images.

B. ENGINEERING, DESIGN, AND PLANNING

1. Project Scope:

This section consists of *Table 2: Mileage Information* depicted by mileage type: Criteria, Accelerated, Incidental, New, and Total (both miles and feet). In some instances, an alignment offset, or rerouted pipeline results in "New" mileage that is greater than or less than the original route. The terms are defined as follows:

- Criteria Mileage is Phase 1A mileage. These are pipeline segments that lack sufficient documentation of a post-construction strength test to at least 1.25 times the MAOP and are located in Class 3 & 4 locations and Class 1 & 2 High Consequence Areas (HCA).
- Accelerated Mileage is pipeline that would otherwise be addressed in a later phase of PSEP under the approved prioritization process but has been advanced to Phase 1A or Phase 1B to realize operating and cost efficiencies. Accelerated miles may be Phase 1B or Phase 2 mileage.

³ Category 4: Pipelines segments that lack sufficient documentation of a post-construction strength test to at least 1.25 times the MAOP.

- Incidental Mileage is pipeline that does not fall within the scope of the Commission's directives in D.11-06-017 or California Public Utilities Code section 958, but is addressed as part of a PSEP project, where its inclusion is determined to improve cost and program efficiency, address constructability, or facilitate continuity of testing.
- New Mileage is an alignment offset or rerouted pipeline segment that resulted in mileage that is greater than the original route.

A high-level summary of the progression of the project chronicles the project evolution is typically organized as follows:

- 2011 PSEP Filing indicates the type of project (replacement or hydrotest) and the Phase 1A mileage type as submitted in A.11-11-002.
- Scope Validation summarizes the outcome of scope validation that included evaluation of existing pipeline documentation to confirm the project scope. Criteria mileage originally included for remediation may be increased or decreased due to the scope validation efforts. Criteria mileage may have been removed if a reduction in Maximum Allowable Operating Pressure (MAOP) is determined to be appropriate from a gas operating system perspective.
- Engineering, Design and Constructability summarizes the constructability factors that influenced the project design, mileage, route and construction methods.
- Final Project Scope summarizes the final project scope including mileage, construction method and other project activity, such as engineered crossings or new mainline valves (MLV) that contributed to the project complexity and/or cost.

2. Decision Tree Review

This section describes the Decision Tree Review that confirmed or modified the 2011 PSEP filing project's designation as either a pressure test or replacement project. In some instances, and after careful review, abandonment is recommended, if it is determined that the pipeline is no longer needed for reliability from a gas operating system perspective. An additional option, reducing the operating pressure, is also considered if doing so does not result in any adverse customer impacts or system constraints. Typically, for pipeline projects greater than 1,000 feet in length, a Test-versus-Replace Review was conducted to compare costs of at least two scenarios (test or replace), and in some cases route alternatives were also considered. Project execution options are then presented to PSEP leadership at a stage gate review and approval is given to move forward with

more detailed engineering and design efforts for the recommended project type. The workpapers summarize the relevant data points that were known at that time which influenced leadership's approval of the review. These data points are listed in the workpapers. Included are only the data points that influenced the review.

1. Shut In Analysis – describes the conditions, if any, when this pipeline can be shut in and if alternate service is available.
2. Customer Impacts – describes the impact, if any, to customers should a shut in be necessary.
3. Community Impacts – describes the construction activity impact on the neighboring community, typically traffic and noise impacts. The project alignment and route were influenced by the desire to minimize the impact on the community.
4. Permitting Conditions – lists the known jurisdictional agencies in the construction area.
5. Piggability – states if the existing pipeline was/is piggable.
6. Pipe Vintage – reflects the predominate vintage of the preexisting Category 4 Criteria mileage pipeline segments.
7. Existing Pipe Attributes – lists the known pipeline features that could prevent the pipeline from being pigged or features that would need to be addressed prior to a hydrotest.
8. Longseam Type – states the longseam type, if known.
9. Longseam Repair History – provides a summary of recorded history of repair to the pipeline section.
10. Condition of Coating – provides a description of the coating, if known.
11. History of Leaks - provides a summary of recorded history of leaks on the pipeline section.
12. Constructability – describes the known factors that influenced the preliminary project design such as geographic constraints, existing substructures, adjacent highways, railroads, waterways, etc.
13. Other – describes other factors that influenced the Decision Tree Review.

3. Engineering, Design, and Planning Factors

This section summarizes the notable engineering, design and planning activities. Planning is initiated by the analysis of pipeline attribute records, survey and mapping activities and site visits. During the initial planning and design process, information is updated, and new information is acquired regarding the permit conditions, existence of substructures, land rights, environmental

issues, etc. that may differ from the original assumptions. These data points serve to influence the routing and design of the project, and the project schedule.

Once the detailed design is finished and construction documents are completed, necessary permits and authorizations are attained, pipeline materials are purchased, received, inspected, and prepared for turnover to the construction contractors. Material procurement is identified in two main phases, long-lead items and short-lead items. Long-lead material is identified and purchased at the 30% design stage while short-lead material is identified and purchased at the 60% design stage. When possible, SoCalGas acquires materials by aggregating anticipated material needs (bulk purchasing) from many projects thereby making periodic purchases for larger quantities of material at a lower unit cost.

The information that influenced the preliminary pre-construction design described in this section of the workpaper and will include a summary of the conditions that influenced the preliminary pre-construction design and was the basis for the preliminary cost estimate. Only the relevant factors that impacted the project design are listed in the workpaper.

4. Scope Changes

This section describes any major scope or redesign changes made after the preliminary design and estimate was authorized. Changes are initiated to accommodate constructability or scheduling challenges⁴ and can occur at any stage of the project lifecycle. Scope changes are authorized and documented using a scope change form. The revised project scope and design, given all the unique conditions and constraints of each project, considers cost effectiveness, system operation efficiencies, mitigation of customer and community impacts, and system capacity. The incremental costs associated with scope changes are *not* reflected in the estimated costs in Tables 4 and 5.

It is important to note that in some instances, when there are obstacles that apply to only a portion of the project, a project scope change involves the sectionalizing of the project so that the

⁴ Examples of the challenges frequently encountered are permit or land use restrictions, environmental constraints, customer impacts, traffic and other community impacts, system constraints, or pipe conditions identified once the pipe is exposed through potholing efforts.

unimpeded sections can be remediated as soon as practicable. The remaining sections are postponed until the obstacles have been addressed.

C. Construction⁵

1. Construction Contractor Selection

This section details the estimated Construction Contractor Costs and the final negotiated Construction Contractor costs. Construction activity begins with the selection of the Construction Contractor. For PSEP projects, the Construction Contractors are predominately selected through the Performance Partner Program process which is assigned to a geographical area. The Performance Partner Program allows for competitive pricing of projects and provides incentives associated with the program to encourage the Construction Contractors to further reduce costs. Occasionally, Performance Partners work outside their assigned regions to maintain a balance of work across all Performance Partners. When it was not practical to use a Performance Partner, the Construction Contractor was chosen through a competitive solicitation process.

In either instance, based on the Issue-for-Bid design (90% design drawing), a final scope of work (SOW) is prepared and provided to the Construction Contractor which is used to prepare a Target Price Estimate (TPE). Each Project executed by a Performance Partner required negotiation to reach an agreed-upon TPE. In a competitive bidding process, SoCalGas awarded the construction contract to the bidder that best met the selection criteria for the Project. For each Project, the workpaper will state if the project was executed through the Performance Partnership or through Competitive Bid with further details:

- SoCalGas preliminary, cost estimate for Construction Contractor costs is sometimes referred to as the Total Installed Cost (TIC).
- The Construction Contractor's Target Price Estimate (TPE) or bid and the variance between the final bid and SoCalGas preliminary estimate/TIC.

2. Construction Schedule

This section consists of *Table 3: Construction Timeline* depicting the construction start date, completion date and Notice of Operation (NOP) date for each project. For projects with more than

⁵ Construction Activities further detailed in Appendix A to these workpapers, which provides a description of the large variety of field activities that may take place on a PSEP pipeline or valve project.

one section, Table 3 will reflect the construction start date for the first section and the construction completion and NOP dates for the last section, if completed under different timelines.

3. Changes During Construction

This section summarizes the notable change orders that were initiated after the Project went to construction. Most of the pipeline replacement, hydrotest and abandonment projects presented for review are located in dense urban environments, which greatly adds to the complexity of the construction activities. Many of the construction challenges were mitigated and planned for; however, others were unanticipated and were addressed as they arose in the field. These unforeseen conditions may have required activities that were outside of the original scope of work upon which the TPE was established. As unexpected conditions were encountered during construction, the Construction Contractor described the conditions and proposed a solution to SoCalGas via a Request for Information (RFI) form. If authorized by the PSEP Project Manager, the solution was executed, and any incremental costs were documented via a change order. The workpapers for each project describe notable construction change orders (i.e. when the total construction change order costs are more than 10% of the TPE). Change orders are summarized in the workpapers and are categorized generally by cause.

4. Commissioning and Site Restoration

This section describes site restoration activities that are typically completed several weeks or even a month or more after the pipeline is returned to service. The site is demobilized, test water is disposed of or stored and removed for use on an adjacent project and the area is returned to its previous condition, which may include repaving and restoration of landscaping. Closeout activities are executed within the final months of the project lifecycle and include finalization of as-built drawings and uploading of updated information into the company's documentation and recordkeeping systems to reflect the final scope of work.

D. PROJECT COSTS

1. Cost Avoidance Actions

This section describes the notable cost avoidance decisions and actions that are described in the project workpapers. Because PSEP projects are thoughtfully and prudently designed with safety and cost efficiency at top of mind, not all cost avoidance actions are specifically noted, and it would be impractical to list all the costlier design options that were briefly considered and rejected. Some typical areas of cost avoidance and cost savings are derived from planning and design choices that include reduction of project scope, choice of materials or bulk purchasing of materials, project designs that eliminate or reduce features that would complicate routine maintenance activities to reduce future maintenance costs, and planning and coordination of the PSEP project schedule to incorporate other projects to share resources or avoid duplicative or wasted effort. Prudent negotiation of terms with landowners and permit terms, as well as shared land use, are additional means of avoiding costs. Finally, costs are avoided through prudent engineering and design decisions made in the field to address and mitigate unanticipated conditions revealed once the pipe was exposed or otherwise identified during the latter stages of project execution.

2. Cost Estimate

Estimating activities are initiated with the approval of the Phase 1 Work Order Authorization (WOA) reflecting the estimated costs for preliminary design, mapping, and survey activities. Subsequently, based on 30% design drawings, a Total Installed Cost (TIC) estimate was prepared using the most current version of the PSEP Estimating Tool. The TIC is presented to PSEP leadership and approval is required to move forward.

The TIC costs reflect Direct Costs only, which are typically used to prepare the Phase 2 WOA. The Phase 2 WOA includes Indirect Costs, and therefore, reflects the Total Loaded Project Cost estimate.

The approval of the Phase 2 WOA was required to proceed with execution of the project. Any significant project activities and costs subsequently added to the project scope after execution of the TIC would not be reflected in the estimated costs presented in Tables 4 and 5. These additional costs and activities are authorized and documented through the scope change process.

3. Actual Direct and Indirect Costs

The Estimated and Actual Costs shown in *Table 4: Estimated and Actual Direct Costs and Variances* in workpapers are defined as follows:

- Company Labor: Labor costs for SoCalGas employees charging directly to the project, such as project managers, engineers, land services personnel, environmental services personnel, communication and outreach managers, construction managers, and field support personnel.
- Materials: Costs for materials that SoCalGas purchased to complete the project, such as piping, valves, fittings, and other miscellaneous materials. Materials planned to be purchased by the construction contractor may be included in the construction contractor costs.
- Construction Contractor: Costs for Construction Contractor activity and materials or equipment acquired by the contractor. The actual Construction Contractor costs also include authorized change order costs and risk reward payments, minus construction credits, when applicable.
- Construction Management and Support: Costs for construction inspection, contamination mitigation, environmental monitoring, hydrotesting services, and other miscellaneous activities that occur in the field.
- Environmental: Costs for environmental assessments, monitoring, asbestos abatement, water and waste management, and miscellaneous environmental permits and fees not reflected in other cost categories.
- Engineering and Design: Costs for planning and design services, engineering, environmental services, land use and permitting fees not included in other categories, and project support, such as survey, mapping and miscellaneous expenses.
- Project Management Services: Contracted costs for project management services and general PSEP program support.
- ROW & Permits: Costs associated with permitting fees and land easement, or acquisition expenses not reflected in other cost categories.
- General Management and Administration (GMA) Costs: PSEP project support costs not directly tied to a specific project and incurred to support the overall implementation of PSEP

that are not included in Company Overheads. GMA costs were applied to projects prior to the 2019 GRC Decision directing PSEP to transition and utilize the GRC overhead framework.

Indirect Costs are listed in *Table 5: Estimated and Actual Indirect Costs, Total Costs, and Variances*. These costs are incremental overheads applied to PSEP projects. Indirect costs are for those activities and services that are associated with indirect costs – such as payroll taxes, pension, and benefits. Also included is interest that SoCalGas earns for funds used during construction for capital projects (AFUDC) and Property Tax for construction work in progress (CWIP) for capital projects.

The Actual Full-Time equivalents (FTEs) are included to provide context for the Company labor hours to support each pipeline project.

4. Cost Impacts

There are several factors that may cause a variance between actual and estimated costs. Most of the differences are attributed to one or more factors: 1) estimates are based on preliminary design, 2) reasonable changes in project scope are required to address conditions identified after the preliminary estimate is prepared, 3) Unforeseen and unplanned field conditions also contribute to variances between the preliminary estimate and actual costs. The purpose of this section is to describe some of those factors and how they influenced each of the project's overall cost variance.

5. Disallowances

Of the 16 PSEP pipeline projects presented for review in this Application, six projects addressed footages of post-1955 pipe that lacked pressure test records, making portions of those projects subject to disallowance. In the project workpapers for these six projects, the disallowed scope is described, and the calculation of disallowed costs is provided. The disallowed project costs are provided in the final workpapers for completeness, but the disallowed costs were previously recognized by SoCalGas, are not recorded in the PSEP balancing accounts, and are not included in the revenue requirement presented for review in this Application, as described in testimony.

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SCG PSEP Forecast Project Workpapers

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 85 NORTH PHASE 1B LAKE STATION TO GRAPEVINE ROAD REPLACEMENT PROJECT

Table 1: Total Direct Project Cost – All Capital

TOTAL PROJECT COSTS – CAPITAL	Stage 1^{1,2}	Stage 2³	Stage 3⁴	Stage 4⁵	Stage 5⁶	Total⁷
DIRECT LABOR	\$61,861	\$93,761	\$3,120,458	\$1,917,885	\$380,001	\$5,573,967
DIRECT NON-LABOR	\$320,021	\$175,406	\$60,023,504	\$116,083,142	\$2,354,589	\$178,956,662
TOTAL DIRECT COSTS	\$381,882	\$269,167	\$63,143,961	\$118,001,027	\$2,734,591	\$184,530,629

Project Description

The Line 85 North Phase 1B Lake Station to Grapevine Replacement Project will replace and reroute with approximately 21 miles of new [REDACTED] pipeline. The new pipeline will be rerouted from the existing pipeline alignment to avoid private properties and roads where practical, by installing it along public roadways thus enhancing the safety of the pipeline. The Project will also permanently abandon or remove the existing [REDACTED] associated with this section of Line 85 pipeline. The Project starts at Lake Station and ends at Grapevine Road in Kern County. The replacement will be completed in one mobilization. Due to the offset of the new alignment, additional distribution work will be required as part of the project scope, to allow for existing customers to be served from the rerouted alignment. The existing Transmission Line-8105 and Distribution Supply Line 44-670 will also be replaced. Additionally, a new Supply Line 38-103 will be constructed to re-establish connection with Supply Line 38-100.

Associated distribution work includes the installation of approximately 3.2 miles of [REDACTED] pipeline (Supply Line 38-103) to connect Supply Line 38-101 to Supply Line 38-101-A, installation of approximately 3.5 miles of [REDACTED] pipeline from the Supply Line 38-101 Extension (Ext.) to connect to Kelly Pump Station (KPS Ext.). This work includes a horizontal direction drill (HDD) under an aqueduct. This Project will also install a cross connection with Line 225, two regulator stations, pressure limiting stations, a pig launcher at Wheeler Ridge and receiver at Lake Station, three mainline valves (MLVs), and fiber optic monitoring for gas leak monitoring and early detection of ground movement.

Alternatives Considered

Line 85 North is a primary feed to the SoCalGas system. Abandoning or derating the pipeline would reduce the capacity of the system resulting in an inability to meet customer demand. To maintain system capacity, this pipeline cannot be abandoned or derated.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC estimate includes direct costs associated with project management, engineering and design, environmental permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with

¹ Project Initiation.

² Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

³ Preliminary Design.

⁴ Detailed Design.

⁵ Construction.

⁶ Closeout.

⁷ Values may not add to total due to rounding.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 85 NORTH PHASE 1B LAKE STATION TO GRAPEVINE ROAD REPLACEMENT PROJECT

AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

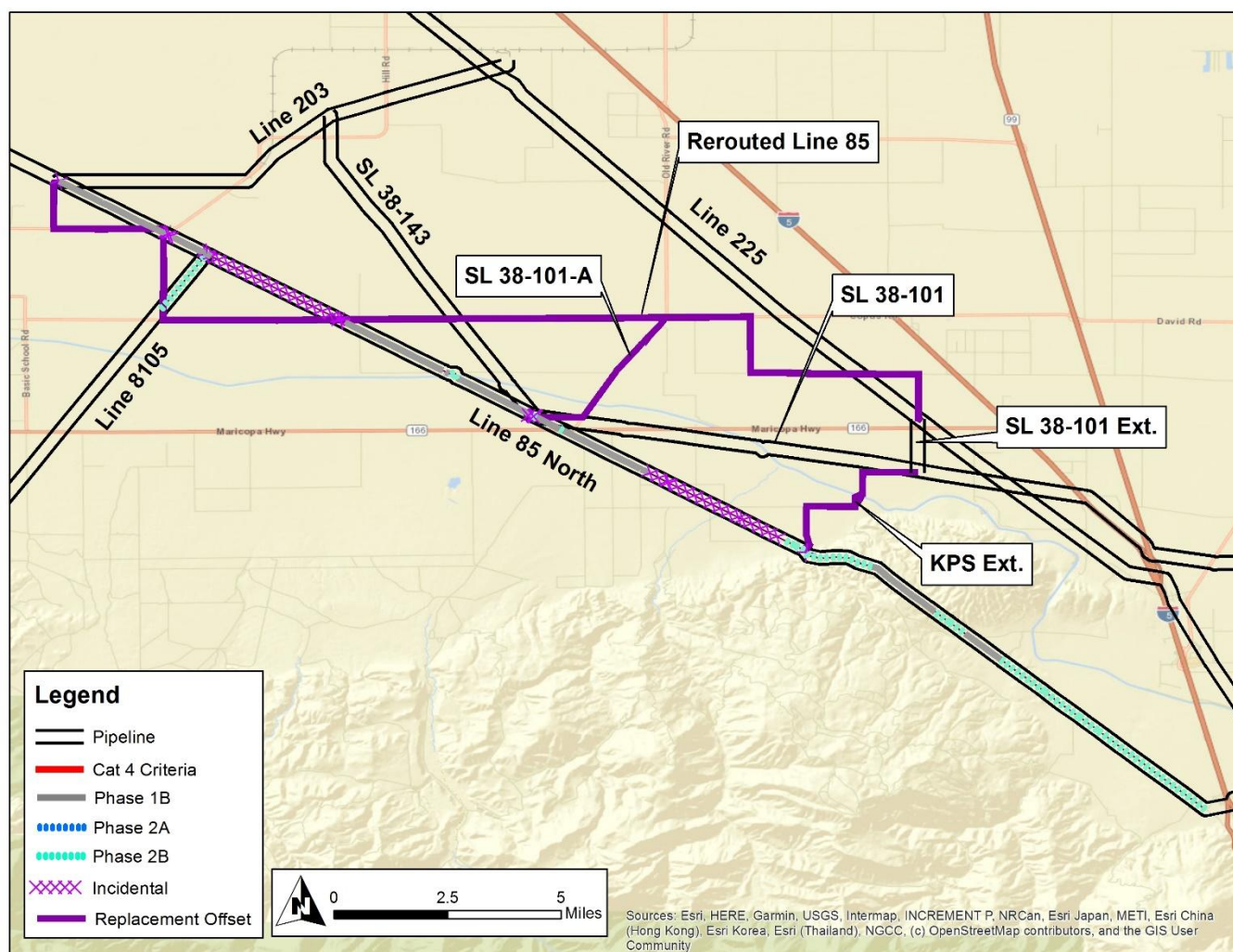
Schedule

The schedule was developed based on the five-stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input, considering that typically 50% of the project costs are expended during the construction phase. The construction schedule is assumed to be 334 days.

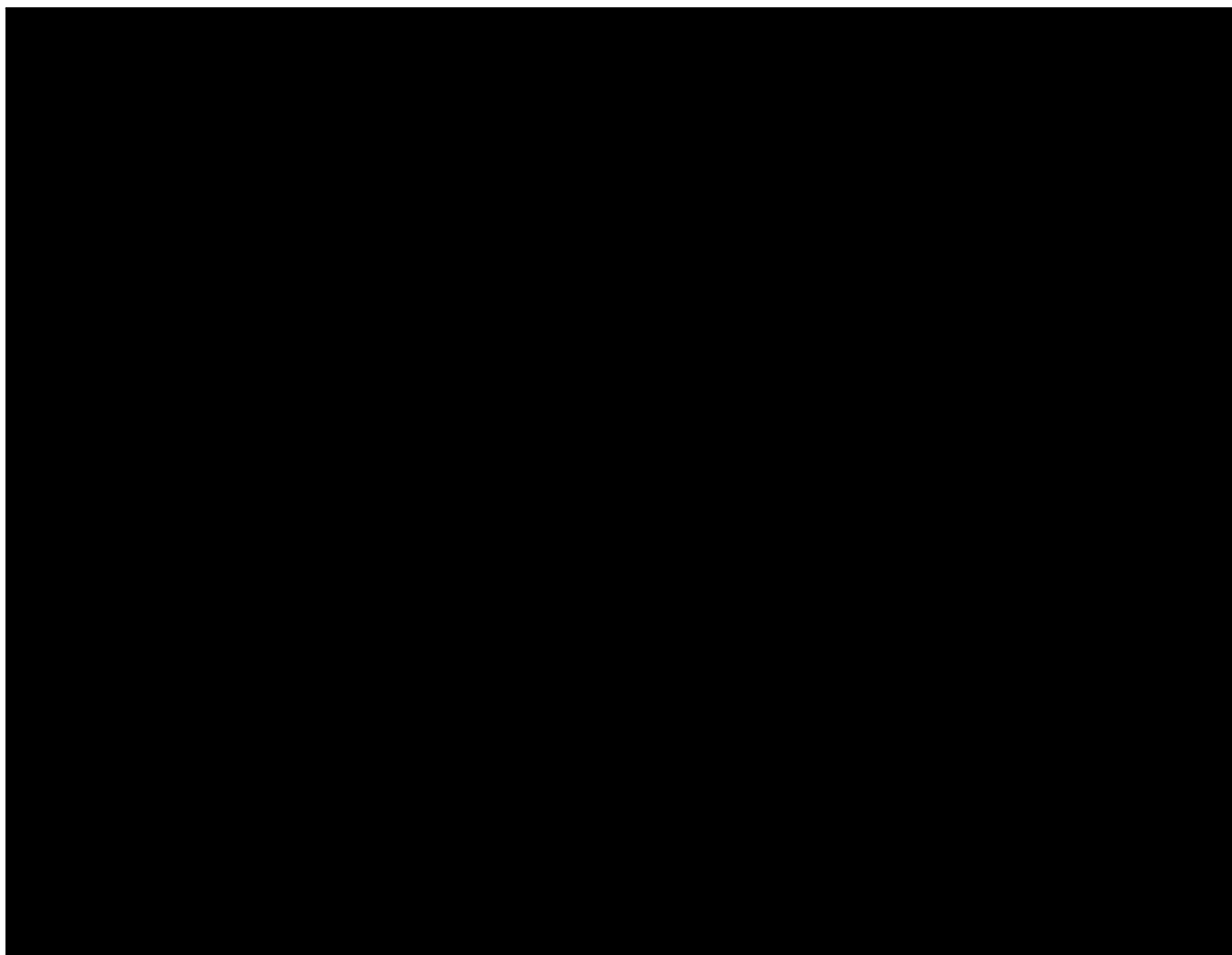
Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 85 NORTH PHASE 1B LAKE STATION TO GRAPEVINE ROAD REPLACEMENT PROJECT

Figure 1: Overview Map for Line 85 North Phase 1B Lake Station to Grapevine Road Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 85 NORTH PHASE 1B LAKE STATION TO GRAPEVINE ROAD REPLACEMENT PROJECT

Figure 2: Satellite Map for Line 85 North Phase 1B Lake Station to Grapevine Road Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 85 NORTH PHASE 1B LAKE STATION TO GRAPEVINE ROAD REPLACEMENT PROJECT

Table 2: Project Mileage

PHASE	MILEAGE
PHASE 1B	11.710
ACCELERATED	9.171
INCIDENTAL	5.977
REPLACEMENT OFFSET	3.150
TOTAL MILEAGE	30.008

The direct costs for each area are summarized below.

Table 3: Material

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$0	\$26,845,785	\$0	\$0	\$26,845,785
TOTAL DIRECT COSTS	\$0	\$0	\$26,845,785	\$0	\$0	\$26,845,785

Assumptions

Materials for this project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 3.5 miles of [REDACTED] pipe.
- 3.7 miles of [REDACTED] pipe.
- 21 miles of [REDACTED] pipe.
- 40 feet of [REDACTED] pipe.
- Two [REDACTED] and Two [REDACTED] Pressure Control Fittings (PCFs).
- Six [REDACTED] ball valves.

Table 4: Construction

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$0	\$123,447	\$102,503,110	\$0	\$102,626,557
TOTAL DIRECT COSTS	\$0	\$0	\$123,447	\$102,503,110	\$0	\$102,626,557

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 85 NORTH PHASE 1B LAKE STATION TO GRAPEVINE ROAD REPLACEMENT PROJECT

General Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization.
- Work has been scheduled using a 10 hour per day, five-day work week.
- Five crews will be utilized for the installation of the mainline pipeline, trenchless crossings, lateral connections, and pressure limiting stations.
- One crane will be utilized for pipe removal crew to execute the planned removal of the existing California Aqueduct spans.
- Installation of fiber optics on the replaced segment of Line 85, including at horizontal directional drilling (HDD) crossings and slick bore crossings.
- Non-Destructive Examination (NDE) and X-Ray of welds have been included.
- Construction Management and Inspection Services for the duration of construction is included.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Two office trailers for management and inspection personnel at each of the two main laydown yards.
 - One office trailer for management and inspection personnel at the central laydown yard.
 - One generator at the main laydown yards.
 - Office equipment, light plants, toilets, equipment containers and associated equipment and supplies for the duration of 16 months.
- **Site Preparation**
 - Three main laydown yards, two on each end of pipeline and one in a central location.
 - Four additional small laydown yards for equipment and supplies are distributed along the right-of-way (ROW).
- **Site Management / Best Management Practices (BMPs)**
 - Laydown yard and drain protection, straw wattles, and sandbags.
 - 14 track-out plates at road crossing and access points to laydown yards.
 - Environmental fencing on both sides of ROW for all farmland crossings and open country areas.
- **Material Handling**
 - 331 loads of material will be unloaded at laydown yard and transported as needed.
 - Majority of mainline pipe to be received in quadruple random lengths (QRL) at 80 ft joints.
- **Traffic Control**
 - Daily road closure will include signs, cones, and barricades.
 - Traffic control flaggers will be utilized for potholing and pipeline installation on all roads.
- **Utility Locates**
 - Assumes a utility crossing at an average of every 500 feet.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 85 NORTH PHASE 1B LAKE STATION TO GRAPEVINE ROAD REPLACEMENT PROJECT

- **Pipeline Excavation / Fabrication / Installation**
 - Sawcut and demolition of existing asphalt at a depth of [REDACTED]
 - Transport and disposal of demoed asphalt.
 - Excavation, layout, weld, string, coating of pipeline, backfill and base pave.
 - Fabrication included for two [REDACTED] test heads
 - Fabricate, test and install launcher and receivers.
 - Installation of three Regulator Stations.
 - Installation of four Pressure Limiting Stations.
 - Fabricate, install, coat all piping, and valve assemblies for two automated mainline valves.
 - Install approximately 128 pipeline markers, assumed every 1,000 linear feet (LF).
- **Trenchless Technology**
 - Import 62 tons of crushed aggregate for base material for slick bores.
 - Import 225 tons of washed bedding sand for padding of pipe at each of the six entrance and exit pits.
 - Perform 605 feet of slick bore operations at three separate crossings.
 - Create two Horizontal Directional Drill (HDD) pads for HDD installation and pulling.
 - Excavate two tie-in pits for connection of HDD pipe.
 - Three separate [REDACTED] slick bores totaling approximately 700 LF will be performed to crossroads, railroads creeks and environmentally sensitive areas.
 - Perform single HDD of 585 feet of [REDACTED] pipe.
 - Backfill two tie-in pits with native backfill material.
- **Cathodic Protection**
 - Installation of 76 test stations.
 - 70 metallic line pin brazing.
- **Fiber Optic**
 - Installation of fiber optics for the entire length of Line 85 (approximately 21 miles), including at all HDD and slick bore crossings.
- **Isolate Existing Pipeline**
 - Mainline isolation will be completed using PCFs at various locations along project.
 - Includes the fabrication, testing and installation of three bypasses at Elk Hills, ID6809T, and Wheeler Ridge Station.
 - Nitrogen truck included for system purge.
- **Hydrotest / Pressure Test Pipeline**
 - Preparation and installation of lake tanks.
 - Line 85 pipeline to be tested in one segment.
 - Lateral pipeline to be tested in two segments.
 - Filling of the pipeline will take Four 12-hour shifts for Mainline Line 85.
 - Remaining pipeline sections will occur over 12 hour day to test each segment, one day for each section.
 - Included 15 shifts to dewater to Lake Tank at the end of Line 85 Mainline Hydrotest.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 85 NORTH PHASE 1B LAKE STATION TO GRAPEVINE ROAD REPLACEMENT PROJECT

- **Tie-In Pipeline**
 - Include three Nitrogen Trucks to support the commissioning of the new piping.
 - Nine shifts for tie-in preparation.
 - Six 16-hour and two 24-hour tie-in shifts at various project locations.
 - 20 days to season pipeline.
- **Retire / Abandon Existing Pipeline**
 - Excavate, abate, cut, and remove existing [REDACTED] pipelines.
- **Site Restoration**
 - Grind and cap of existing asphalt for road repairs.
 - Right of Way will be graded and restored to its original condition.
 - Removal of approximately three miles of temporary fencing.
 - Removal of environmental fencing and BMPs.
 - Right of Way will be graded and restored to its original condition.
- **Site Demobilization**
 - Demobilization of equipment and six laydown yards.
 - Excess piping and materials to be loaded and transported offsite.
- **Field Overhead**
 - One Full-Time Project Manager.
 - One Full-Time Superintendent.
 - One Full-Time Cost Controller.
 - Two Full-Time Safety Personnel.
 - One Full-Time Timekeeper.
 - One Part-Time Scheduler.
 - Two security personnel during non-working hours.
 - Six drivers with water trucks, three material haulers, and five forklifts to be shared for the abandonment and pipeline installation.

Table 5: Environmental/Permitting/Monitoring/Abatement

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$30,382	\$4,076	\$13,605,674	\$12,048,584	\$469,260	\$26,157,977
TOTAL DIRECT COSTS	\$30,382	\$4,076	\$13,605,674	\$12,048,584	\$469,260	\$26,157,977

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 85 NORTH PHASE 1B LAKE STATION TO GRAPEVINE ROAD REPLACEMENT PROJECT

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys, and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.
- Permit Fees.
- Mitigation Fees.

The high-level assumptions and specific level of effort to provide environmental support for this project are described in more detail below.

- **Environmental Document Production and Project Management**
 - Environmental Consultants for preconstruction assessments, construction monitoring, and environmental closeout support.
 - Document production for environmental clearance and permitting requirements.
- **Abatement**
 - 83 days for abatement of ACMs.
- **Water Treatment and Hazardous Materials**
 - Hydrostatic test water, estimated at 2,600,000 gallons, to be acquired by the construction contractor.
 - Waste sampling and profiling anticipated to support disposal of waste generated during construction.
 - Hazardous and non-hazardous waste transport and disposal anticipated for various wastes (e.g. lead paint waste, pigs used to dry the pipeline post hydrotest, asbestos containing material, etc.).
- **Permit Fees**
 - Encroachment permits and traffic control plan permits have been included.
 - Caltrans Permits.
 - Kern County Permit.
 - Department of Water Resources.
 - Storm Water Pollution Prevention Plan (SWPPP) fees.
 - Dust Control Plan Fee.
 - California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement.
 - CDFW California Environmental Quality Act (CEQA) Cost Recovery Agreement.
 - CDFW Section 2081 Incidental Take Permit.
 - U.S. Fish and Wildlife Service (USFWS) Section 10 Habitat Conservation Plan.
 - Bureau of Land Management (BLM) Standard Form 299 Fee.
- **Mitigation Fees**
 - Compensatory Mitigation – assumes one to one mitigation ratio that would occur through purchase of credits at CDFW approved mitigation banks.
 - Monitoring and reporting onsite restoration for undeveloped BLM Land.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 85 NORTH PHASE 1B LAKE STATION TO GRAPEVINE ROAD REPLACEMENT PROJECT

Table 6: Land & Right-of-Way Acquisition

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$12,048	\$12,087,524	\$822,876	\$865,055	\$13,787,503
TOTAL DIRECT COSTS	\$0	\$12,048	\$12,087,524	\$822,876	\$865,055	\$13,787,503

Assumptions

In generating the total estimated cost for Line 85 North the following items were considered:

- **Labor**
 - Contract land agents for land acquisition.
 - Project Manager Support.
 - Administrative Clerical Support.
- **Land Acquisition**
 - 83 TREs have been included for project workspaces and laydown yards.
 - 37 non-exclusive easements have been included.
 - Six exclusive easements have been included.
 - 79 Appraisal Reports.
 - 79 Title Reports.
- **Crops**
 - Crop loss for impacted areas along pipeline route.

Factors such as location, zoning, current market price, and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry.

Table 7: Company Labor

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$61,861	\$93,761	\$3,120,458	\$1,917,885	\$380,001	\$5,573,967
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$61,861	\$93,761	\$3,120,458	\$1,917,885	\$380,001	\$5,573,967

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 85 NORTH PHASE 1B LAKE STATION TO GRAPEVINE ROAD REPLACEMENT PROJECT

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 8: Other Costs

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$289,640	\$159,281	\$7,361,074	\$708,571	\$1,020,274	\$9,538,840
TOTAL DIRECT COSTS	\$289,640	\$159,281	\$7,361,074	\$708,571	\$1,020,274	\$9,538,840

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Project Support Services
- Surveying and As-builts.

Pipeline Safety Enhancement Plan Workpaper Supporting SCG-06

LINE 85 [REDACTED] TO LAKE STATION REPLACEMENT PROJECT

Table 1: Total Direct Project Cost – All Capital

TOTAL PROJECT COSTS – CAPITAL	Stage 1 ^{1,2}	Stage 2 ³	Stage 3 ⁴	Stage 4 ⁵	Stage 5 ⁶	Total ⁷
DIRECT LABOR	\$1,103,970	\$94,727	\$2,896,740	\$1,884,307	\$269,051	\$6,248,795
DIRECT NON-LABOR	\$875,773	\$23,590	\$42,721,233	\$82,169,393	\$1,574,623	\$127,364,611
TOTAL DIRECT CAPITAL COSTS	\$1,979,743	\$118,316	\$45,617,972	\$84,053,700	\$1,843,674	\$133,613,406

Project Description

The Line 85 Elk Hills Road to Lake Station Project will replace approximately 10 miles of predominantly Phase 1B pipeline installed in 1931 with approximately 13 miles of new [REDACTED] diameter pipeline. The project is located in Kern County, California, extending from [REDACTED] to Lake Station. Connections between Line 85 and existing transmission and distribution supply lines will be replaced. The majority of the existing [REDACTED] Line 85 pipeline will be removed. To maintain service to customers, a new [REDACTED] pipeline will be installed to connect to existing Line 103. The project also includes the installation of three regulator stations, as well as valve automation and bridle valves at key locations along the new pipeline alignment.

The pipeline will primarily be installed using open trench. Approximately 2,400 feet will be installed via Horizontal Directional Drilling (HDD) across the California Aqueduct. The use of conventional bore techniques will be utilized to cross existing drainages along the proposed alignment. One casing bore is planned for the new pipeline to cross a State Highway. Incidental pipe is included to improve constructability by minimizing excavations and tie-in work due to re-routes related to a new alignment. This route minimizes impact to property owners and established farmlands along the existing route.

Alternatives Considered

This section of Line 85 is the sole source of supply to numerous customers, as well as the primary source of supply for multiple distribution and transmission systems including the San Joaquin Valley and Coastal areas. Abandoning this line would prevent these customers from being serviced. Because of this, abandonment is not a viable option. Derating the pipeline to less than [REDACTED] SMYS would reduce the capacity of the system resulting in an inability to meet customer demand and also is not an option.

¹ Project Initiation.

² Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

³ Preliminary Design.

⁴ Detailed Design.

⁵ Construction.

⁶ Closeout.

⁷ Values may not add to total due to rounding.

Pipeline Safety Enhancement Plan Workpaper Supporting SCG-06

LINE 85 [REDACTED] TO LAKE STATION REPLACEMENT PROJECT

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC estimate includes direct costs associated with project management, engineering and design, environmental, permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

Schedule

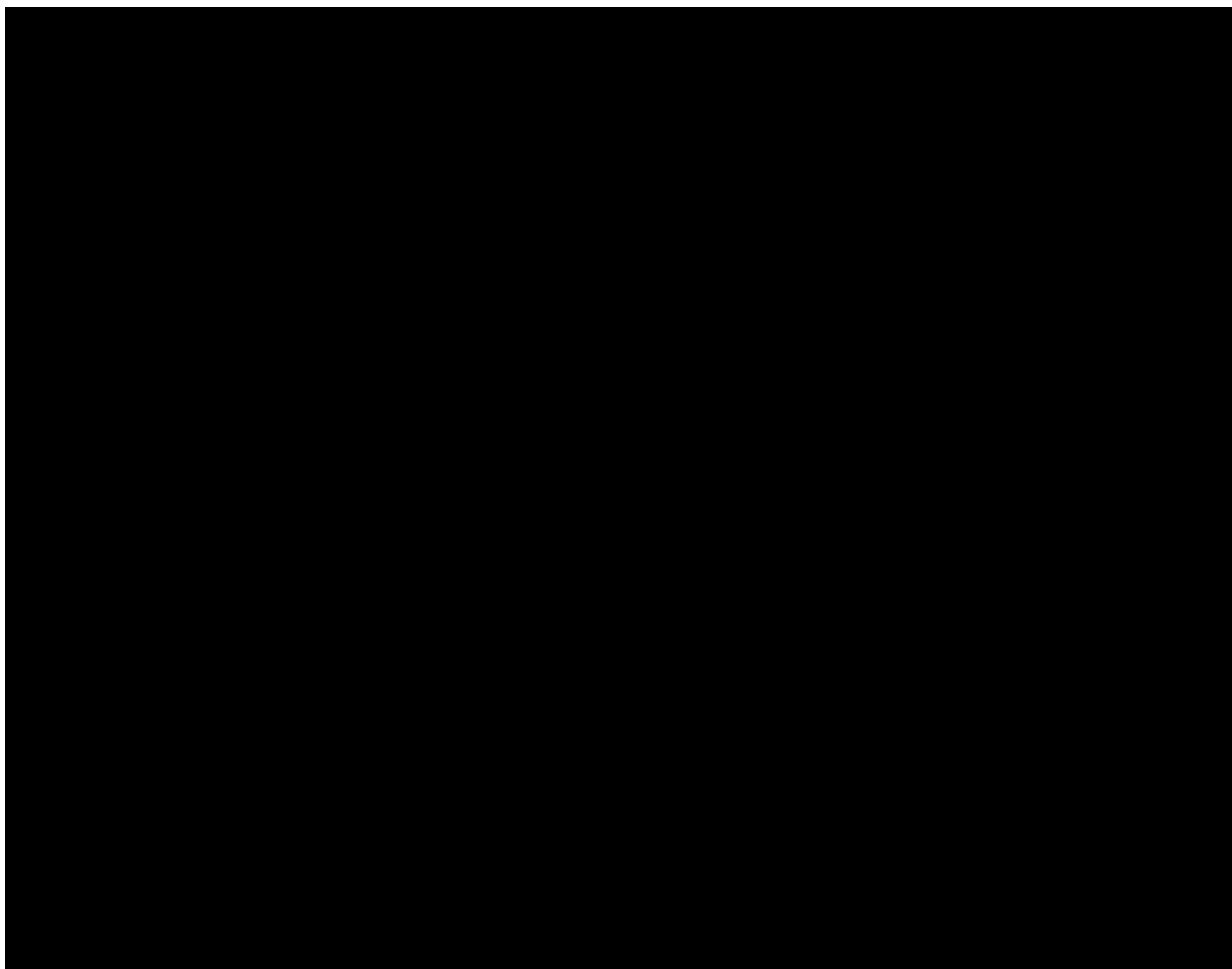
The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that the majority of the project costs are expended during the construction phase. The construction schedule is assumed to be 232 days.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

LINE 85 [REDACTED] TO LAKE STATION REPLACEMENT PROJECT

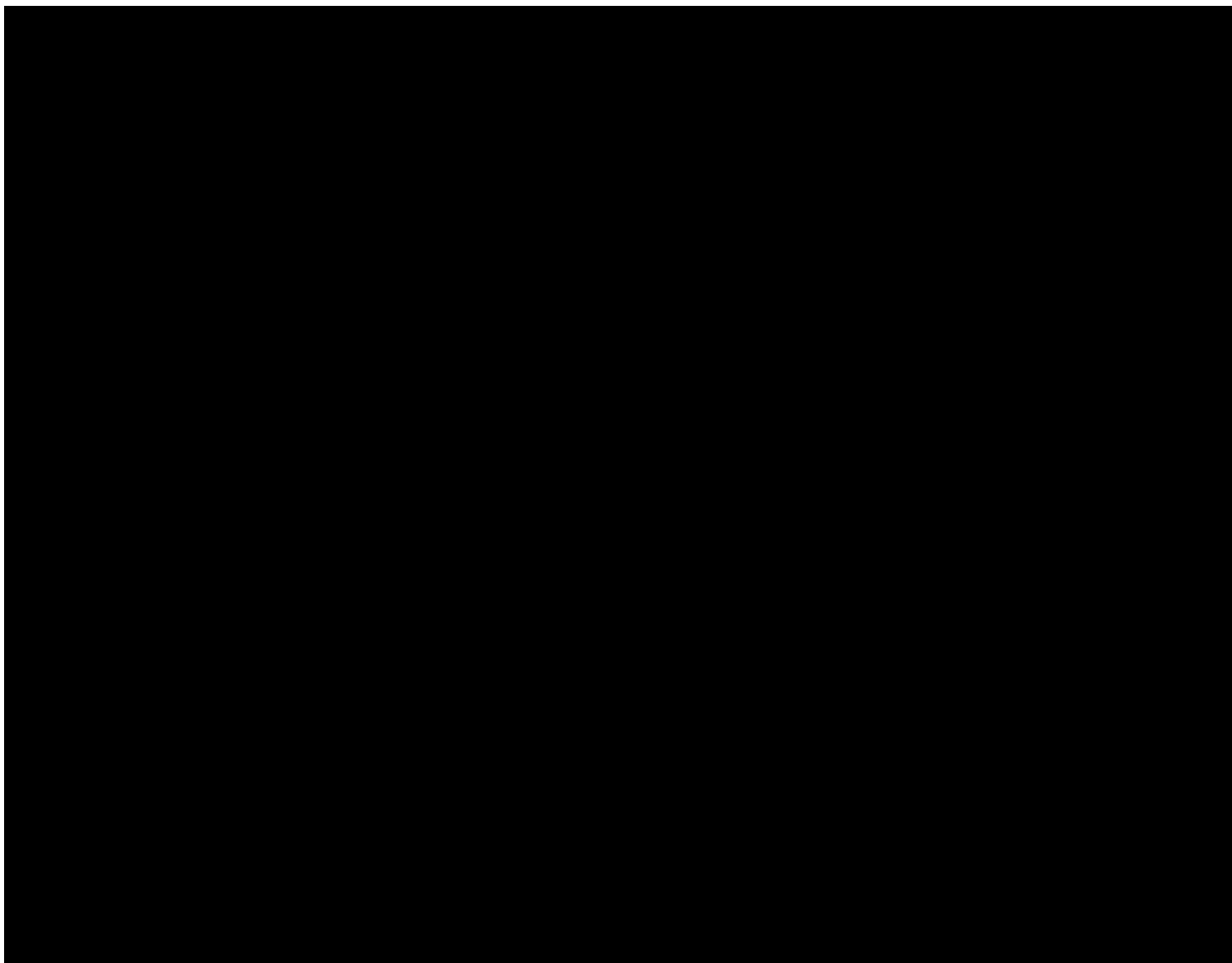
Figure 1: Overview Map for Line 85 Replacement Project [REDACTED] to Lake Station



Pipeline Safety Enhancement Plan Workpaper Supporting SCG-06

LINE 85 [REDACTED] TO LAKE STATION REPLACEMENT PROJECT

Figure 2: Satellite Map for Line 85 Replacement Project [REDACTED] to Lake Station



Pipeline Safety Enhancement Plan Workpaper Supporting SCG-06

LINE 85 [REDACTED] TO LAKE STATION REPLACEMENT PROJECT

Table 2: Project Mileage

PHASE	MILEAGE
PHASE 1B	9.321
INCIDENTAL	0.043
ACCELERATED	1.019
REPLACEMENT OFFSET	2.654
TOTAL MILEAGE	13.036

The direct costs for each area are summarized below.

Table 3: Material

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$15,356	\$0	\$21,812,277	\$0	\$0	\$21,812,277
TOTAL DIRECT COSTS	\$15,356	\$0	\$21,812,277	\$0	\$0	\$21,812,277

Assumptions

Materials for this project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 13 miles of [REDACTED] pipe.
- Four main line valves.
- Three regulator stations.
- Three [REDACTED] Pressure Control Fittings (PCFs).

Table 4: Construction

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$0	\$77,572	\$68,772,403	\$0	\$68,849,974
TOTAL DIRECT COSTS	\$0	\$0	\$77,572	\$68,772,403	\$0	\$68,849,974

Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization.

Pipeline Safety Enhancement Plan Workpaper Supporting SCG-06

LINE 85 [REDACTED] TO LAKE STATION REPLACEMENT PROJECT

- Work has been scheduled a 10 hours per day, five-day per week.
- There will be a total of three laydown yards.
- Isolation and final tie-ins will be completed in continuous operation.
- Five [REDACTED] slick bores will be performed to cross creeks and environmentally sensitive areas.
- Installation of fiber optics on the replaced segment of Line 85, including at horizontal directional drilling (HDD) crossings and slick bore crossings.
- Non-Destructive Examination (NDE) and X-Ray of welds have been included.
- Construction Management and Inspection Services for the duration of construction is included.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Four office trailers will be placed at the laydown yard for management and inspection personnel.
 - Site facility costs to cover the 11-month construction duration.
 - Crushed rock has been included for the laydown yards.
- **Site Preparation**
 - Temporary fencing has been included for the laydown yards.
 - Clearing of ROW anticipates seven tons of vegetation.
- **Site Management / Best Management Practices (BMPs)**
 - 12 track out plates for street access points.
 - Fiber rolls, erosion blankets, sandbags, reinforced poly sheeting, and silt fencing will be procured and installed for BMP measures.
 - BMP materials for spoil piles, laydown yards, and work sites.
- **Material Handling**
 - 187 loads of SoCalGas furnished material will be unloaded by the Contractor along the ROW.
- **Traffic Control**
 - Traffic control crew and equipment included for all roads impacted included as required by permit.
 - 116 Days of flagging for traffic control have been included.
- **Utility Locates**
 - 10 days have been included to perform ground penetrating radar of proposed pipeline route.
 - 29 days for locating and exposing existing utility crossings and 61 days to identify alignment of existing gas facilities.
- **Pipeline Excavation / Fabrication / Installation**
 - Sawcut and demolition of existing asphalt at a depth of 8-inch.
 - Transport and disposal of demoed asphalt.
 - Excavation, layout, weld, string, coating of pipeline, backfill and base pave included.

Pipeline Safety Enhancement Plan Workpaper Supporting SCG-06

LINE 85 [REDACTED] TO LAKE STATION REPLACEMENT PROJECT

- Fabrication included for two [REDACTED], four [REDACTED], and two [REDACTED] test heads.
- Fabricate, test and install launcher and receivers.
- Fabricate, install, coat all piping, and valve assemblies for four mainline valves (MLVs) and three regulator stations.
- Install approximately 100 pipeline markers.
- **Trenchless Technology**
 - Import 110 tons of crushed aggregate for base material required for slick bores.
 - Excavate and backfill 10 entrances and exits for slick bore operations.
 - Develop two HDD pads in preparation for HDD installation and pulling.
 - Excavate two pits for each tie-in for connection of the HDD pipe.
- **Isolate Existing Pipeline**
 - Isolation will be performed using five PCFs and one bottom out PCF.
 - Pipeline will be isolated and blown down in conjunction with tie-in activities.
 - Pipeline will not be separately isolated until new pipeline has been installed and tested.
- **Pressure Test Pipeline**
 - One lake tank included.
 - Filling of the mainline pipe will take one 24-hour shift and testing will occur during a 16-hour shift.
 - Testing the remaining pipeline sections will occur over a 10-hour shift, one day for each section.
 - Laterals will be hydrotested prior to tie-in.
 - Dewater and drying of the pipeline is included.
- **Tie-In Pipeline**
 - Six tie-ins have been included.
 - Tie-in procedure assumes a 24-hour shift per each [REDACTED] and over tie-in to complete and a 16-hour shift per each [REDACTED] and under tie-in to complete.
 - 10 days of pipeline seasoning have been included.
- **Paving / Retire / Abandon Existing Pipeline**
 - Paving restorations for affected areas included.
 - Excavate, abate, cut, and remove existing pipeline
 - Existing pipeline remaining in place will be purged and sealed.
- **Site Restoration**
 - Temporary fencing will be removed from the laydown yards.
 - ROW will be graded and restored to its original condition.
 - Restoration of disturbed soil at yards.
 - Hydroseeding of disturbed areas.
 - Installation of chain-link fencing for Lake Station and regulator sites.

Pipeline Safety Enhancement Plan Workpaper Supporting SCG-06

LINE 85 [REDACTED] TO LAKE STATION REPLACEMENT PROJECT

• **Site Demobilization**

- Demobilization of site facilities, crew, and equipment.
- 10 loads of excess piping will be hauled to SoCalGas designated yard.
- Five loads of tools and supplies to be removed from the project laydown yards.

• **Field Overhead**

- Full-Time Project Manager.
- Full-Time Cost Controller.
- Full-Time Superintendent.
- Full-Time Timekeeper.
- Two Full-Time Safety Personnel.
- Part-Time Scheduler.
- One Part-Time Scheduler.
- One frac tank for dust suppression.
- Two site security personnel for all non-working hours.
- Four water trucks with drivers, two haulers, and three forklifts for the duration of the project.

Table 5: Environmental/Permitting/Monitoring/Abatement

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$103,188	\$0	\$11,596,681	\$12,271,475	\$341,427	\$24,312,771
TOTAL DIRECT COSTS	\$103,188	\$0	\$11,596,681	\$12,271,475	\$341,427	\$24,312,771

Assumptions

In calculating the total estimated environmental costs for the Line 85 Elk Hills Road and Lake Station Replacement project, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.
- Permit Fees.
- Mitigation Fees.

SoCalGas Environmental Services support in addition to consultant support will be provided for the duration of project (e.g. planning, permitting, construction, and closeout). The high-level assumptions and specific level of effort to provide environmental support for this project are described in more detail below.

Pipeline Safety Enhancement Plan Workpaper Supporting SCG-06

LINE 85 [REDACTED] TO LAKE STATION REPLACEMENT PROJECT

- **Environmental Document Production and Project Management**
 - Environmental Consultants for preconstruction assessments, construction monitoring, and environmental closeout support.
 - Document production for environmental clearance and permitting requirements.
- **Abatement**
 - 40 days for asbestos and lead paint abatement
- **Water Treatment and Hazardous Materials**
 - Hydrotest water, estimated at approximately 1,800,000 gallons, to be obtained by construction contractor.
 - Assumes testing new pipe with potable water and disposal to land. Treatment of water is not required.
 - Hazardous and non-hazardous waste transport and disposal anticipated for various wastes (e.g. lead paint waste, pigs used to dry the pipeline post hydrotest, asbestos containing material, etc.).
- **Mitigation Fees.**
 - Compensatory Mitigation – assumes one to one mitigation ratio that would occur through purchase of credits at CDFW approved mitigation banks.
 - Monitoring and reporting onsite restoration for undeveloped BLM Land.
- **Permits**
 - Encroachment permits and traffic control plan permits have been included.
 - Caltrans Permits.
 - Kern County Permit.
 - Department of Water Resources.
 - Storm Water Pollution Prevention Plan (SWPPP) fees.
 - Dust Control Plan Fee.
 - California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement.
 - CDFW California Environmental Quality Act (CEQA) Cost Recovery Agreement.
 - CDFW Section 2081 Incidental Take Permit.
 - U.S. Fish and Wildlife Service (USFWS) Section 10 Habitat Conservation Plan.

Table 6: Land & Right-of-Way Acquisition

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$160,761	\$20,116	\$3,364,625	\$438,944	\$414,939	\$4,399,383
TOTAL DIRECT COSTS	\$160,761	\$20,116	\$3,364,625	\$438,944	\$414,939	\$4,399,383

Pipeline Safety Enhancement Plan Workpaper Supporting SCG-06

LINE 85 [REDACTED] TO LAKE STATION REPLACEMENT PROJECT

Assumptions

In generating the total estimated cost for Line 85 Elk Hills Road to Lake Station Replacement Project the following items were considered:

- **Labor**
 - Contract land agents for land acquisition.
- **Land Acquisition**
 - 31 TREs have been included for project workspaces and laydown yards.
 - 26 easements have been included.
 - 19 Appraisal Reports.
 - 19 Title Reports.
- **Crops**
 - Crop loss for impacted areas along pipeline route.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry permits.

Table 7: Company Labor

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$1,103,970	\$94,727	\$2,896,740	\$1,884,307	\$269,051	\$6,248,795
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$1,103,970	\$94,727	\$2,896,740	\$1,884,307	\$269,051	\$6,248,795

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs

Pipeline Safety Enhancement Plan Workpaper Supporting SCG-06

LINE 85 [REDACTED] TO LAKE STATION REPLACEMENT PROJECT

are duration dependent and activity specific.

Table 8: Other Costs

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$596,469	\$3,474	\$5,870,078	\$686,571	\$818,257	\$7,974,849
TOTAL DIRECT COSTS	\$596,469	\$3,474	\$5,870,078	\$686,571	\$818,257	\$7,974,849

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Project Support Services
- Surveying and As-builts.

Disallowance

In D.14-06-007, the Commission approved implementation of SoCalGas and SDG&E's PSEP, and disallowed recovery of specified costs associated with pressure testing or replacing pipeline segments installed after July 1, 1961. This decision was later modified by D.15-12-020 to include pipe installed from January 1, 1956 to July 1, 1961. The Line 85 Elk Hills Road to Lake Station Project includes 56 feet/0.011 miles of Category 4 pipe installed after January 1, 1956, that does not have test records to demonstrate compliance with the then-applicable industry or regulatory strength testing and record keeping standards. This resulted in an anticipated cost disallowance of \$13,523. The final value of the Line 85 Elk Hills Road to Lake Station Project cost disallowance will be adjusted once the project is placed in service.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

LINE 159 PHASE 2A HYDROTEST PROJECT

Table 1: Total Direct O&M Cost

PROJECT COSTS – O&M	Stage 1 ¹	Stage 2 ²	Stage 3 ³	Stage 4 ⁴	Stage 5 ⁵	Total
DIRECT LABOR	\$0	\$63,702	\$63,702	\$75,785	\$73,116	\$276,304
DIRECT NON-LABOR	\$0	\$100,263	\$103,639	\$1,287,467	\$69,491	\$1,560,860
TOTAL DIRECT O&M COSTS	\$0	\$163,965	\$167,340	\$1,363,251	\$142,607	\$1,837,164

Table 2: Total Direct Capital Cost

PROJECT COSTS – CAPITAL	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$290	\$22,719	\$22,719	\$27,028	\$26,077	\$98,833
DIRECT NON-LABOR	\$290,205	\$50,655	\$88,003	\$419,080	\$24,784	\$872,726
TOTAL DIRECT CAPITAL COSTS	\$290,495	\$73,374	\$110,722	\$446,108	\$50,860	\$971,559

Table 3: Total Direct Project Cost

TOTAL PROJECT COSTS	Stage 1 ⁶	Stage 2	Stage 3	Stage 4	Stage 5	Total ⁷
DIRECT LABOR	\$290	\$86,420	\$86,420	\$102,813	\$99,193	\$375,137
DIRECT NON-LABOR	\$290,205	\$150,918	\$191,642	\$1,706,547	\$94,275	\$2,433,586
TOTAL COSTS	\$290,495	\$237,338	\$278,062	\$1,809,360	\$193,468	\$2,808,723

Project Description

The Line 159 Phase 2A Hydrotest Project will hydrotest approximately 670 feet of [REDACTED] pipe within the Goleta Storage Facility. The Project will coordinate with planned maintenance activities in order to reduce any impacts to storage facility operations.

¹ Project Initiation.

² Preliminary Design.

³ Detailed Design.

⁴ Construction.

⁵ Closeout.

⁶ Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

⁷ Values may not add to total due to rounding.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

LINE 159 PHASE 2A HYDROTEST PROJECT

Alternatives Considered

Line 159 is one of two transmission lines used to inject and withdraw Natural Gas and is required to fully utilize the Goleta Storage Field. To maintain system capacity, these pipelines cannot be abandoned, derated, or reduced in diameter. Originally this project was designed as a pipeline replacement project under the approved PSEP Decision Tree as the segment is less than 1,000 feet, however after further analysis of the project scope, it was determined there would be a significant increase in costs for the replacement of the associated pipe supports for the new pipeline and opted for a hydrotest to reduce overall project costs.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC Estimate includes direct costs associated with project management, engineering and design, environmental, permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

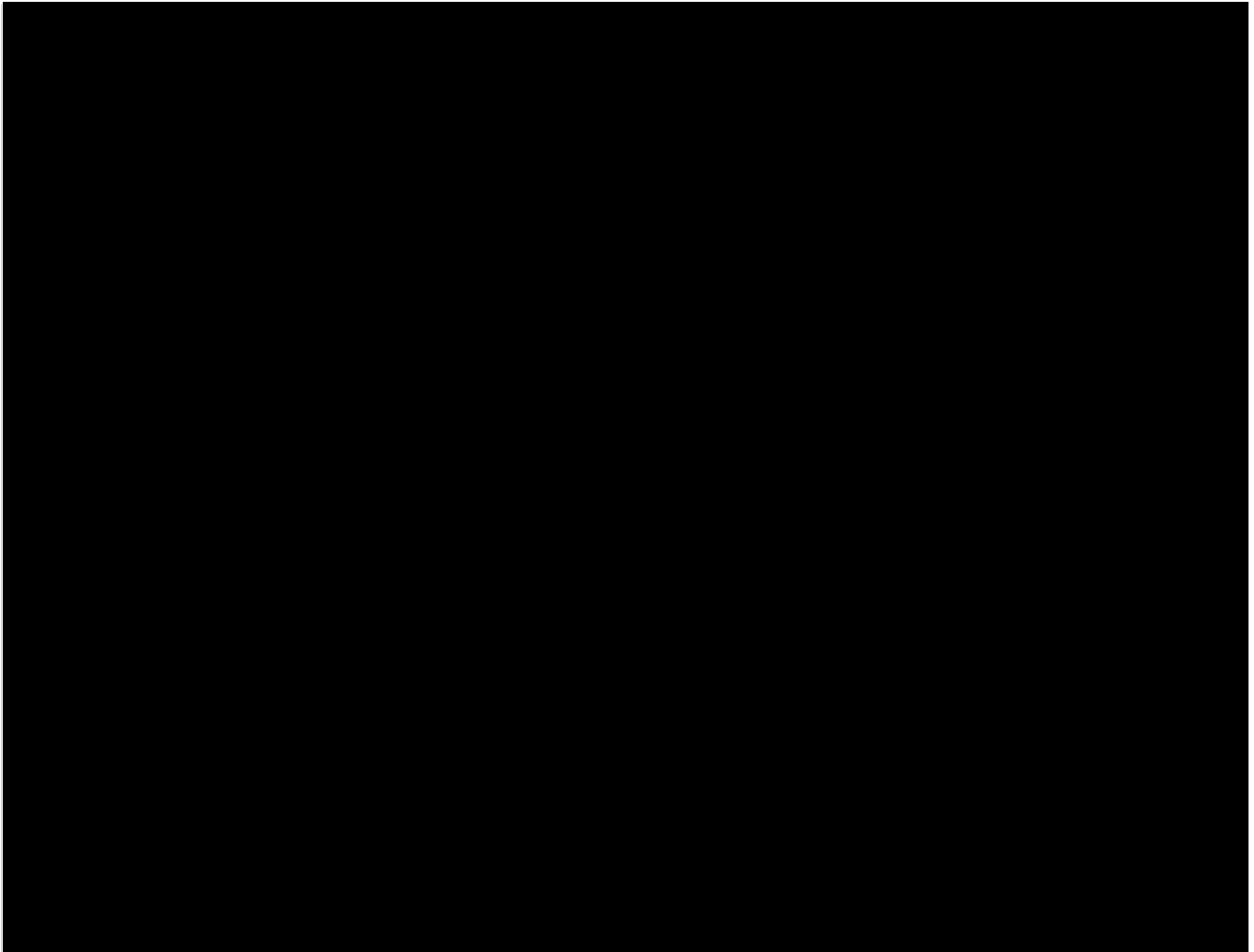
Schedule

The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that the majority of project costs are expended during the construction phase. The construction schedule is assumed to be 22 days.

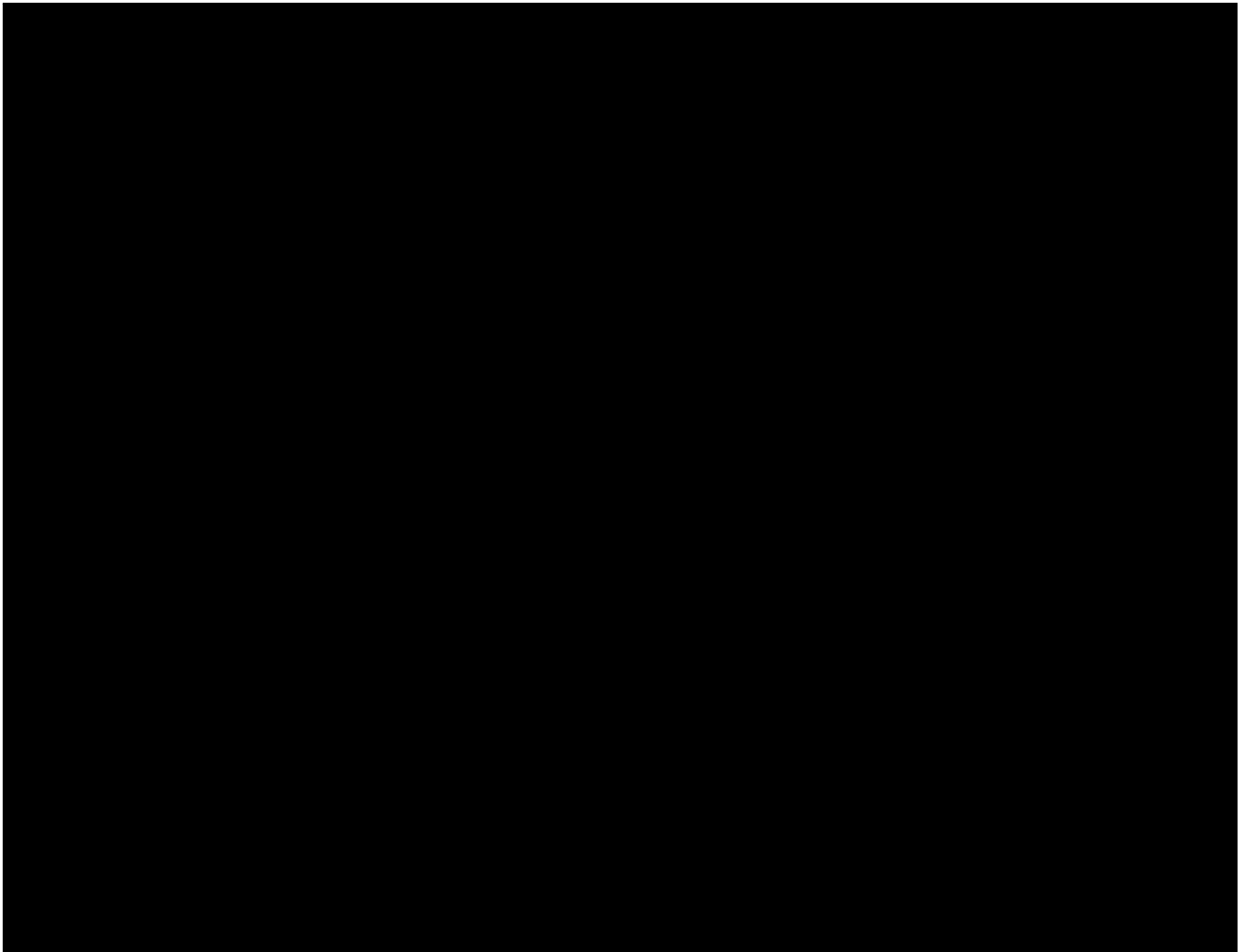
Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 159 PHASE 2A HYDROTEST PROJECT

Figure 1: Overview Map for Line 159 Phase 2A Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 159 PHASE 2A HYDROTEST PROJECT

Figure 2: Satellite Map for Line 159 Phase 2A Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

LINE 159 PHASE 2A HYDROTEST PROJECT

Table 4: Project Mileage

PHASE	MILEAGE
COORDINATED ⁸	0.036
PHASE 2A	0.091
INCIDENTAL	0.003
ACCELERATED	0.019
REPLACEMENT OFFSET	-0.017
TOTAL MILEAGE	0.132

The direct costs for each area are summarized below.

Table 5: Material

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$24,941	\$61,820	\$0	\$0	\$86,761
TOTAL DIRECT COSTS	\$0	\$24,941	\$61,820	\$0	\$0	\$86,761

Assumptions

Materials for this project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 80 feet of [REDACTED] pipe.

Table 6: Construction

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$788	\$0	\$0	\$1,506,755	\$0	\$1,507,543
TOTAL DIRECT COSTS	\$788	\$0	\$0	\$1,506,755	\$0	\$1,507,543

Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization.

⁸ Lacks documentation of a post-construction strength test in a Class 3 or 4 HCA.

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LINE 159 PHASE 2A HYDROTEST PROJECT

- Work has been scheduled using a 10-hour per day.
- All materials will be received at the laydown yard.
- Temporary pig launcher/receiver will be installed at the existing pipeline test segment.
- One [REDACTED] tap will be isolated and capped from the mainline.
- Four [REDACTED] replacement sections will be installed on the existing line.
- Assumes existing [REDACTED] valve will be hydrotested and is piggable.
- The pipeline will be tested in one test segment.
- Hydrotest is assumed to consist of 10-hour days.
- Hydrotest water will be treated and discharged to land and used for dust control environmental.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization
 - One office trailer.
 - Site facility costs cover a one-month duration.
 - No excavation required, existing pipe above ground.
 - Water to be used for pressure test.
 - Cross compression support.
- **Site Management / Best Management Practices (BMPs)**
 - Wood matting will be placed in construction areas along the pipeline in the event there is standing water or rain during construction.
 - Minor vegetation removal at laydown yard location.
- **Material Handling**
 - Two loads of SoCalGas furnished material will be unloaded at laydown yard and transported as needed by Contractor. Wood pipe dunnage and pallets have been included.
- **Isolate Existing Pipeline**
 - Assumes one shift to isolate the hydrotest segment, including: abating taps and replacement sections.
- **Hydrotest / Pressure Test Pipeline**
 - Assumes test water will be available at the existing station.
 - A water truck will be used to transport water for hydrotest.
 - The pipeline will be tested as one segment.
- **Tie-In Pipeline**
 - Two Tie-ins for the mainline pipe and assumed to be a 16-hour shift.
 - All welds to be x-rayed / NDE.

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LINE 159 PHASE 2A HYDROTEST PROJECT

- **Site Demobilization**
 - Assumes (1) load of excess materials will be transported to nearest SoCalGas facility.
 - Demobilization of site facilities, crew, and equipment.
- **Field Overhead**
 - Full-Time Project Manager.
 - Full-Time Superintendent.
 - Full-Time Cost Controller.
 - Full-Time Timekeeper.
 - Full-Time Scheduler.
 - Full-Time Safety Person.

Table 7: Environmental/Permitting/Monitoring/Abatement

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$28,761	\$15,235	\$45,706	\$91,026	\$0	\$180,728
TOTAL DIRECT COSTS	\$28,761	\$15,235	\$45,706	\$91,026	\$0	\$180,728

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Hazardous Materials.
- Permit Fees.

The high-level assumptions and specific level of effort to provide environmental support for this project are described in more detail below.

- **Construction Monitoring**
 - One Environmental Monitor for 25 days based on a schedule of five days per week for five weeks.
- **Project Closeout Activities**
 - Restoration support and closeout.
- **Abatement**
 - Three days for abatement.

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LINE 159 PHASE 2A HYDROTEST PROJECT

- **Water Treatment and Hazardous Materials**
 - Includes cost for proper disposal of hazardous materials.
 - Hydrotest water will be reused for onsite dust control and disposal.
- **Permits**
 - In generating the cost estimate, it is assumed general permitting fees for county and municipality.

Table 8: Land & Right-of-Way Acquisition

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$1,727	\$0	\$0	\$0	\$0	\$1,727
TOTAL DIRECT COSTS	\$1,727	\$0	\$0	\$0	\$0	\$1,727

Assumptions

In generating the total estimated cost for Line 159 Phase 2A Hydrotest Project land services support costs are assumed to be minimal.

Table 9: Company Labor

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$290	\$86,420	\$86,420	\$102,813	\$99,193	\$375,137
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$290	\$86,420	\$86,420	\$102,813	\$99,193	\$375,137

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

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LINE 159 PHASE 2A HYDROTEST PROJECT

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 10: Other Costs

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$258,929	\$110,742	\$84,116	\$108,766	\$94,275	\$656,827
TOTAL DIRECT COSTS	\$258,929	\$110,742	\$84,116	\$108,766	\$94,275	\$656,827

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Construction Management and Inspection Services.
- Surveying and As-builts.

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LINE 225 NORTH COLES LEVEE PHASE 2A REPLACEMENT PROJECT

Table 1: Total Direct Project Costs – All Capital

TOTAL PROJECT COSTS – CAPITAL	Stage 1^{1,2}	Stage 2³	Stage 3⁴	Stage 4⁵	Stage 5⁶	Total⁷
DIRECT LABOR	\$0	\$102,089	\$102,089	\$212,286	\$116,603	\$533,066
DIRECT NON-LABOR	\$158,338	\$934,108	\$1,446,703	\$4,301,505	\$251,698	\$7,092,352
TOTAL COSTS - CAPITAL	\$158,338	\$1,036,196	\$1,548,792	\$4,513,791	\$368,302	\$7,625,419

Project Description

The Line 225 North Coles Levee Phase 2A Replacement Project will replace approximately 343 feet of [REDACTED], and [REDACTED] pipeline. The Line 225 North Coles Levee Phase 2A Replacement Project is located at the North Coles Levee Station, [REDACTED] of [REDACTED] and [REDACTED], in unincorporated Kern County. The existing [REDACTED] and [REDACTED] pipe will be replaced with new [REDACTED], and [REDACTED] pipe, respectively. Eight valves including one [REDACTED] valve, six [REDACTED] valves, and one [REDACTED] valve will be replaced. For isolation, one new [REDACTED] pressure control fitting (PCF) will be installed on Line 293 and utilize an existing PCF on the other end of the segment to shut in the line. The replacement will be executed in one mobilization.

Alternatives Considered

Line 225 provides critical system capacity to meet the operational needs of the transmission system. Abandoning this line would create a substantial loss in capacity. Derating the pipeline would also negatively impact the capacity of the system and is not a viable option.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC Estimate includes direct costs associated with project management, engineering and design, environmental, permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques

Schedule

The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

¹ Project Initiation.

² Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

³ Preliminary Design.

⁴ Detailed Design.

⁵ Construction.

⁶ Closeout.

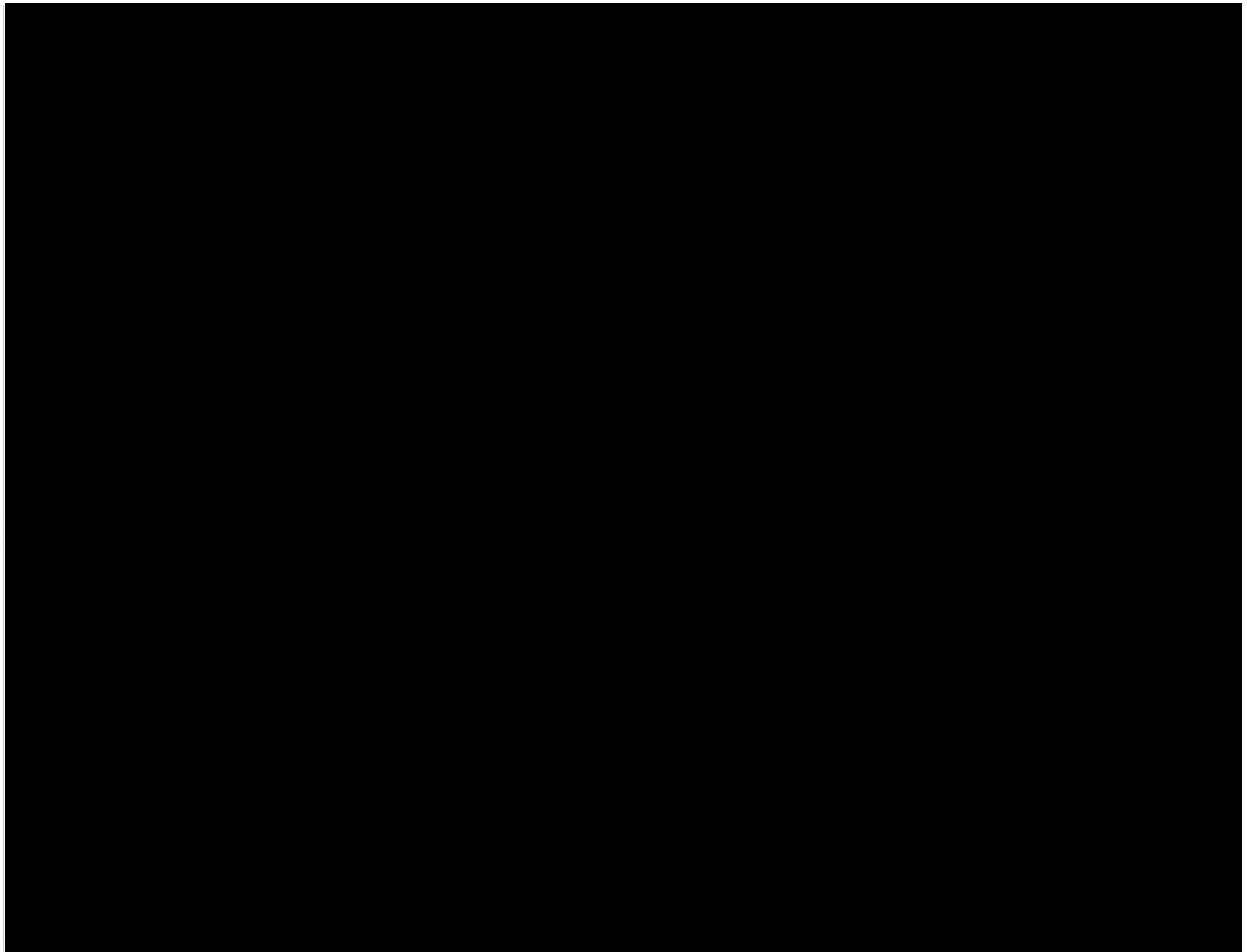
⁷ Values may not add to total due to rounding.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 225 NORTH COLES LEVEE PHASE 2A REPLACEMENT PROJECT

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that the majority of project costs are expended during the construction phase. The construction schedule is assumed to be 62 days.

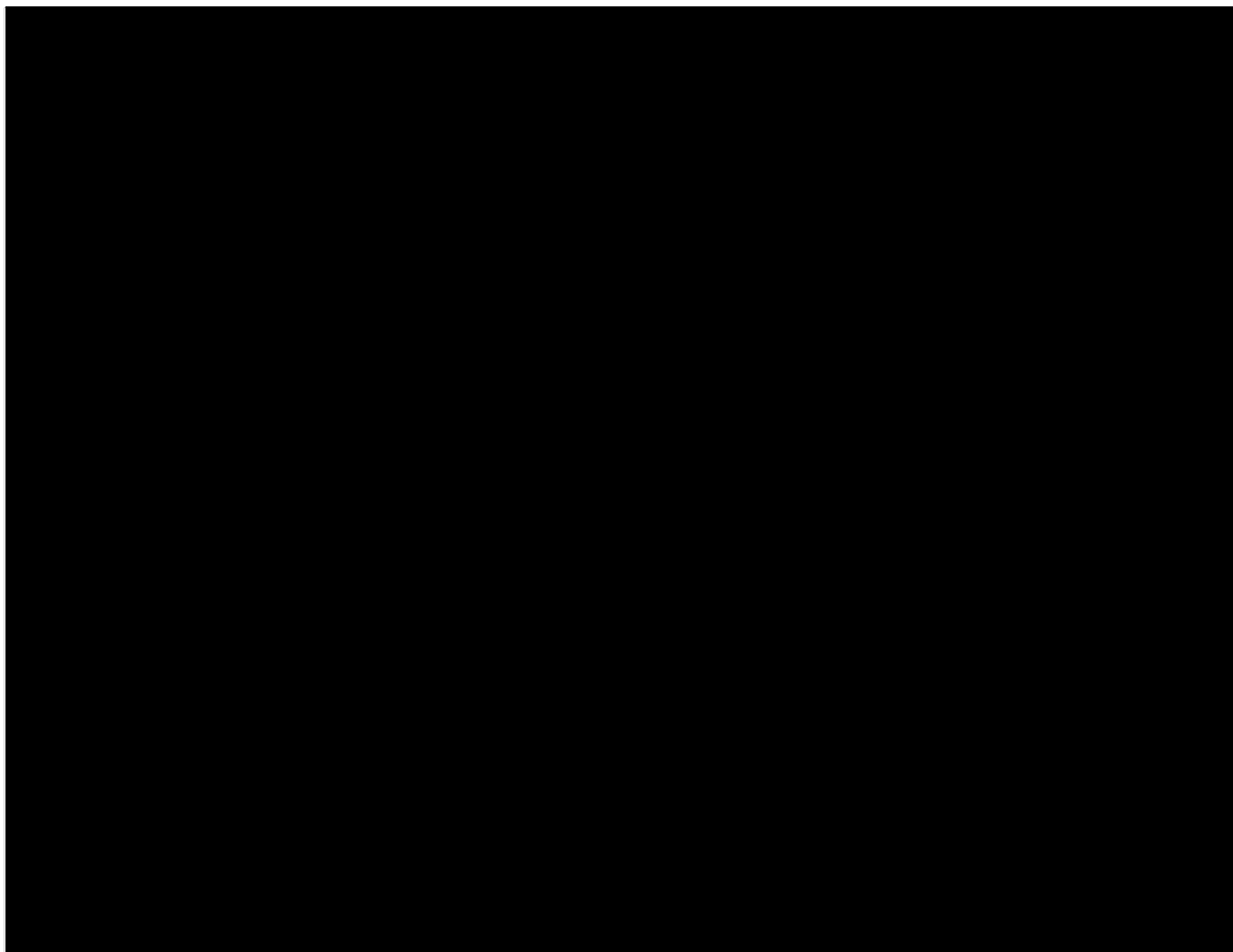
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LINE 225 NORTH COLES LEVEE PHASE 2A REPLACEMENT PROJECT

Figure 1: Overview Map for Line 225 North Coles Levee Phase 2A Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 225 NORTH COLES LEVEE PHASE 2A REPLACEMENT PROJECT

Figure 2: Satellite Map for Line 225 North Coles Levee Phase 2A Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 225 NORTH COLES LEVEE PHASE 2A REPLACEMENT PROJECT

Table 3: Project Mileage

PHASE	MILEAGE
PHASE 2A	0.047
INCIDENTAL	0.009
ACCELERATED	0.017
REPLACEMENT OFFSET	0.019
TOTAL MILEAGE	0.092

The direct costs for each area are summarized below.

Table 4: Material

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$494,810	\$957,693	\$0	\$0	\$1,452,504
TOTAL DIRECT COSTS	\$0	\$494,810	\$957,693	\$0	\$0	\$1,452,504

Assumptions

Materials for this project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 160 feet of [REDACTED] pipe.
- One [REDACTED] ball valve.
- One [REDACTED] PCF.
- Six [REDACTED] ball valves.

Table 5: Construction

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$22,698	\$0	\$0	\$3,761,847	\$0	\$3,784,545
TOTAL DIRECT COSTS	\$22,698	\$0	\$0	\$3,761,847	\$0	\$3,784,545

Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization.
- Work has been scheduled using a 10-hour per day, five day work week.

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LINE 225 NORTH COLES LEVEE PHASE 2A REPLACEMENT PROJECT

- All materials will be received at the laydown yard.
- Mechanical excavation will be authorized up to within two foot of the existing pipeline. Hand excavation will be required within the two foot zone.
- All excavations will be backfilled with native soil.
- One new PCF will be installed and will utilize an existing recently installed PCF at the opposite end of the segment for purposes of the isolation.
- A single final tie-in will be performed.
- Assuming potable water to be purchased for hydrotesting.
- Hydrotest water will be hauled off and disposed at a treatment center.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - One office trailer will be placed at the laydown yard.
 - Site facility costs cover a three month duration.
- **Site Preparation**
 - 450 linear feet (LF) of Temporary Fencing to delineate the laydown yard.
 - 100 tons of crushed rock for laydown yard preparations.
- **Site Management / Best Management Practices (BMPs)**
 - 30 - 25 foot long fiber rolls.
 - 200 sandbags.
 - 500 square yards (SY) geotextile.
 - 500 wooden stakes and 500 square yards of poly sheeting for silt fencing will be procured and installed for BMP measures.
 - BMP install crew to install and maintain BMP measures in one shift.
- **Material Handling**
 - Five loads of material will be unloaded at laydown yard and transported as needed.
- **Utility Locates**
 - Utility locates to pothole existing piping. Includes eight potholes within two shifts with a utility locate crew with a vac truck.
- **Pipeline Excavation/ Fabrication/ Installation**
 - Material procurement includes 84 gallons of epoxy paint, 8,325 pounds of mixed media, and 317 cubic yards (CY) of zero sack.
 - Shoring rentals include four shields for a two-month rental duration.
 - Excavation presumes 842 CY relating to the station scope of work to be completed within 25 shifts with a hand excavation crew.
 - Assumes 240 linear feet of pipeline abatement support in three shifts with a coating crew, including a

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

LINE 225 NORTH COLES LEVEE PHASE 2A REPLACEMENT PROJECT

sandblasting pot.

- Fabrication of 56 welds of [REDACTED], 12 welds of [REDACTED], four welds of [REDACTED], 34 welds of [REDACTED], and one weld of [REDACTED].
 - Fabrication of six test caps in 22 shifts with a fabrication crew, includes a 60-ton crane.
 - Assumes install of one concrete support for the blowoff.
 - Coating requirements will be completed in 21 shifts with a coating crew.
 - Eight shifts with a backfill crew to backfill 774 CY relating to the station scope of work and PCF location.
 - 475 tons of mixed debris disposal.
- **Cathodic Protection**
 - Installation of two insulating joints.
- **Isolate Existing Pipeline**
 - Includes excavation of 45 CY related to the PCF, abatement of approximately 10 LF of pipeline, and install support of one PCF.
 - Support of the two line stoppings will be provided in two shifts with a fabrication crew.
 - Two completion plugs will be installed within one shift with the aforementioned fabrication crew.
 - One shift with a tie-in crew to cut out, cap, and isolate the two sections.
- **Pressure Test Pipeline**
 - Pretest and installation of the four test heads presumed to occur in two shifts with a fabrication crew.
 - 100 LF of hard piping will be installed in one shift with the aforementioned fabrication crew.
 - Three shifts with a tie-in are assumed to fill, test, dewater, and dry 145 LF of pipeline.
 - 200 LF of test headers and hard piping will be removed.
- **Tie-In Pipeline**
 - Assuming one tie-in will occur at either end of the project and will be performed as a single hot tie-in during a 24 hour period with a tie-in crew.
 - Five coat tie-ins are included within two shifts with a coating crew.
 - Backfill of 619 CY in six shifts with a backfill crew is presumed.
 - 14 days for X-Ray/NDE services, including x-ray auditing.
- **Retire / Abandon Existing Pipeline**
 - Two shifts with a coating crew to support abatement of 17 cut points of varying diameters ranging from [REDACTED] to [REDACTED].
 - Nine cut and removal of 110 LF of [REDACTED], one cut and removal of 20 LF of [REDACTED], and seven cut and removal of 155 LF of [REDACTED].
 - Assumes install of two abandonment plates on existing [REDACTED] Line 225.
- **Site Restoration**
 - Material procurement includes 50 tons of crushed gravel.
 - One shift with a sitework crew to install gravel at the station.
 - Includes 60 LF and 200 SF of concrete curb and sidewalk to be installed, respectively.

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LINE 225 NORTH COLES LEVEE PHASE 2A REPLACEMENT PROJECT

- All work site locations will be restored to original condition.
- Removal of 450 LF of temporary fencing, removal of SWPPP and BMP measures, and final cleanup.
- **Site Demobilization**
 - All site facilities will be demobilized.
 - One load of excess piping will be hauled to SoCalGas designated yard.
 - Crew and equipment will be demobilized.
- **Field Overhead**
 - One Full-Time Superintendent.
 - One Full-Time Safety Personnel.
 - One Full-Time Cost Controller.
 - One Full-Time Timekeeper.
 - One Full-Time Project Manager.
 - One Full-Time Water Truck and Driver.
 - One site security personnel for all non-working hours.

Table 6: Environmental/Permitting/Monitoring/Abatement

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$18,637	\$49,044	\$147,133	\$294,266	\$0	\$509,080
TOTAL DIRECT COSTS	\$18,637	\$49,044	\$147,133	\$294,266	\$0	\$509,080

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.

The high-level assumptions and specific level of effort to provide environmental support for this project are described in more detail below.

- **Environmental Labor**
 - Environmental Consultants for preconstruction assessments, construction monitoring, and environmental closeout support.
- **Preconstruction Surveys**
 - Survey support staff for project and site facility layout and as-builts.

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Construction Monitoring

- Environmental monitoring.
- **Abatement**
 - 33 days for abatement of Asbestos-Containing Materials(ACM).
- **Water Treatment and Hazardous Materials**
 - Hydrotest will be with potable water to be disposed at Los Angeles treatment center.
 - Water treatment included.

Table 7: Land & Right-of-Way Acquisition

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$24,772	\$74,315	\$0	\$0	\$99,086
TOTAL DIRECT COSTS	\$0	\$24,772	\$74,315	\$0	\$0	\$99,086

Assumptions

In generating for the total estimated cost for Line 225 North Coles Levee Phase 2A Replacement Project the following items were considered:

- One contract land agent to support land acquisition for the project.
- Anticipated costs for one combined workspace and laydown yard for the duration of construction.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry permits.

Table 8: Company Labor

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$102,089	\$102,089	\$212,286	\$116,603	\$533,066
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$0	\$102,089	\$102,089	\$212,286	\$116,603	\$533,066

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following

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LINE 225 NORTH COLES LEVEE PHASE 2A REPLACEMENT PROJECT

categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 9: Other Costs

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$117,003	\$365,481	\$267,562	\$245,392	\$251,698	\$1,247,137
TOTAL DIRECT COSTS	\$117,003	\$365,481	\$267,562	\$245,392	\$251,698	\$1,247,137

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout.

The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Construction Management and Inspection Services.
- Surveying and As-builts.

Disallowance

In D.14-06-007, the Commission approved implementation of SoCalGas and SDG&E's PSEP, and disallowed recovery of specified costs associated with pressure testing or replacing pipeline segments installed after July 1, 1961. This decision was later modified by D.15-12-020 to include pipe installed from January 1, 1956 to July 1, 1961. The Line 225 North Coles Levee Phase 2A Replacement Project includes 151.77 feet/0.029 miles of Category 4 pipe installed after January 1, 1956 that does not have test records to demonstrate compliance with the then-applicable industry or regulatory strength testing and record keeping standards. This resulted in an anticipated cost disallowance of \$36,650. The final value of the Line 225 North Coles Levee Phase 2A Replacement Project cost disallowance will be adjusted once the project is placed in service.

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LINE 235 EAST SECTION 1 PHASE 2A HYDROTEST PROJECT

Table 1: Total Direct O&M Cost

PROJECT COSTS – O&M	Stage 1 ¹	Stage 2 ²	Stage 3 ³	Stage 4 ⁴	Stage 5 ⁵	Total
DIRECT LABOR	\$38,287	\$254,881	\$191,072	\$702,364	\$203,688	\$1,390,293
DIRECT NON-LABOR	\$420,208	\$1,693,336	\$2,401,717	\$36,237,226	\$260,086	\$41,012,573
TOTAL DIRECT O&M COSTS	\$458,495	\$1,948,217	\$2,592,789	\$36,939,590	\$463,774	\$42,402,866

Table 2: Total Direct Capital Cost

PROJECT COSTS – CAPITAL	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$145,053	\$145,053	\$249,056	\$170,487	\$709,648
DIRECT NON-LABOR	\$0	\$1,463,733	\$4,144,041	\$10,967,373	\$570,642	\$17,145,788
TOTAL DIRECT CAPITAL COSTS	\$0	\$1,608,669	\$4,289,094	\$11,216,428	\$741,129	\$17,855,436

Table 3: Total Direct Project Cost

TOTAL PROJECT COSTS	Stage 1 ⁶	Stage 2	Stage 3	Stage 4	Stage 5	Total ⁷
DIRECT LABOR	\$38,287	\$399,934	\$336,125	\$951,420	\$374,175	\$2,099,941
DIRECT NON-LABOR	\$420,324	\$3,156,953	\$6,545,758	\$47,204,598	\$830,728	\$58,158,361
TOTAL DIRECT COSTS	\$458,611	\$3,556,887	\$6,881,883	\$48,156,018	\$1,204,903	\$60,258,302

Project Description

The Line 235 East Section 1 Phase 2A Hydrotest Project will hydrotest approximately 58 miles of [REDACTED] pipeline. The Project begins at the [REDACTED] and ends at the [REDACTED] within San Bernardino County. This Project consists of 25 hydrotest segments due to elevation changes to address hydrotest pressure limitations.

¹ Project Initiation.

² Preliminary Design.

³ Detailed Design.

⁴ Construction.

⁵ Closeout.

⁶ Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

⁷ Values may not add to total due to rounding.

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LINE 235 EAST SECTION 1 PHASE 2A HYDROTEST PROJECT

Alternatives Considered

Line 235 East is a backbone pipeline that plays a critical role in meeting operational needs of the transmission pipeline system. Abandoning this pipeline would create a substantial loss in capacity to the Northern Transmission Zone since gas moves from the receipt points at North and South Needles towards Adelanto via Line 235. The gas supply from Adelanto supports the entire SoCalGas Transmission System, which serves the Los Angeles Basin Loop from one or more of the City Gates. Derating the pipeline would negatively impact the capacity of the system and is not a viable option.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) Estimate to implement the above scope of work. The TIC Estimate includes direct costs associated with project management, engineering and design, environmental permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

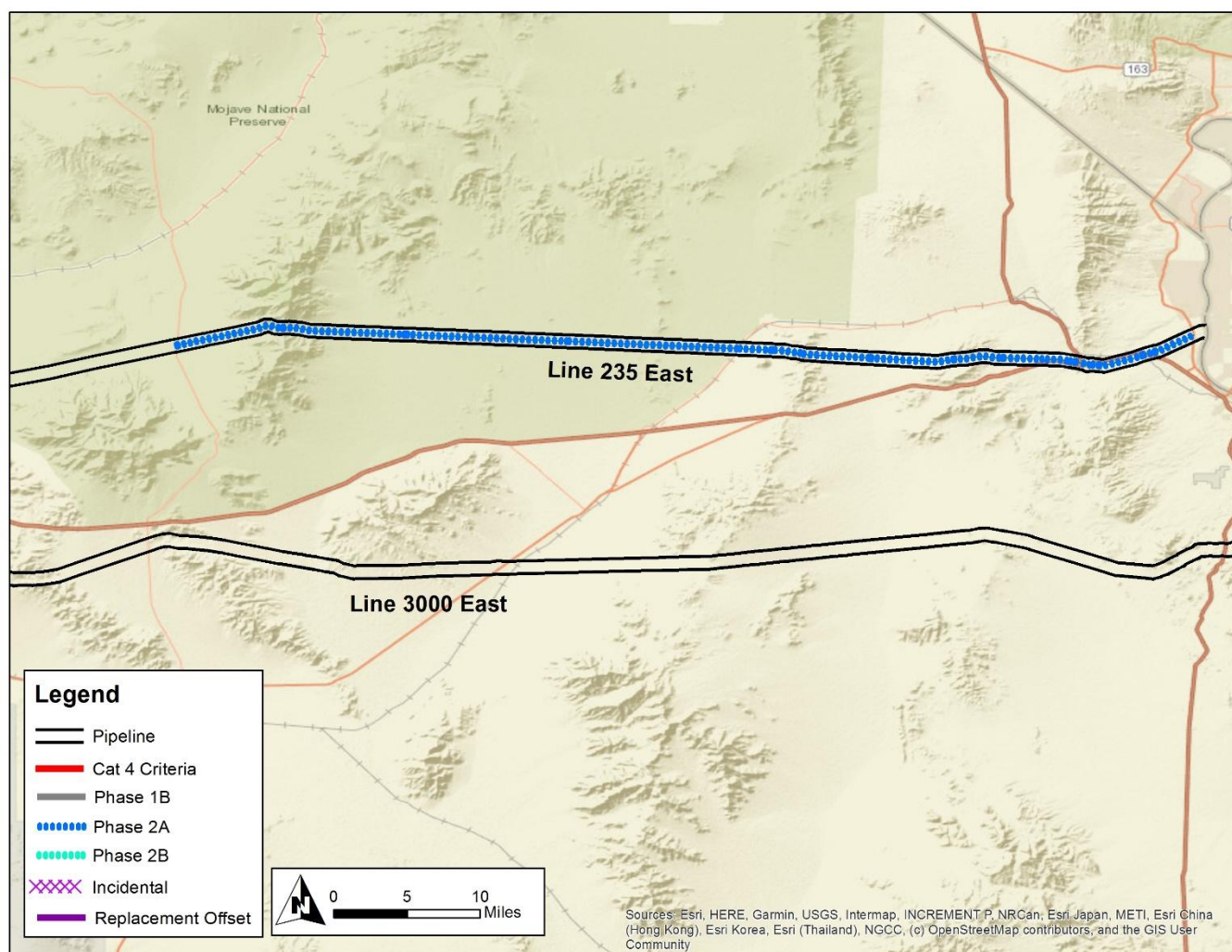
Schedule

The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that typically 50% of the project costs are expended during the construction phase. The construction schedule is assumed to be 167 days.

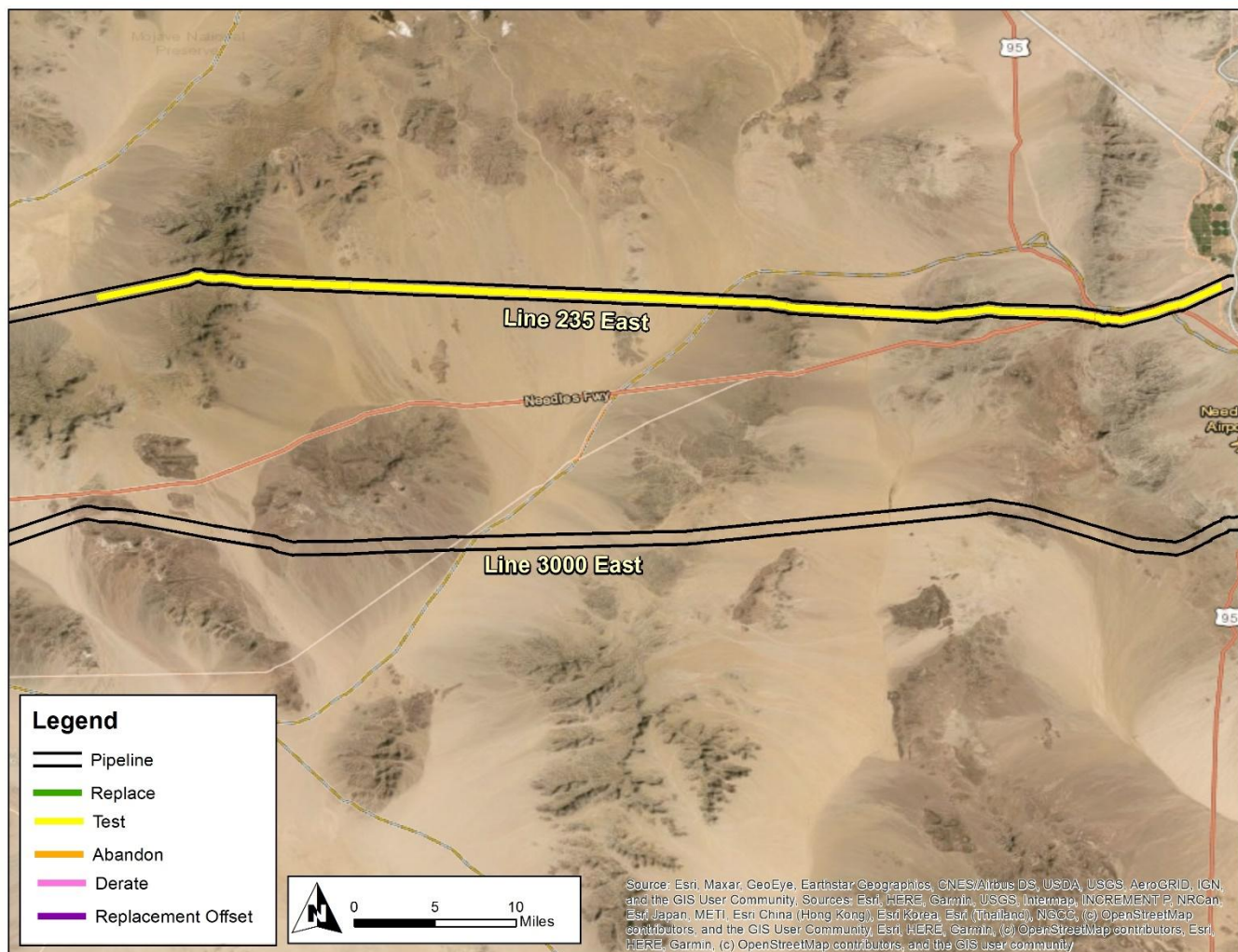
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Figure 1: Overview Map for Line 235 East Section 1 Phase 2A Hydrotest Project



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LINE 235 EAST SECTION 1 PHASE 2A HYDROTEST PROJECT

Figure 2: Satellite Map for Line 235 East Section 1 Phase 2A Hydrotest Project



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LINE 235 EAST SECTION 1 PHASE 2A HYDROTEST PROJECT

Table 4: Project Mileage

PHASE	MILEAGE
PHASE 2A	57.261
INCIDENTAL	0.478
ACCELERATED	0.334
TOTAL MILEAGE	58.072

The direct costs for each area are summarized below.

Table 5: Material

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$978,041	\$2,774,138	\$967	\$727	\$3,753,873
TOTAL DIRECT COSTS	\$0	\$978,041	\$2,774,138	\$967	\$727	\$3,753,873

Assumptions

Materials for this Project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 2,720 feet of [REDACTED] pipe.
- 35 [REDACTED] ball valves.
- 44 [REDACTED] caps.

Table 6: Construction

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$2,757	\$25,877	\$95,577	\$40,650,869	\$378,382	\$41,153,461
TOTAL DIRECT COSTS	\$2,757	\$25,877	\$95,577	\$40,650,869	\$378,382	\$41,153,461

Assumptions

In development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization.
- Work has been scheduled using a 12 hour per day, six day work week.
- Lake tanks will be installed for water storage, to support hydrotesting operations.

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LINE 235 EAST SECTION 1 PHASE 2A HYDROTEST PROJECT

- Mechanical excavation will be authorized up to within two feet of the existing pipeline. Hand excavation will be required within the two foot zone and within existing stations.
- All excavations will be backfilled with zero sack slurry or sand padding to one foot above pipeline. Remainder of backfill will be performed using zero sack and one sack.
- After the mainline is isolated, work will begin to test four separate MLV stacks prior to the mainline tests.
- Once the MLV tests have been completed, test heads will be cut, and replacement pieces will be tied in. After all MLV tests are tied-in, the mainline tests will begin.
- The pipeline will be tested in 25 separate hydrotest segments, tested one per day.
- 24 cold tie-ins will occur during a 16 hour work shift.
- Two final hot tie-ins will be completed.
- Construction Management and Inspection Services.
- Non-Destructive Examination and X-Ray of welds are included.

Additional Construction Information

In development of the construction estimate, the following assumptions and clarifications have been made:

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Two office trailers will be placed at the laydown yard.
 - Site facility costs cover a six month duration.
- **Site Preparation**
 - 15 days for preparation of access roads for a grading crew.
 - Four shifts included for site move arounds.
 - Clearing and grubbing of the laydown yards, work sites, and water storage area.
 - 10,000 feet of temporary fencing for laydown yard and test break sites to secure open excavations.
- **Site Management / Best Management Practices (BMPs)**
 - Fiber rolls, demarcation fence, silt fence, straw bales, and sock drains are included for BMP measures.
- **Material Handling**
 - 12 loads of material will be unloaded at SoCalGas laydown yard and transported as needed.

Site Excavations

- 26 Excavation locations for test breaks.
 - 16 shifts to excavate four MLV locations.
- **Remove Existing/Install New Pipeline Features**
 - Fabrication of 30 test heads.
 - Fabrication of eight isolation caps.
 - Fabricate, bolt up and prepare the water transfer piping.
 - Fabricate of replacement tie-in pieces.
 - Prepping and testing of test caps and test heads.
 - Cut out hydrotest breaks.

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LINE 235 EAST SECTION 1 PHASE 2A HYDROTEST PROJECT

- Fabricate, fill, hydrotest and dewater the replacement pipe. Non-Destructive Examination (NDE) and X-Ray of welds have been included.
- Construction Management and Inspection Services for the duration of construction is included.
- **Hydrotest / Pressure Test Pipeline**
 - 25 test sections to be hydrotested
 - 11 shifts to install test heads, fill, test, dewater and dry MLV assemblies.
- **Tie-In Pipeline**
 - 24 tie-ins each with a 16-hour shift.
 - One shift included to prepare for the final hot tie-in.
 - Two 24-hour shifts included to perform two final hot tie-ins.
 - Three shifts to install tie-in pieces at four MLV locations.
 - 30 shifts to support gas up, monitor, and season mainline.
 - 22 shifts to coat 75 welds.
- **Backfill Excavations**
 - 43 shifts to backfill hydrotest breaks with native and zero sack slurry.
 - 11 shifts to account for site move around delays.
 - Three shifts to coat welds at at four MLV locations.
 - Nine shifts to backfill excavations at four MLV locations.
- **Site Restoration**
 - One shift to remove sand padding for the lake tanks.
 - 22 shifts to restore 26 work sites.
 - Support for disconnecting of trailers, removal of equipment and demobilizing trailers.

Site Demobilization

- Support for loading of tools and supplies, removal of piping materials, demobilizing equipment and personnel.
- Demobilize crew and equipment.
- **Field Overhead**
 - One Full-Time Project Manager.
 - One Full-Time Superintendent.
 - One Full-Time Cost Controller.
 - One Full-Time Timekeeper.
 - Two Full-Time Safety Personnel.
 - Four water trucks and drivers for dust suppression.
 - Five site security personnel for all non-working hours.

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LINE 235 EAST SECTION 1 PHASE 2A HYDROTEST PROJECT

Table 7: Environmental Survey/Permitting/Monitoring/Abatement

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$1,092,469	\$3,276,988	\$6,176,473	\$268,252	\$10,814,183
TOTAL DIRECT COSTS	\$0	\$1,092,469	\$3,276,988	\$6,176,473	\$268,252	\$10,814,183

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.
- Permit Fees.
- Mitigation Fees.

The high-level assumptions and specific level of effort to provide environmental support for this Project are described in more detail below.

- **Environmental Document Production**
 - Biological Report.
 - Rare Plant Survey Report.
 - Cultural Report and National Park Service (NPS) streamlined review process.
 - Waters Delineation.
 - Dust Control Plan under Mojave Desert AQMD Rule 402.
 - Worker Environmental Awareness Procedure (WEAP).
 - Storm Water Pollution and Prevention Plan (SWPPP) and Notice of Intent (NOI).
 - Preconstruction Clearance.
 - Habitat Mitigation and Monitoring Plan (HMMP).
 - Environmental Clearance.
 - Hazardous Materials Business Plan.
- **Preconstruction Surveys**
 - Environmental Monitoring Support includes 17 biological monitors during construction including: one monitor with each crew, one escorting vehicles from the road to the project site with each crew, one lead monitor, and two floating monitors.
 - Additional field work and reporting required.
 - Rare plant survey and top soil flagging.

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- **Construction Monitoring**
 - 17 total biological monitors: one biological monitor with each crew, one monitor escorting vehicles from the road to each crew, one lead monitor and two floating escorts.
 - Additional field work and reporting required to support tortoise monitoring.
- **Project Closeout Activities**
 - Restoration support, permit reporting, and closeout.
- **Abatement**
 - 113 days for abatement of ACMs.
 - Includes four days for excavation and abatement at each of the 26 hydrotest breaks (104 days total).
- **Water Treatment and Hazardous Materials**
 - Hydrotest water, estimated at 3,500,000 gallons, to be acquired by the pipeline contractor for hydrotesting of existing pipeline.
 - Water to be obtained from hydrant in Needles and trucked to the lake tanks at the Needles Station.
 - Assumed water treatment and discharge to land.
 - Groundwater dewatering is not anticipated for this Project.
 - Contaminated soil is not anticipated.
 - Two drums will be needed for accidental spills during construction and two drums for lead paint contaminant.
 - Waste sampling and profiling anticipated to support disposal of wastes generated during construction.
 - Hazardous and non-hazardous waste transport and disposal anticipated for various wastes.
- **Permit Fees**
 - SWPPP fee.
 - Dust Control and Abatement fees for Mojave Desert Air Quality Management District (MDAQMD).
 - Streambed Alteration Agreement fee.
 - Agency 401 applications and notifications.
 - Estimated fees per Bureau of Land Management (BLM) and California Department of Fish and Wildlife (CDFW) requirements.
 - Mojave National Preserve Land permit fee.
 - BLM US Government permit fee.

Table 8: Land & Right-of-Way Acquisition

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$6,173	\$26,614	\$74,139	\$0	\$0	\$106,926
TOTAL DIRECT COSTS	\$6,173	\$26,614	\$74,139	\$0	\$0	\$106,926

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LINE 235 EAST SECTION 1 PHASE 2A HYDROTEST PROJECT

Assumptions

In generating for the total estimated cost for Line 235 East Section 1 Phase 2A Hydrotest Project the following items were considered:

- **Labor**
 - One contract land agent to support land acquisition.
- **Temporary Right of Entry**
 - Three Temporary Revocable Easements (TREs), ten Temporary Use Permits (TUPs), and 12 Special Use Permits (SUPs) for laydown yards and workspaces to complete the Project.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry.

Table 9: Company Labor

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$38,287	\$399,934	\$336,125	\$951,420	\$374,175	\$2,099,941
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$38,287	\$399,934	\$336,125	\$951,420	\$374,175	\$2,099,941

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

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LINE 235 EAST SECTION 1 PHASE 2A HYDROTEST PROJECT

Table 10: Other Costs

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$411,393	\$1,033,952	\$324,916	\$376,290	\$183,367	\$2,329,918
TOTAL DIRECT COSTS	\$411,393	\$1,033,952	\$324,916	\$376,290	\$183,367	\$2,329,918

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Surveying and As-builts.
- Project Support Services.

Disallowance

In D.14-06-007, the Commission approved implementation of SoCalGas and SDG&E's PSEP, and disallowed recovery of specified costs associated with pressure testing or replacing pipeline segments installed after July 1, 1961. This decision was later modified by D.15-12-020 to include pipe installed from January 1, 1956 to July 1, 1961. The Line 235 East Section 1 Phase 2A Hydrotest Project includes 1 foot/0.0002 miles of Category 4 pipe installed after January 1, 1956, that does not have test records to demonstrate compliance with the then-applicable industry or regulatory strength testing and record keeping standards. This resulted in an anticipated cost disallowance of \$155. The final value of the Line 235 East Section 1 Phase 2A Hydrotest Project cost disallowance will be adjusted once the project is placed in service.

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LINE 235 EAST SECTION 2 PHASE 2A HYDROTEST PROJECT

Table 1: Total Direct O&M Cost

PROJECT COSTS – O&M	Stage 1 ¹	Stage 2 ²	Stage 3 ³	Stage 4 ⁴	Stage 5 ⁵	Total
DIRECT LABOR	\$26,588	\$230,959	\$155,386	\$670,095	\$165,057	\$1,248,085
DIRECT NON-LABOR	\$342,321	\$1,529,161	\$2,462,923	\$28,225,346	\$302,696	\$32,862,447
TOTAL DIRECT O&M COSTS	\$368,909	\$1,760,120	\$2,618,309	\$28,895,441	\$467,753	\$34,110,532

Table 2: Total Direct Capital Cost

PROJECT COSTS – CAPITAL	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$115,562	\$115,562	\$254,612	\$137,278	\$623,014
DIRECT NON-LABOR	\$0	\$1,699,620	\$3,954,213	\$11,817,824	\$545,531	\$18,017,189
TOTAL DIRECT CAPITAL COSTS	\$0	\$1,815,182	\$4,069,775	\$12,072,436	\$682,810	\$18,640,203

Table 3: Total Direct Project Cost

TOTAL PROJECT COSTS	Stage 1 ⁶	Stage 2	Stage 3	Stage 4	Stage 5	Total ⁷
DIRECT LABOR	\$26,588	\$346,521	\$270,948	\$924,707	\$302,335	\$1,871,099
DIRECT NON-LABOR	\$342,321	\$3,228,780	\$6,417,136	\$40,043,170	\$848,228	\$50,879,635
TOTAL DIRECT COSTS	\$368,909	\$3,575,301	\$6,688,084	\$40,967,877	\$1,150,563	\$52,750,735

Project Description

The Line 235 East Section 2 Phase 2A Hydrotest Project will hydrotest approximately 56 miles of [REDACTED] natural gas pipeline and install one [REDACTED] mainline valve (MLV) with a [REDACTED] bridle and blowoff. The Project begins near the [REDACTED] and ends near [REDACTED] within San Bernardino County. This Project consists of 16 hydrotest segments due to elevation changes to compensate for the hydrotest pressure limitations.

¹ Project Initiation.

² Preliminary Design.

³ Detailed Design.

⁴ Construction.

⁵ Closeout.

⁶ Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

⁷ Values may not add to total due to rounding.

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LINE 235 EAST SECTION 2 PHASE 2A HYDROTEST PROJECT

Alternatives Considered

Line 235 East is a backbone pipeline that plays a critical role in meeting operational needs of the SoCalGas transmission system. Abandoning this pipeline would create a substantial loss in capacity to the Northern Transmission Zone since gas moves from the receipt points at North and South Needles towards Adelanto via Line 235. The gas supply from Adelanto supports the entire SoCalGas Transmission System, which serves the Los Angeles Basin Loop from one or more of the City Gates. Derating the pipeline would negatively impact the capacity of the system and is not a viable option.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) Estimate to implement the above scope of work. The TIC Estimate includes direct costs associated with project management, engineering and design, environmental, permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

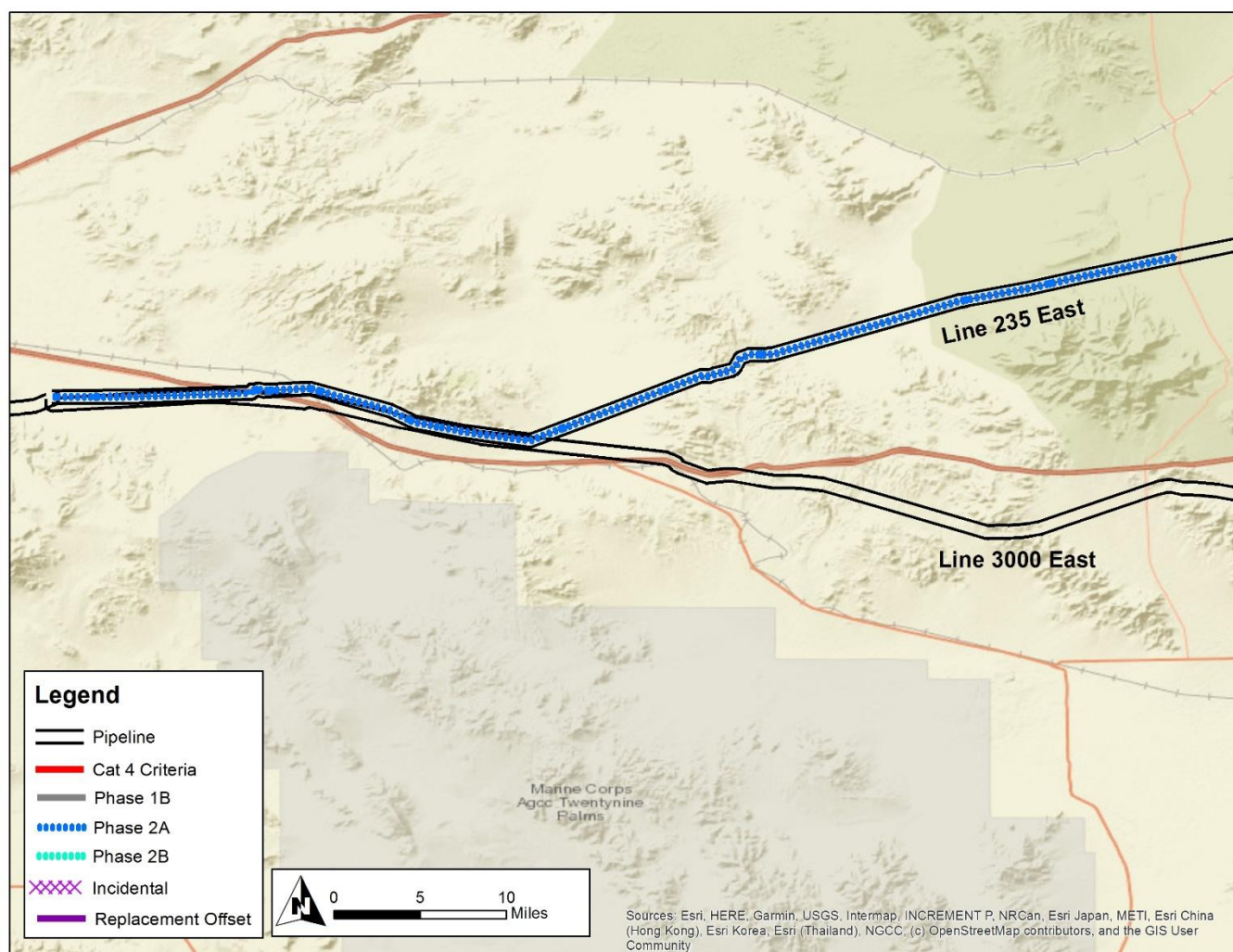
Schedule

The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that typically 50% of the project costs are expended during the construction phase. The construction schedule is assumed to be 145 days.

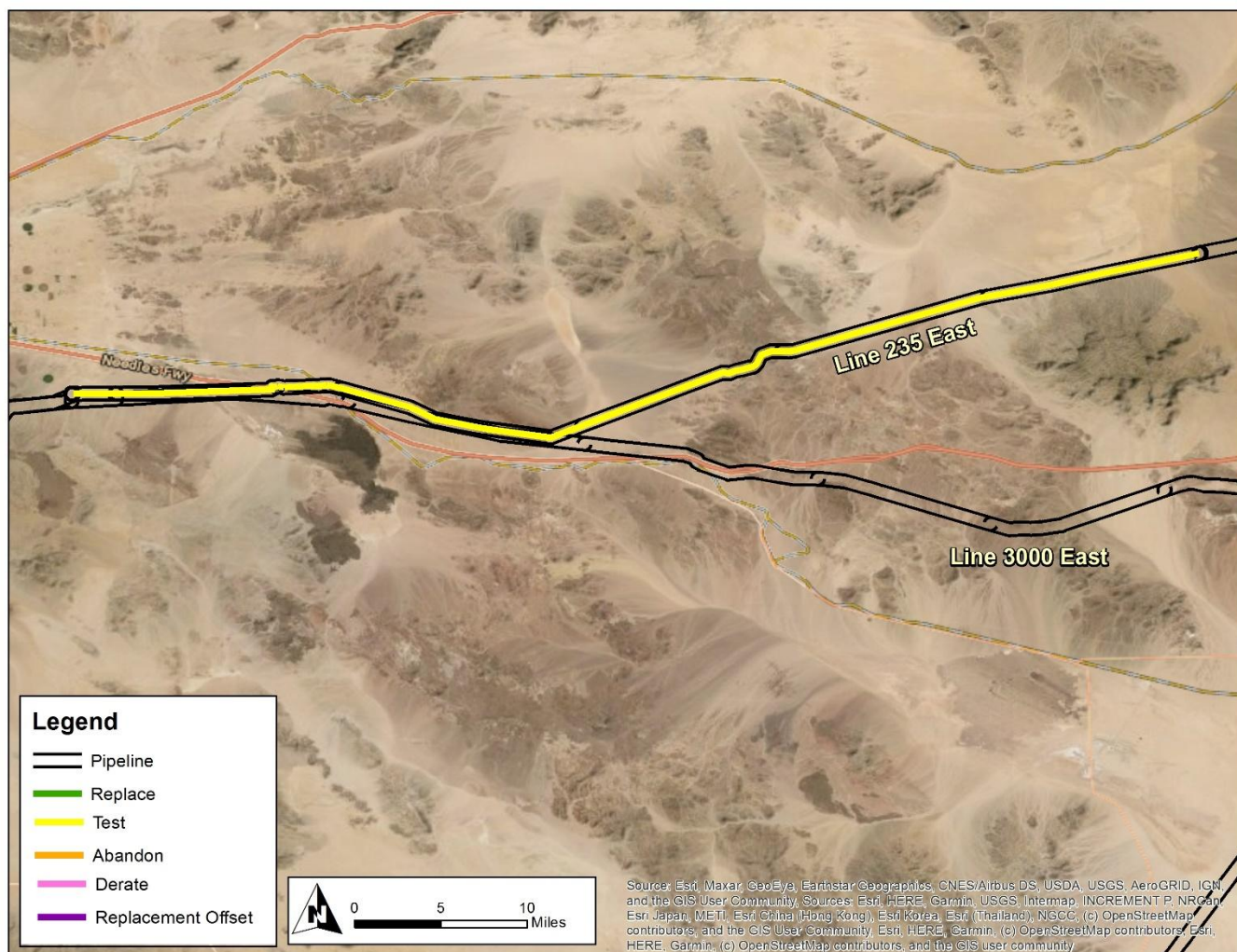
Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 235 EAST SECTION 2 PHASE 2A HYDROTEST PROJECT

Figure 1: Overview Map for Line 235 East Section 2 Phase 2A Hydrotest Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 235 EAST SECTION 2 PHASE 2A HYDROTEST PROJECT

Figure 2: Satellite Map for Line 235 East Section 2 Phase 2A Hydrotest Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 235 EAST SECTION 2 PHASE 2A HYDROTEST PROJECT

Table 4: Project Mileage

PHASE	MILEAGE
PHASE 2A	56.049
ACCELERATED	0.212
INCIDENTAL	0.086
TOTAL MILEAGE	56.346

The direct costs for each area are summarized below.

Table 5: Material

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$1,146,036	\$2,516,449	\$975	\$730	\$3,664,190
TOTAL DIRECT COSTS	\$0	\$1,146,036	\$2,516,449	\$975	\$730	\$3,664,190

Assumptions

Materials for this Project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 1,200 ft of [REDACTED] pipe.
- One [REDACTED] ball valve.
- 42 [REDACTED] ball valve.
- 92 [REDACTED] ball valve.

Table 6: Construction

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$65,056	\$121,489	\$33,827,302	\$349,369	\$34,363,217
TOTAL DIRECT COSTS	\$0	\$65,056	\$121,489	\$33,827,302	\$349,369	\$34,363,217

General Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization.
- Work has been scheduled using a 12 hour per day, six-day work week.
- Lake tanks will be installed for water storage, to support hydrotesting operations.

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LINE 235 EAST SECTION 2 PHASE 2A HYDROTEST PROJECT

- Mechanical excavation will be authorized up to within two feet of the existing pipeline. Hand excavation will be required within the two-foot zone.
- All excavations will be backfilled with sand padding to one foot above pipeline. Remainder of backfill will be performed using native fill.
- The pipeline will be tested in 16 separate hydrotest segments, at a rate of one test section per day.
- 15 cold tie-ins have been presumed.
- New MLV with bridle and spool will be tested with mainline hydrotest and powered through a generator unit.
- Cold tie-ins will occur during a 16-hour shift.
- Two final tie-ins with a 24-hour work shift will be performed. Intermittent gas ups have not been included.
- Isolation and final tie-ins for a 24-hour continuous duration.
- Support for the grading of access roads and lake tanks is included.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Two office trailers will be placed at the laydown yard.
 - Site facility costs cover a six-month duration.
- **Site Preparation**
 - Preparation of access roads for a grading crew.
 - Clearing of the laydown yards, work sites, and water storage area using lake tanks.
 - Cost for sand is included for the lake tank pads stabilization.
 - 400 Linear Feet (LF) of temporary fencing for the laydown yard and the MLV work site.
 - Additional 6,400 LF of temporary fencing has been included for test break sites, to secure open excavations.
- **Site Management / Best Management Practices (BMPs)**
 - Fiber rolls, sandbags, reinforced poly sheets, silt fence, metal tee posts, wooden stakes, and spill kits are included for BMP measures.
 - 10 shifts to install BMPs at all jobsites.
- **Material Handling**
 - 10 loads of material will be unloaded at the laydown yard and transported as needed.
- **Site ROW Clearing**
 - Four shifts to clear work sites Right of Way (ROW).
- **Site Excavations**
 - Four-month duration for shoring equipment at test breaks and the new MLV excavation.
 - 17 hydrotest breaks to be excavated using mechanical and hand excavation.
 - Two excavation crews to perform all mechanical and hand excavations.
 - Hauling and disposal of excess spoils included.

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LINE 235 EAST SECTION 2 PHASE 2A HYDROTEST PROJECT

- **Remove Existing/Install New Pipeline Features**
 - Fabrication of test heads, isolation caps and water transfer manifolds.
 - Fabrication for 17 [REDACTED] cut outs and pipeline replacement sections.
 - Pretesting of provided test heads and isolation caps.
 - Fabrication of the new MLV assembly.
- **Isolate Existing Pipeline**
 - Purge two test sections of the existing pipeline using nitrogen.
 - Additional cost for isolation and blowdown support.
 - No abatement support needed.
 - No taps will be isolated prior to hydrotesting.
 - Three shifts to isolate and blowdown pipeline.
 - Cost for isolation and pipeline cut-outs and remaining 15 test break cut-outs.
 - Cut out for pipe section for new MLV assembly.
- **Hydrotest / Pressure Test Pipeline**
 - 17 test breaks sites will be excavated for test heads.
 - 16 individual test sections will be hydrotested.
 - Two hydrotest sections will be tested per day.
 - Test heads will be installed below grade.
 - Purchase cost of the water needed to perform the hydrotest.
 - Install cost for test heads, test caps, water transfer, jumper lines, and hard fill lines.
 - MLV spool will be jumped and tested with the mainline hydrotest.
 - Support crew for filling of water storage lake tanks.
 - Filling of existing pipeline test sections, testing pipeline test sections, initial draining of pipeline test sections, initial drying of pipeline test sections, and material and installation cost of nitrogen blanket.
 - Final draining and drying of tested pipeline sections.
- **Tie-In Pipeline**
 - 15 pipe sections have been tested and dewatered; the test breaks will have pipe re-installed prior to drying of test groups. 16-hour work shift.
 - Two hot tie-ins will be performed at Test Break 1 and Test Break 17 during a 24-hour shift.
 - All pipeline tie-in welds will be inspected with x-ray.
 - Four shifts included for the installation of tie-in pieces and 30 shifts supporting gas up, monitoring and seasoning of mainline.
- **Backfill Excavations**
 - Material cost for blasting media and pipeline coating.
 - All pipeline tie-in welds will be coated.
 - Approximately 4,000 cubic yards (CY) zero sack slurry for all pipeline bedding and shading.
 - 2,500 CY of native spoils to be used as backfill.
 - Haul off of 5,950 tons of excess spoils.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 235 EAST SECTION 2 PHASE 2A HYDROTEST PROJECT

- Two backfill crews.
- Four shifts to coat welds and 12 shifts to backfill excavations.
- **Site Restoration**
 - Assumes site facility, laydown yards, water storage areas, and work sites will be restored to their original conditions.
 - Includes removal and disposal of BMP materials and lake tank stability sand padding.
 - Removal of all temporary fencing.
- **Site Demobilization**
 - All site facilities will be demobilized.
 - Seven loads of excess piping will be hauled to a designated yard.
 - Crew and equipment will be demobilized.
- **Field Overhead**
 - One Full-Time Project Manager.
 - One Full-Time Superintendent.
 - One Full-Time Cost Controller.
 - One Full-Time Timekeeper.
 - Two Full-Time Safety Personnel.
 - Four Full-Time Water Trucks and Drivers for dust suppression.
 - Two low bed trucks to assist with equipment move arounds, two snorkel lifts, three light towers, and one air compressor.
 - Five site security personnel for all non-working hours.

Table 7: Environmental Survey/Permitting/Monitoring/Abatement

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$100,682	\$1,183,985	\$3,093,161	\$5,907,242	\$324,770	\$10,609,840
TOTAL DIRECT COSTS	\$100,682	\$1,183,985	\$3,093,161	\$5,907,242	\$324,770	\$10,609,840

Assumptions

In calculating the estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.
- Permit Fees.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

LINE 235 EAST SECTION 2 PHASE 2A HYDROTEST PROJECT

The assumptions and level of effort to provide environmental support for this Project are described in more detail below.

- **Environmental Document Production**
 - Cultural Report and National Park Service (NPS) streamlined review process.
 - Waters Delineation.
 - Dust Control Plan under Mojave Desert AQMD Rule 402.
 - Worker Environmental Awareness Procedure (WEAP).
 - Storm Water Pollution and Prevention Plan (SWPPP) and Notice of Intent (NOI).
 - Preconstruction Clearance.
 - Habitat Mitigation and Monitoring Plan (HMMP).
 - Environmental Clearance.
 - Hazardous Materials Business Plan (HMBP)
- **Preconstruction Surveys**
 - Initial site reconnaissance visit for two restoration ecologists for 10 days prior to initiation of Habitat Restoration Plan (HRP) preparation. The ecologists will document site conditions and surrounding habitat and species composition.
- **Construction Monitoring**
 - Environmental Monitoring Support includes 17 biological monitors during construction including: one monitor with each crew, one escorting vehicles from the road to the project site with each crew, one lead monitor, and two floating monitors.
 - One cultural monitor is included.
 - Additional field work and reporting required.
- **Project Closeout Activities**
 - Restoration support, permit reporting, and closeout.
- **Abatement**
 - 74 days of abatement for Asbestos Containing Materials (ACMs).
 - Includes four days for excavation and abatement at each of the 17 hydrotest breaks.
- **Water Treatment and Hazardous Materials**
 - Hydrotest water, estimated at 3,300,000 gallons, to be acquired by the pipeline contractor for hydrotesting of existing pipeline.
 - Water will be obtained from nearby well at Newberry or hydrant in Barstow and trucked to the site.
 - Assumed water treatment and discharge to land.
 - Waste sampling and profiling anticipated to support disposal of waste generated during construction.
 - Hazardous and non-hazardous waste transport and disposal anticipated for various wastes.
- **Permit Fees**
 - SWPPP fee.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 235 EAST SECTION 2 PHASE 2A HYDROTEST PROJECT

- Dust Control and abatement fees for Mojave Desert AQMD.
- Streambed Alteration Agreement fee.
- Agency 401 applications and notifications.
- Estimated fees per Bureau of Land Management (BLM) and California Department of Fish and Wildlife (CDFW) requirements.
- Approximately 3.44 acres of disturbance to federal West Mojave per BLM and CDFW requirements.
- Mojave National Preserve Land permit fee.
- BLM US Government permit fee.
- Hazardous Materials Business Plan (HMBP) fee.

Table 8: Land & Right-of-Way Acquisition

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$3,740	\$89,487	\$245,360	\$0	\$0	\$338,586
TOTAL DIRECT COSTS	\$3,740	\$89,487	\$245,360	\$0	\$0	\$338,586

Assumptions

In generating for the total estimated cost for Line 235 East Section 2 Phase 2A Hydrotest Project the following items were considered:

- **Labor**
 - One contract land agent to support land acquisition for the project.
 - Administrative support and document control specialist.
- **Temporary Right of Entry**
 - Three Temporary Rights of Entry (TREs), 10 Temporary Use Permits (TUPs), and 12 Special Use Permits (SUPs) for laydown yards and workspaces to complete the Project.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry.

Table 9: Company Labor

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$26,588	\$346,521	\$270,948	\$924,707	\$302,335	\$1,871,099
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$26,588	\$346,521	\$270,948	\$924,707	\$302,335	\$1,871,099

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 235 EAST SECTION 2 PHASE 2A HYDROTEST PROJECT

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 10: Other Costs

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$237,899	\$744,217	\$440,678	\$307,651	\$173,359	\$1,903,802
TOTAL DIRECT COSTS	\$237,899	\$744,217	\$440,678	\$307,651	\$173,359	\$1,903,802

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Construction Management and Inspection Services.
- Surveying and As-builts.

Disallowance

In D.14-06-007, the Commission approved implementation of SoCalGas and SDG&E's PSEP, and disallowed recovery of specified costs associated with pressure testing or replacing pipeline segments installed after July 1, 1961. This decision was later modified by D.15-12-020 to include pipe installed from January 1, 1956 to July 1, 1961. The Line 235 East Section 2 Phase 2A Hydrotest Project includes 10 feet of Category 4 pipe installed after January 1, 1956, that does not have test records to demonstrate compliance with the then-applicable industry or regulatory strength testing and record keeping standards. This resulted in an anticipated cost disallowance of \$1,328. The final value of the Line 235 East Section 2 Phase 2A Hydrotest Project cost disallowance will be adjusted once the project is placed in service.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

LINE 235 WEST LITTLEROCK STATION REPLACEMENT PROJECT

Table 1: Total Direct Project Cost – All Capital

Project Costs – Capital	Stage 1 ^{1,2}	Stage 2 ³	Stage 3 ⁴	Stage 4 ⁵	Stage 5 ⁶	Total
DIRECT LABOR	\$21,121	\$144,072	\$108,870	\$226,789	\$118,354	\$619,206
DIRECT NON-LABOR	\$189,055	\$1,048,818	\$2,439,145	\$5,620,794	\$331,680	\$9,629,492
TOTAL DIRECT CAPITAL COSTS	\$210,176	\$1,192,890	\$2,548,015	\$5,847,583	\$450,034	\$10,248,698

Project Description

The Line 235 West Littlerock Station Replacement Project will replace approximately 265 feet of [REDACTED] pipe and install approximately 70 feet of [REDACTED] pipe within Littlerock Station in Littlerock, California. Additionally, the project will include the installation of four [REDACTED] valves, two [REDACTED] valves, one [REDACTED] pressure control fitting (PCF) and one [REDACTED] PCF within the station.

Alternatives Considered

In conjunction with Line 235, Line 235 West is a primary feed to the SoCalGas transmission system. Abandoning this line would create a substantial loss in capacity to the Northern Transmission Zone since gas moves from the receiving points North and South of Needles, California towards Adelanto, California via Line 235 and Line 235 West. The gas supply from Adelanto supports the entire SoCalGas Transmission System, which serves the Los Angeles Basin Loop from one or more of the City Gates. Because of this, abandonment is not a viable option. Derating the pipeline to less than [REDACTED] SMYS would reduce the capacity of the system and is also not an option.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC estimate includes direct costs associated with project management, engineering and design, environmental, permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques. .

Schedule

The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

¹ Project Initiation.

² Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

³ Preliminary Design.

⁴ Detailed Design.

⁵ Construction.

⁶ Closeout.

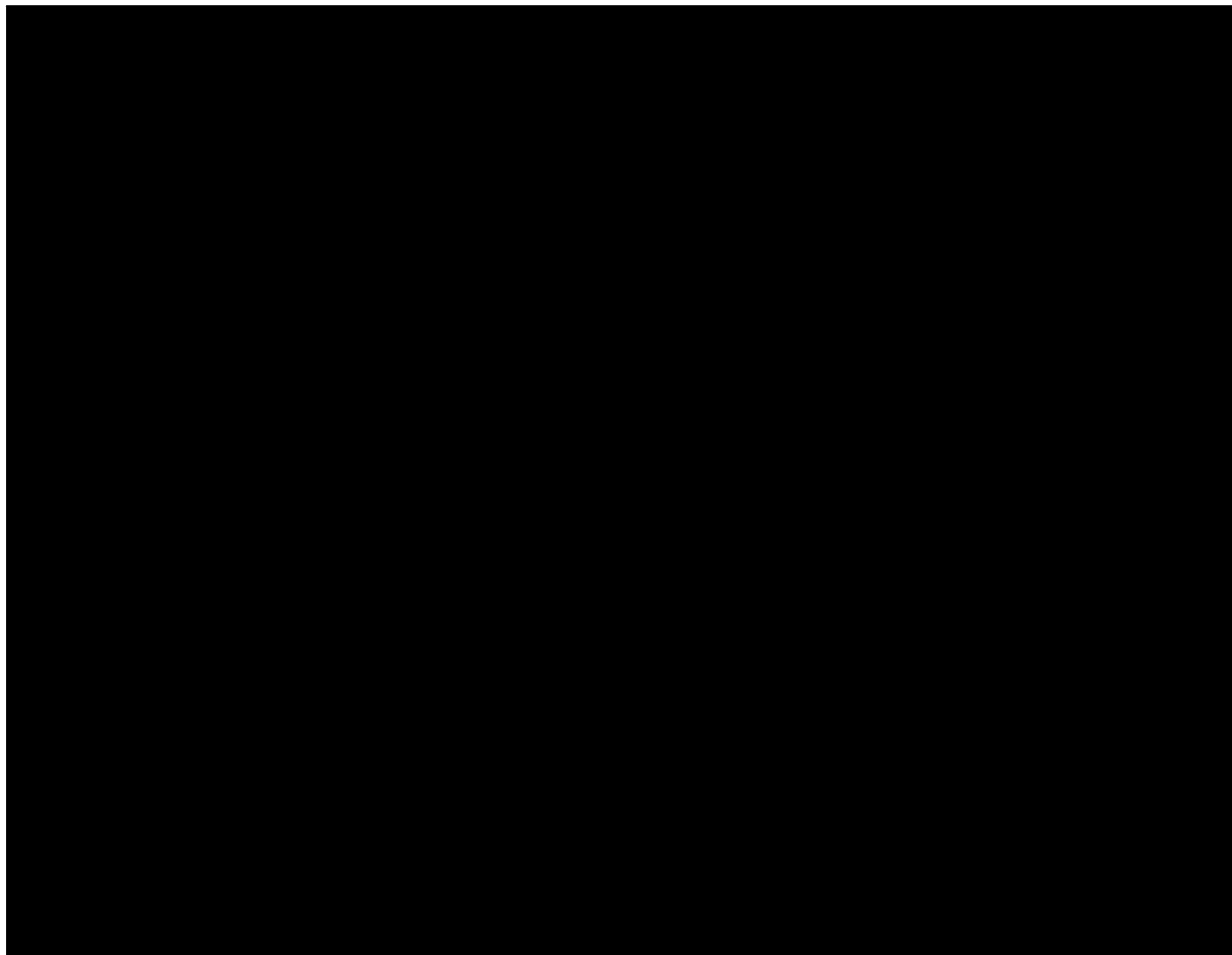
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LINE 235 WEST LITTLEROCK STATION REPLACEMENT PROJECT

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that the majority of the project costs are expended during the construction phase. The construction schedule is assumed to be 76 days.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 235 WEST LITTLEROCK STATION REPLACEMENT PROJECT

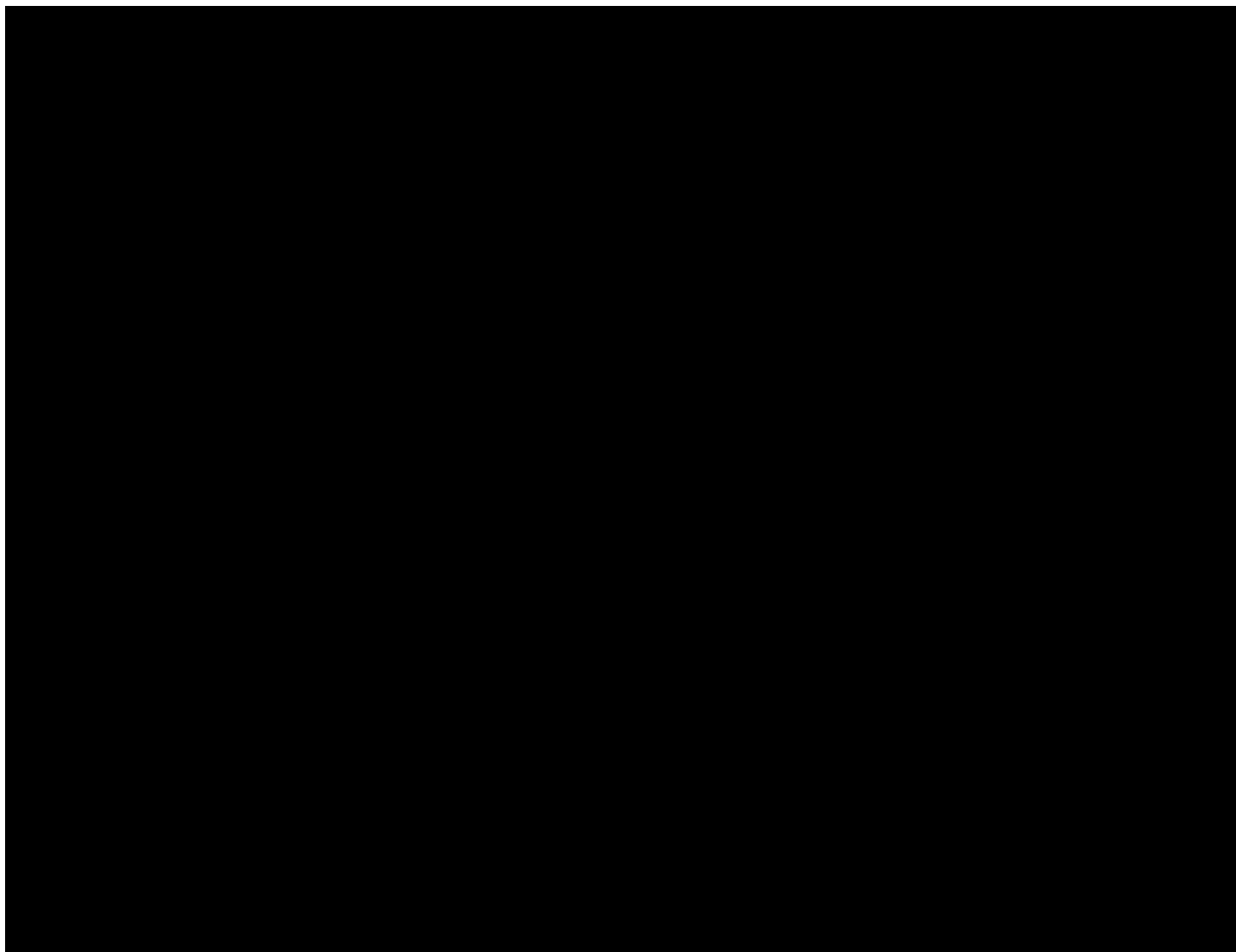
Figure 1: Overview Map for Line 235 West Littlerock Station Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

LINE 235 WEST LITTLEROCK STATION REPLACEMENT PROJECT

Figure 2: Satellite Map for Line 235 West Littlerock Station Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting SCG-15

LINE 235 WEST LITTLEROCK STATION HYDROTEST PROJECT

Table 2: Project Mileage

PHASE	MILEAGE
PHASE 2A	0.021
INCIDENTAL	0.053
ACCELERATED	0.024
TOTAL MILEAGE	0.097

The direct costs for each area are summarized below.

Table 3: Material

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$193,335	\$1,968,854	\$0	\$0	\$2,162,189
TOTAL DIRECT COSTS	\$0	\$193,335	\$1,968,854	\$0	\$0	\$2,162,189

Assumptions

Materials for this project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 265 feet [REDACTED] pipe.
- 70 feet [REDACTED] pipe.
- 36 feet [REDACTED] pipe.
- One [REDACTED] pressure control fitting (PCF).
- One [REDACTED] ball valve.

Table 4: Construction

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$1,191	\$132,425	\$104,919	\$5,309,204	\$126,548	\$5,674,287
TOTAL DIRECT COSTS	\$1,191	\$132,425	\$104,919	\$5,309,204	\$126,548	\$5,674,287

Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- Construction scheduled to include 76 working days (12 hours per day, six days per week).

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LINE 235 WEST LITTLEROCK STATION HYDROTEST PROJECT

- Receipt of all materials to main yard.
- Mechanical excavation up to approximately two feet of the existing pipeline; hand excavation within the two-foot zone.
- Backfilling all excavations with zero-sack slurry or sand padding to one foot above pipeline; remainder of backfilling with native soil or one-sack slurry (depending on permit conditions); excess spoils will be hauled off and disposed.
- A single final tie-in will be performed.
- Isolation and final tie-ins are a continuous operation.
- Fabrication of line taps and reconnection after line is brought back into service.
- Hauling off and disposal of hydrotest water.
- Assumes one laydown yard.
- Non-Destructive Examination/X-Ray of welds.
- Construction Management and Inspection Services is included.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Placement of two office trailers at the laydown yard.
 - Site facility costs for a four-month duration.
- **Site Preparation**
 - Preparation of access roads prior to start of construction.
 - Temporary fencing has been included for laydown yard.
- **Site Management / Best Management Practices (BMPs)**
 - 600 Linear Feet (LF) silt fencing and fiber rolls.
- **Traffic Control**
 - One month of Traffic Control is included.
- **Utility Locates**
 - Four utility locates are included
- **Pipeline Excavation / Fabrication / Installation**
 - Hand excavate approximately 807 Cubic Yards (CY).
 - Five 8-feet x 8-feet x 8-feet bell holes.
 - Install 335 LF of pipe.
 - Fabricate two [REDACTED] Test heads and one isolation cap.
 - Fabricate Tie-In Pieces.
- **Isolate Existing Pipeline**
 - Excavation and isolation of one tap prior to hydrotesting.

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LINE 235 WEST LITTLEROCK STATION HYDROTEST PROJECT

- Installation of Bypass piping.
- **Pressure Test Pipeline**
 - Hydrotesting one test section.
 - Installation of test heads below grade; no vertical offset installation of test heads to an above-ground orientation.
- **Tie-In Pipeline**
 - Five days to prep tie-ins for test breaks and the replacement section.
 - X-ray of all welds.
- **Retire / Abandon Existing Pipeline**
 - 516 LF of existing pipeline to abandon.
- **Site Restoration**
 - Restoration of work site location to original condition.
- **Site Demobilization**
 - Demobilization of site facilities, crew, and equipment.
 - Removal of office trailers and breakdown of laydown yard.
 - Excess piping will be hauled to SoCalGas designated yard.
- **Field Overhead**
 - Part time Project Manager, one Superintendent, one Cost Controller, and one Safety Personnel for full project duration.
 - One Part-Time Scheduler.
 - One site security personnel for all non-working hours.

Table 5: Environmental/Permitting/Monitoring/Abatement

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$15,712	\$52,904	\$63,517	\$119,582	\$56,954	\$308,668
TOTAL DIRECT COSTS	\$15,712	\$52,904	\$63,517	\$119,582	\$56,954	\$308,668

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.

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LINE 235 WEST LITTLEROCK STATION HYDROTEST PROJECT

- Permit Fees.

The high-level assumptions and specific level of effort to provide environmental support for this project are described in more detail below.

- **Environmental Document Production**
 - Water Discharge Notifications.
 - Environmental Clearance.
 - Worker Environmental Awareness Procedure (WEAP) Document.
- **Construction Monitoring**
 - 29 days for construction monitoring support monitors for the duration of construction.
- **Project Closeout activities**
 - Restoration support and permit reporting and closeout.
- **Abatement**
 - Three days for asbestos and lead paint abatement.
- **Water Treatment and Hazardous Materials**
 - Source Hydrotest water (estimated at 10,000 gallons total) from hydrant.
 - Hydrotest Water Disposal – Offsite disposal and no treatment; disposal approximately 100 miles round-trip plus disposal fee.
 - Hazardous and non-hazardous waste transport and disposal anticipated for various wastes (e.g. lead paint, pigs used to dry the pipeline post hydrostatic testing, asbestos containing material, etc.).
- **Permits**
 - Small Construction Rainfall Erosivity Waiver for the area outside of the SoCalGas right of way.

Table 6: Land & Right-of-Way Acquisition

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$627	\$4,796	\$9,064	\$0	\$0	\$14,487
TOTAL DIRECT COSTS	\$627	\$4,796	\$9,064	\$0	\$0	\$14,487

Assumptions

In generating for the total estimated cost for Line 235 West Littlerock Station Replacement Project the following items were considered:

Pipeline Safety Enhancement Plan Workpaper Supporting SCG-15

LINE 235 WEST LITTLEROCK STATION HYDROTEST PROJECT

- **Land Acquisition**
 - Acquire parcel east of the SoCalGas Littlerock Station as workspace to conduct the pipeline replacement and install fencing.
- **Temporary Right of Entry**
 - Roadway access to enter the east side of the station.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry permits.

Table 7: Company Labor

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$21,121	\$144,072	\$108,870	\$226,789	\$118,354	\$619,206
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$21,121	\$144,072	\$108,870	\$226,789	\$118,354	\$619,206

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 8: Other Costs

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$171,525	\$665,357	\$292,791	\$192,008	\$148,179	\$1,469,860
TOTAL DIRECT COSTS	\$171,525	\$665,357	\$292,791	\$192,008	\$148,179	\$1,469,860

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

LINE 235 WEST LITTLEROCK STATION REPLACEMENT PROJECT

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Surveying and As-builts.
- Project Support Services.

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LINE 404 PHASE 2A-01 HYDROTEST PROJECT

Table 1: Total Direct O&M Cost

PROJECT COSTS – O&M	Stage 1 ¹	Stage 2 ²	Stage 3 ³	Stage 4 ⁴	Stage 5 ⁵	Total
DIRECT LABOR	\$0	\$83,644	\$83,644	\$144,552	\$97,565	\$409,406
DIRECT NON-LABOR	\$0	\$221,104	\$439,016	\$4,189,974	\$112,967	\$4,963,061
TOTAL DIRECT O&M COSTS	\$0	\$304,748	\$522,660	\$4,334,527	\$210,532	\$5,372,467

Table 2: Total Direct Capital Cost

PROJECT COSTS – CAPITAL	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$142,437	\$30,296	\$30,296	\$48,359	\$35,483	\$286,871
DIRECT NON-LABOR	\$1,516,564	\$167,563	\$326,930	\$1,050,174	\$35,098	\$3,096,329
TOTAL DIRECT CAPITAL COSTS	\$1,659,000	\$197,859	\$357,227	\$1,098,533	\$70,582	\$3,383,200

Table 3: Total Direct Project Cost

TOTAL PROJECT COSTS	Stage 1 ⁶	Stage 2	Stage 3	Stage 4	Stage 5	Total ⁷
DIRECT LABOR	\$142,437	\$113,941	\$113,941	\$192,911	\$133,049	\$696,277
DIRECT NON-LABOR	\$1,516,564	\$388,667	\$765,946	\$5,240,148	\$148,065	\$8,059,390
TOTAL COSTS	\$1,659,000	\$502,607	\$879,887	\$5,433,059	\$281,114	\$8,755,668

Project Description

The Line 404 Phase 2A-01 Hydrotest Project will hydrotest approximately 6.1 miles of [REDACTED] pipe that begins on the [REDACTED] of intersection of [REDACTED] and [REDACTED] in [REDACTED], Ventura County and traverses through a mountainous area and ends in a residential area near [REDACTED] in Woodlands Hills, Los Angeles County. The hydrotest will be performed in two segments due to elevation with three test locations. The project also includes the replacement of approximately 60 feet of [REDACTED] pipe.

¹ Project Initiation.

² Preliminary Design.

³ Detailed Design.

⁴ Construction.

⁵ Closeout.

⁶ Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

⁷ Values may not add to total due to rounding.

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LINE 404 PHASE 2A-01 HYDROTEST PROJECT

Alternatives Considered

Line 404 and Line 406 provide critical redundancy for the communities between Ventura and Los Angeles, and are required to fully utilize the Goleta storage field. To maintain system capacity, these pipelines cannot be abandoned, derated, or reduced in diameter.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC estimate includes direct costs associated with project management, engineering and design, environmental permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

Schedule

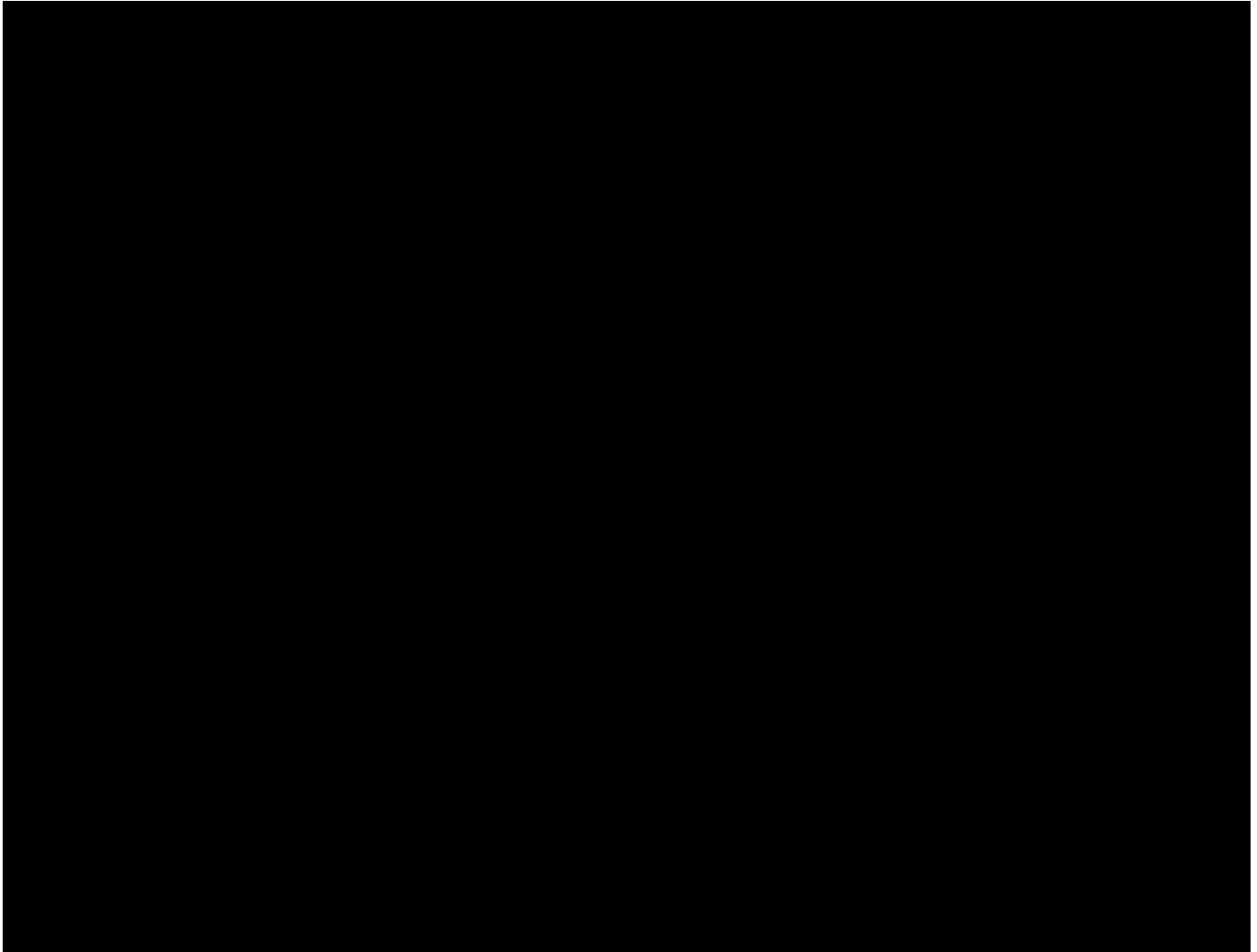
The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that the majority of the project costs are expended during the construction phase. The construction schedule is assumed to be 40 days.

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LINE 404 PHASE 2A-01 HYDROTEST PROJECT

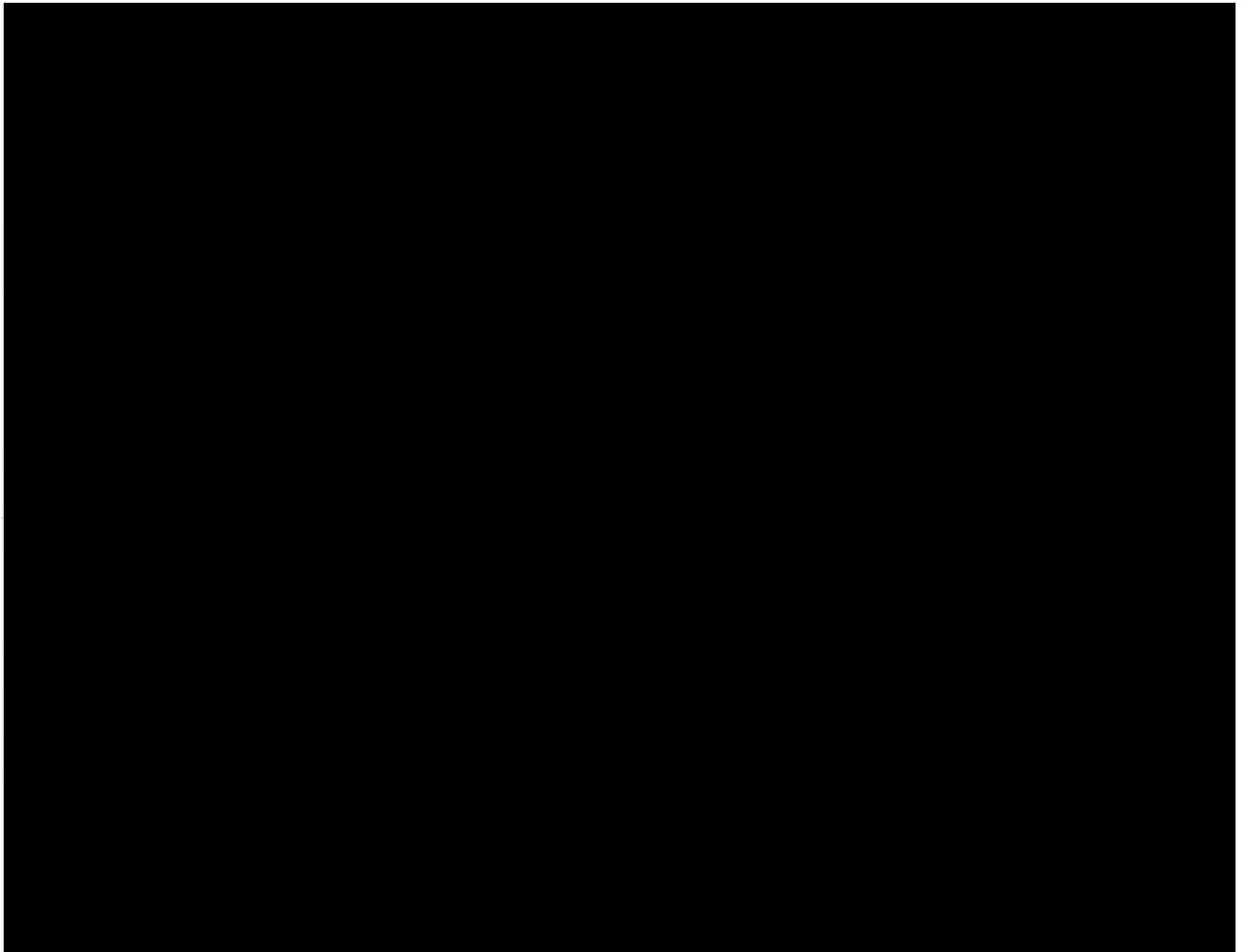
Figure 1: Overview Map for Line 404 Section 12 Phase 2A Hydrotest Project



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LINE 404 PHASE 2A-01 HYDROTEST PROJECT

Figure 2: Satellite Map for Line 404 Section 12 Phase 2A Hydrotest Project



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LINE 404 PHASE 2A-01 HYDROTEST PROJECT

Table 3: Project Mileage

PHASE	MILEAGE
PHASE 2A	2.273
INCIDENTAL	0.057
ACCELERATED	3.758
REPLACEMENT OFFSET	0.001
TOTAL MILEAGE	6.088

The direct costs for each area are summarized below.

Table 4: Material

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$64	\$98,867	\$190,530	\$0	\$0	\$289,461
TOTAL DIRECT COSTS	\$64	\$98,867	\$190,530	\$0	\$0	\$289,461

Assumptions

Materials for this project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 100 feet of [REDACTED] pipe.
- Five [REDACTED] wedding bands.
- Four [REDACTED] ball valves.

Table 5: Construction

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$34,225	\$0	\$9,196	\$4,459,650	\$45,981	\$4,549,052
TOTAL DIRECT COSTS	\$34,225	\$0	\$9,196	\$4,459,650	\$45,981	\$4,549,052

Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization.
- Work has been scheduled using a 10 hour per day, five-day work week.

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LINE 404 PHASE 2A-01 HYDROTEST PROJECT

- One lake tank.
- Three test heads with the associated [REDACTED] transfer piping will be fabricated and pretested.
- Mechanical excavation will be authorized up to within two feet of the existing pipeline. Hand excavation will be required within the two-foot zone.
- Piping outside of the station will be backfilled with zero sack slurry or sand padding to one foot above pipeline. Remainder of backfill will be performed using native soil.
- Station Piping will be backfilled with zero sack slurry.
- The pipeline will be hydrotested in two separate hydrotest segments, one segment will be hydrotested per day.
- One final tie-in will be performed.
- Isolation and final tie-ins have been assumed for a 24-hour continuous duration.
- Taps will be fabricated and then reconnected after line is brought back into service.
- Hydrotest water will be reused for dust control and/or discharged to the ground.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Two office trailers will be placed at the laydown yard.
 - Site facility costs cover a three-month duration.
 - 2,700 linear feet (LF) of temporary fill piping will be installed for the two laydown yards and Lank Tank work site.
- **Site Preparation**
 - 400 Tons of aggregate for the two laydown yards.
 - Scaffolding Platform rental for three-months with helicopter support for set up in preparation of pipe span work.
 - One day of preparation for grading a stabilization pad for lake tank.
 - Four days for pipeline span supports.
- **Site Management / Best Management Practices (BMPs)**
 - The installation of tire rumble plates for two separate entrance locations.
 - Straw wattles to be procured for the open excavations at the tap and test breaks.
 - Fiber rolls, wood stakes, quarry spalls, geotextile fabric, sandbags, reinforced poly sheeting, silt fencing with stakes and rumble plates will be procured and installed for BMP measures.
- **Material Handling**
 - Three loads of material will be unloaded at laydown yard and transported as needed.
- **Traffic Control**
 - Traffic control crew and equipment included.

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LINE 404 PHASE 2A-01 HYDROTEST PROJECT

- **Site ROW Clearing**
 - Three days of site clearing for Laydown yard 1 and Lake Tank area.
 - Two days of site clearing for Laydown yard 2.
 - Two days of site clearing for accessing spans 1, 2, and 3 (7,632 square feet).
 - One day to remove 50 LF of station fencing to access Simi Taps.
 - Hauling and disposal of mixed debris and disposal fee.
- **Utility Locates**
 - Utility locates to verify coating and pipe integrity for placement of test head manifolds.
- **Isolate Existing Pipeline**
 - A total of three taps will be isolated prior to hydrotesting.
- **Pressure Test Pipeline**
 - Three sites will be excavated for test head manifold installation.
 - Two individual test sections will be hydrotested.
 - One hydrotest section will be tested per day.
 - Test heads will be installed below grade.
- **Tie In Pipeline**
 - Once pipe sections have been hydrotested and dewatered, the test breaks will have pipe reinstalled prior to drying of test groups.
 - Two hot tie-ins will be performed at hydrotest breaks.
 - All tie-in welds will be x-rayed.
- **Site Restoration**
 - All work site locations will be restored to original condition.
 - Disturbed native areas will be restored and graded to drain.
- **Site Demobilization**
 - All site facilities will be demobilized.
 - Three loads of excess piping will be hauled to SoCalGas facility.
 - Crew and equipment will be demobilized.
- **Field Overhead**
 - One Full-Time Superintendent.
 - One Full-Time Safety Supervisor.
 - One Part-Time Timekeeper.
 - One Part-Time Scheduler.
 - One Part-Time Cost Controller.
 - Four three quarter ton pickup trucks for the full project duration.
 - One Full-Time Water Truck and Driver and one Water Truck and Driver from excavation through backfill

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LINE 404 PHASE 2A-01 HYDROTEST PROJECT

activities for dust and fire suppression.

- Two site security personnel for all non-working hours.

Table 6: Environmental/Permitting/Monitoring/Abatement

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$594,743	\$127,824	\$383,473	\$682,234	\$0	\$1,788,276
TOTAL DIRECT COSTS	\$594,743	\$127,824	\$383,473	\$682,234	\$0	\$1,788,276

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.
- Permit Fees.
- Mitigation Fees.

The high-level assumptions and specific level of effort to provide environmental support for this project are described in more detail below.

- **Environmental Document Production**
 - Worker Environmental Awareness Procedure (WEAP).
 - Storm Water Pollution and Prevention Plan (SWPPP) and Notice of Intent (NOI).
 - Preconstruction Clearance.
 - Environmental Clearance.
 - California Gnatcatcher Protocol Survey.
 - Cultural Report and National Park Service (NPS) streamlined review process.
 - Waters Delineation.
 - Biological Report.
 - Rare Plant Survey Report.
 - Agency (401/404/SAA) applications and notifications.
 - Section 7 (BE/BA).
- **Preconstruction Surveys**
 - Preconstruction wildlife and nesting bird survey report.
 - Rare plant survey and topsoil flagging.

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- **Construction Monitoring**
 - 150 days full time monitoring.
- **Project Closeout Activities**
 - Restoration support, permit reporting, and closeout.
- **Abatement**
 - 3 days for abatement of ACMs.
- **Water Treatment and Hazardous Materials**
 - Hydrostatic test water, estimated at 460,000 gallons, to be acquired by the pipeline contractor.
 - Water for hydrotest will be provided from nearby fire hydrant.
 - Hazardous and non-hazardous waste transport and disposal anticipated for various wastes (e.g. lead paint waste, pigs used to dry the pipeline post hydrotest, asbestos containing material, etc.).
- **Permit Fees**
 - Storm Water Pollution and Prevention Plan (SWPPP) fee.
 - Ventura County Air Pollution Control District (VCAPCD) and South Coast Air Quality Management District (SCAQMD) asbestos notification fee.
 - California Environmental Quality Act (CEQA)
 - Assumes formal consultation with the U.S. Fish and Wildlife Service (USFWS) under Sections 7 of the Endangered Species Act (ESA) will be required, and that California Endangered Species Act § 2081 will not be required.
 - California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement.
 - Los Angeles Regional Water Quality Control Board (RWQCB) Section 401 Certification.
 - National Park Service (NPS) Archaeological Resources Protection Act (ARPA) permit.
 - Ventura County Watershed Protection District Red Line Creek Watercourse Permit.
 - Assumes that Water of the United States (WOTUS) will not be impacted, but if impacts occur, then most permits issued by Corps of Engineers, does not have an associated permit fee. Assuming potential impacts to be covered under Nationwide Permit 12 (NWP 12) WOTUS.
- **Mitigation Fees**
 - Assumes no jurisdictional waters compensatory mitigation required for span support.
 - Temporary impact to 2.05 acres of California grassland in specified areas.

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LINE 404 PHASE 2A-01 HYDROTEST PROJECT

Table 7: Land & Right-of-Way Acquisition

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$71,334	\$23,368	\$70,103	\$0	\$0	\$164,804
TOTAL DIRECT COSTS	\$71,334	\$23,368	\$70,103	\$0	\$0	\$164,804

Assumptions

In generating for the total estimated cost for Line 404 Phase 2A-01 Hydrotest Project the following items were considered:

- **Labor**
 - One contract land agent.
- **Legal Services**
 - Appraisal Reports.
 - Title Reports.
- **Temporary Right of Entry**
 - Laydown yard and parking.
 - Workspace.
 - Access road.
- **Restoration**
 - Road washout repair payment to Mountains Recreation & Conservation Authority (MRCA)

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry permits.

Table 8: Company Labor

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$142,437	\$113,941	\$113,941	\$192,911	\$133,049	\$696,277
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$142,437	\$113,941	\$113,941	\$192,911	\$133,049	\$696,277

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following

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LINE 404 PHASE 2A-01 HYDROTEST PROJECT

categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 9: Other Costs

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$816,198	\$138,608	\$112,644	\$98,264	\$102,084	\$1,267,798
TOTAL DIRECT COSTS	\$816,198	\$138,608	\$112,644	\$98,264	\$102,084	\$1,267,798

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Construction Management and Inspection Services.
- Surveying and As-builts.

Disallowance

In D.14-06-007, the Commission approved implementation of SoCalGas and SDG&E's PSEP, and disallowed recovery of specified costs associated with pressure testing or replacing pipeline segments installed after July 1, 1961. This decision was later modified by D.15-12-020 to include pipe installed from January 1, 1956 to July 1, 1961. The Line 404 Phase 2A-01 Hydrotest Project includes 3,063.92 feet/0.58 miles of Category 4 pipe installed after January 1, 1956, that does not have test records to demonstrate compliance with the then-applicable industry or regulatory strength testing and record keeping standards. This resulted in an anticipated cost disallowance of \$569,162. The final value of the Line 404 Phase 2A-01 Hydrotest Project cost disallowance will be adjusted once the project is placed in service.

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LINE 406 PHASE 2A HYDROTEST PROJECTS

Table 1: Total Direct O&M Cost

PROJECT COSTS – O&M	Stage 1 ¹	Stage 2 ²	Stage 3 ³	Stage 4 ⁴	Stage 5 ⁵	Total
DIRECT LABOR	\$15,542	\$393,319	\$393,319	\$748,992	\$458,477	\$2,009,649
DIRECT NON-LABOR	\$1,341,897	\$2,758,994	\$3,049,856	\$13,374,373	\$1,043,821	\$21,568,941
TOTAL DIRECT O&M COSTS	\$1,357,439	\$3,152,314	\$3,443,175	\$14,123,365	\$1,502,298	\$23,578,590

Table 2: Total Direct Capital Cost

PROJECT COSTS – CAPITAL	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$72,421	\$287,768	\$287,768	\$568,406	\$332,524	\$1,548,887
DIRECT NON-LABOR	\$567,558	\$1,690,448	\$2,532,903	\$13,959,148	\$839,607	\$19,589,663
TOTAL DIRECT CAPITAL COSTS	\$639,979	\$1,978,216	\$2,820,671	\$14,527,554	\$1,172,131	\$21,138,550

Table 3: Total Direct Project Cost

TOTAL PROJECT COSTS	Stage 1 ⁶	Stage 2	Stage 3	Stage 4	Stage 5	Total ⁷
DIRECT LABOR	\$88,169	\$718,766	\$718,766	\$1,396,218	\$834,431	\$3,756,351
DIRECT NON-LABOR	\$1,909,455	\$4,619,978	\$5,880,958	\$29,099,241	\$1,984,363	\$43,493,995
TOTAL COSTS	\$1,997,624	\$5,338,744	\$6,599,724	\$30,495,460	\$2,818,794	\$47,250,345

Project Description

The Line 406 Phase 2A Hydrotest Projects will hydrotest approximately 14.3 miles of [REDACTED] pipeline across six individual project sections. The projects start in Ventura and ends in Thousand Oaks.

The Line 406 Section 11 Phase 2A Hydrotest Project will hydrotest approximately 3.7 miles of pipeline in six test segments due to elevation changes along the pipeline. The Project begins approximately [REDACTED] of [REDACTED] and ends approximately [REDACTED] of [REDACTED] in Ventura.

¹ Project Initiation.

² Preliminary Design.

³ Detailed Design.

⁴ Construction.

⁵ Closeout.

⁶ Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

⁷ Values may not add to total due to rounding.

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LINE 406 PHASE 2A HYDROTEST PROJECTS

The Line 406 Section 12 Phase 2A Hydrotest Project will hydrotest approximately 1.4 miles of pipeline in two test segments due to elevation. The Project begins on [REDACTED] and ends at the intersection of [REDACTED] in Ventura.

The Line 406 Section 13 Phase 2A Hydrotest Project will hydrotest approximately 2.4 miles of pipeline. The Project starts at mainline valve (MLV) 406-11.49-0 in unincorporated Ventura County and ends west of [REDACTED] near the [REDACTED] in Somis.

The Line 406 Section 14 Phase 2A Hydrotest Project will hydrotest approximately 4.7 miles of pipeline. The Project starts [REDACTED] of [REDACTED] near [REDACTED] and ends [REDACTED] of [REDACTED] in Somis.

The Line 406 Section 15 Phase 2A Hydrotest Project will hydrotest approximately 2.0 miles of pipeline in two test segments due to elevation. The Project starts [REDACTED] of [REDACTED] in Somis and ends on [REDACTED] of Santa Rosa Road in Camarillo.

The Line 406 Section 16 Phase 2A Hydrotest project will hydrotest approximately 1.1 miles of pipeline in two test segments due to elevation. The Line 406 Section 16 Phase 2A Hydrotest project starts at MLV 406-25.06-0 on [REDACTED] in Camarillo and ends on the [REDACTED] of [REDACTED] in Thousand Oaks.

Project activities described below will identify cumulative estimating assumptions for all Project sections and will also separately identify any estimating assumptions unique to one or more of the Project sections.

Alternatives Considered

Line 404 and Line 406 provide critical redundancy for the coastal communities between Ventura and Los Angeles, and are required to fully utilize the Goleta storage field. To maintain system capacity, these pipelines cannot be abandoned, derated, or reduced in diameter.

Forecast Methodology

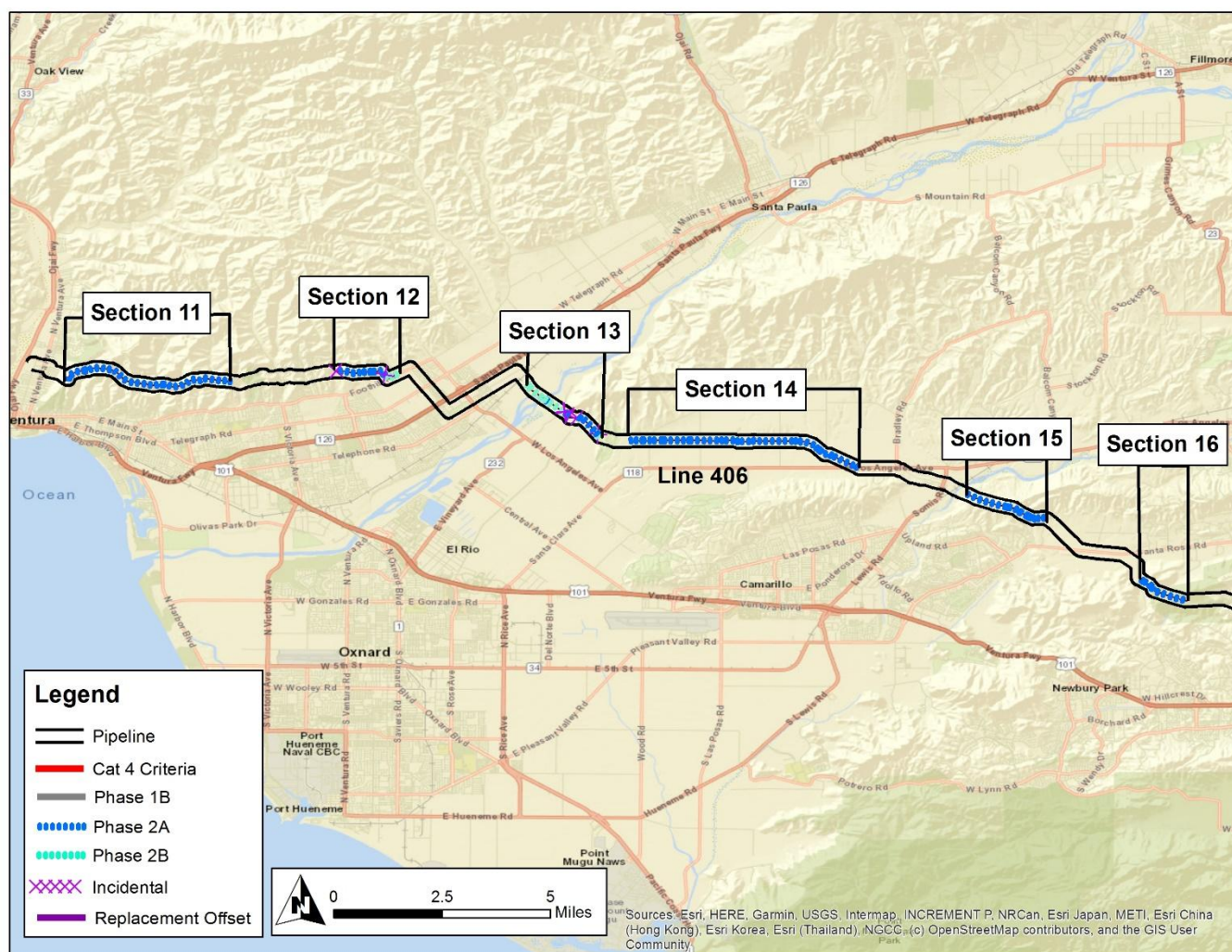
SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC Estimate includes direct costs associated with project management, engineering and design, environmental permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

Schedule

The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

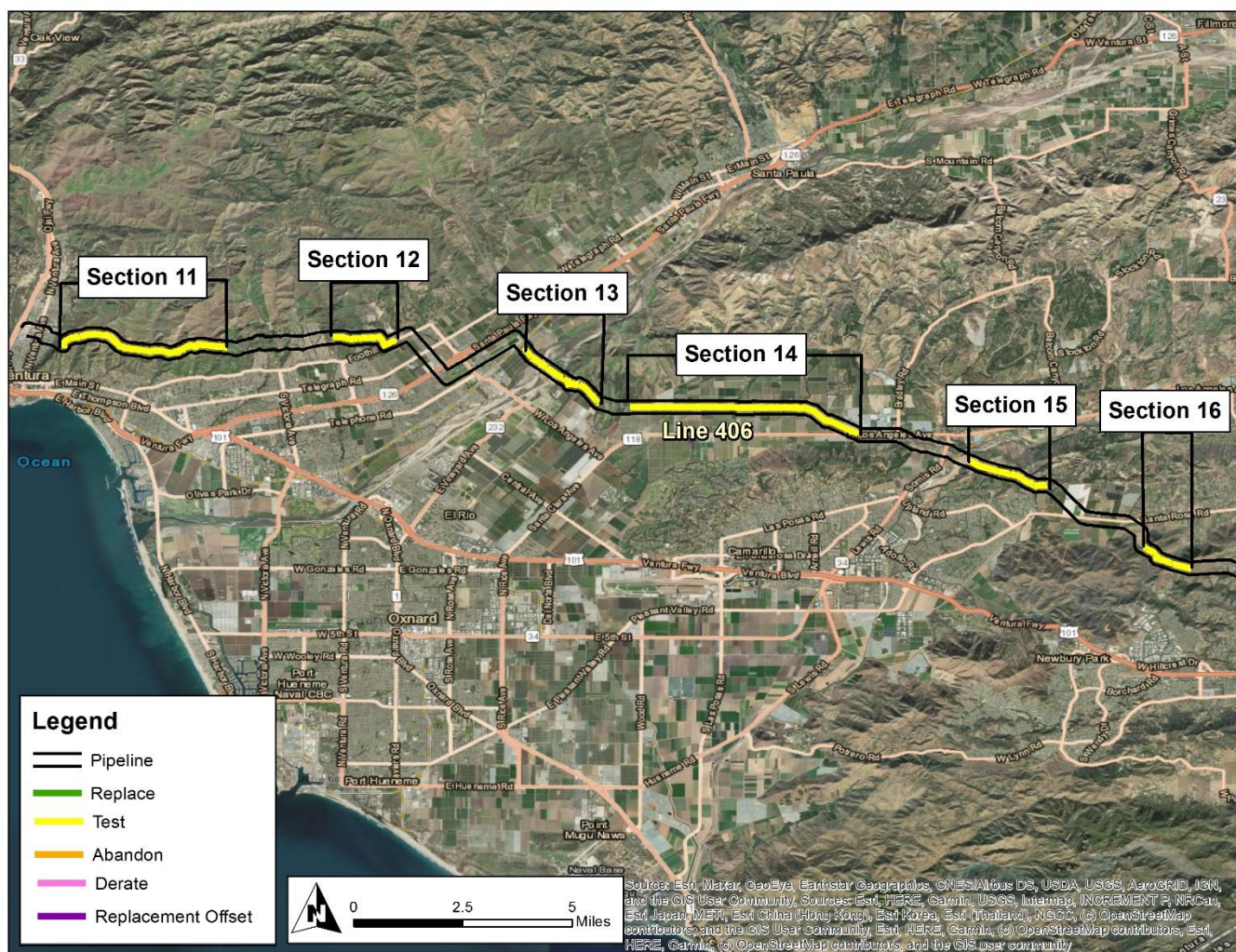
The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that typically 50% of the project costs are expended during the construction phase. The construction schedule is assumed to be: 64 days for Section 11, 41 days for Section 12, 41 days for Section 13, 38 days for Section 14, 51 days for Section 15, and 90 days for Section 16.

Figure 1: Overview Map for Line 406 Phase 2A Hydrotest Projects



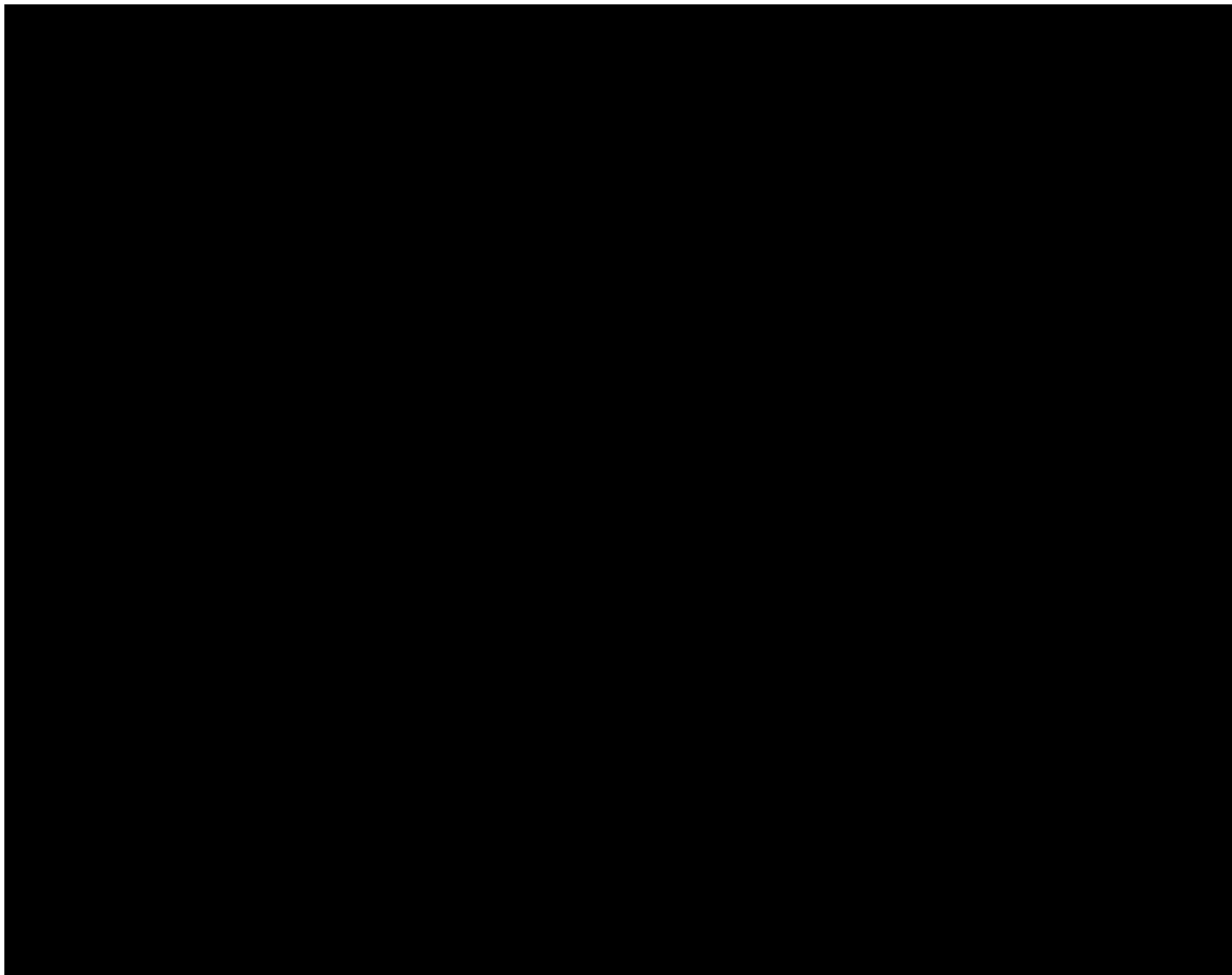
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LINE 406 PHASE 2A HYDROTEST PROJECTS

Figure 2: Satellite Map for Line 406 Phase 2A Hydrotest Projects



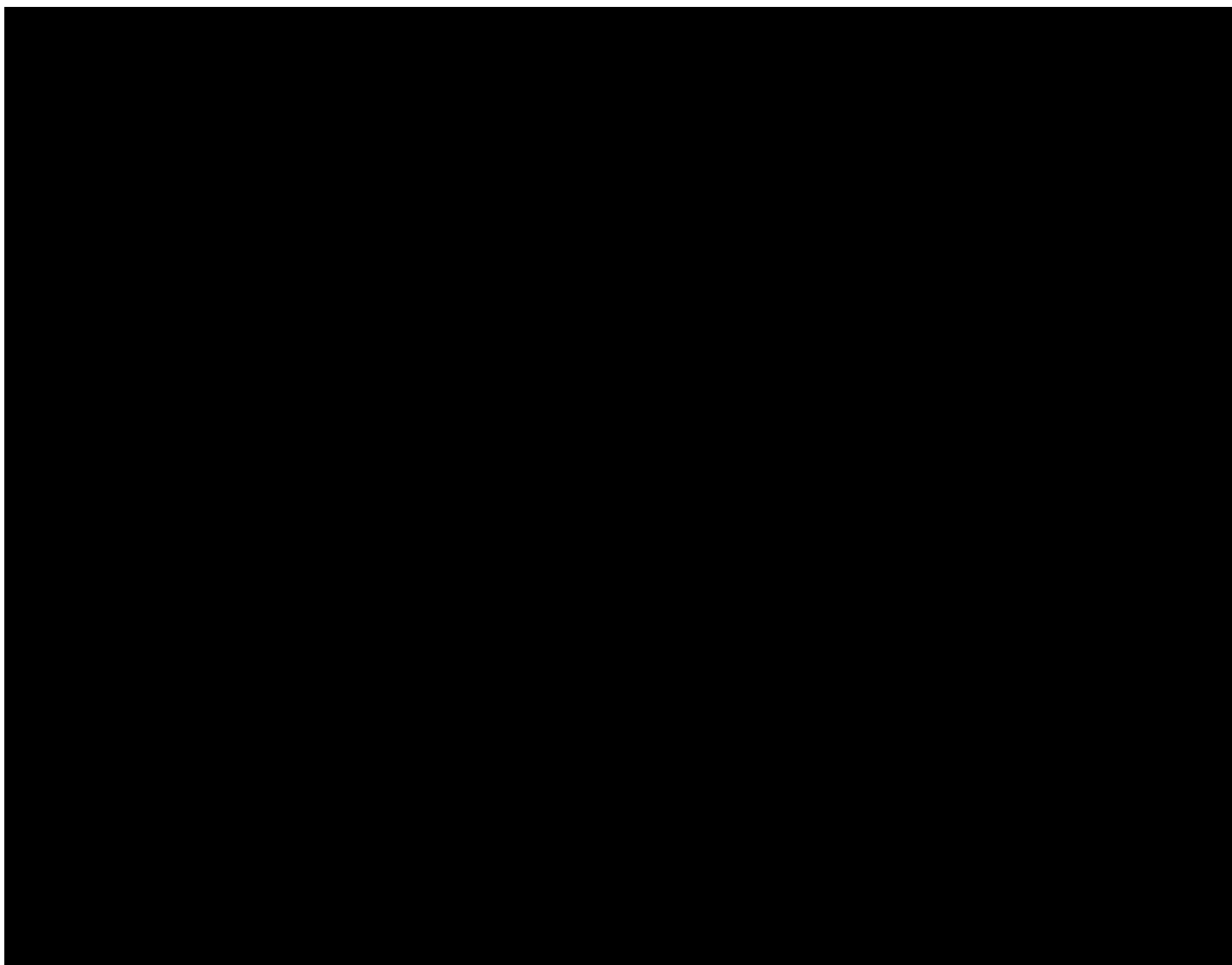
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LINE 406 PHASE 2A HYDROTEST PROJECTS

Figure 3: Satellite Map for Line 406 Section 11 Phase 2A Hydrotest Project



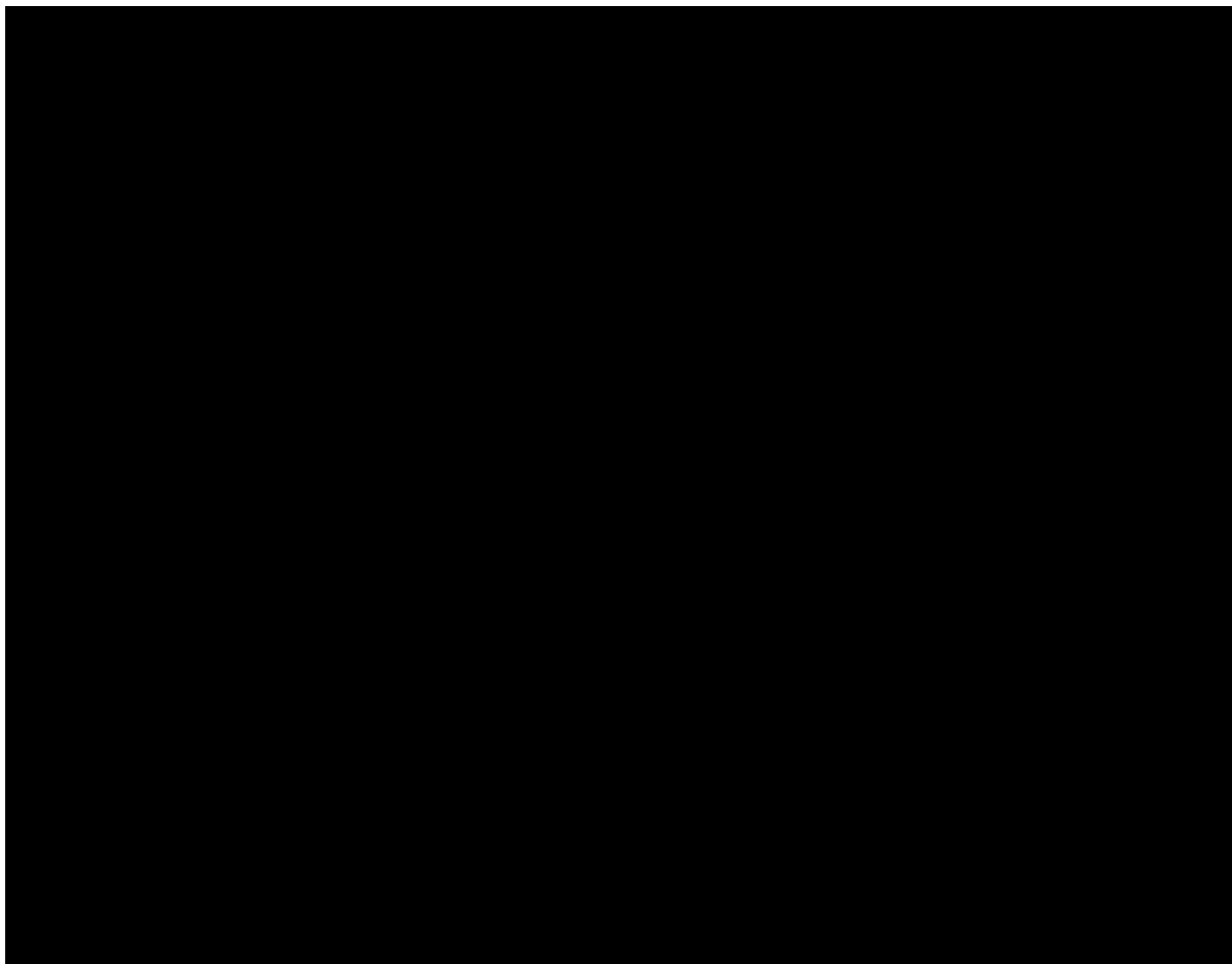
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LINE 406 PHASE 2A HYDROTEST PROJECTS

Figure 4: Satellite Map for Line 406 Section 12 Phase 2A Hydrotest Project



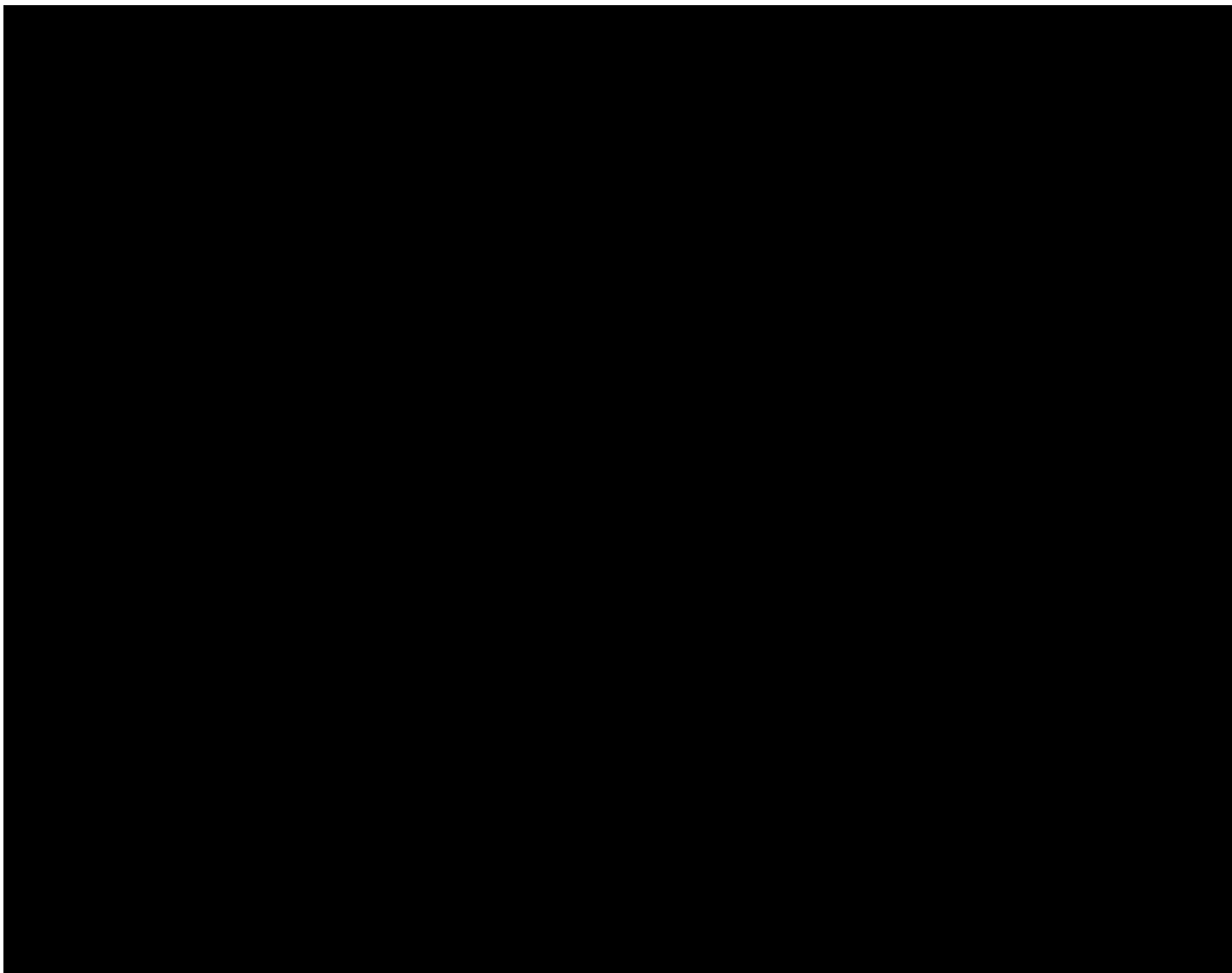
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LINE 406 PHASE 2A HYDROTEST PROJECTS

Figure 5: Satellite Map for Line 406 Section 13 Phase 2A Hydrotest Project



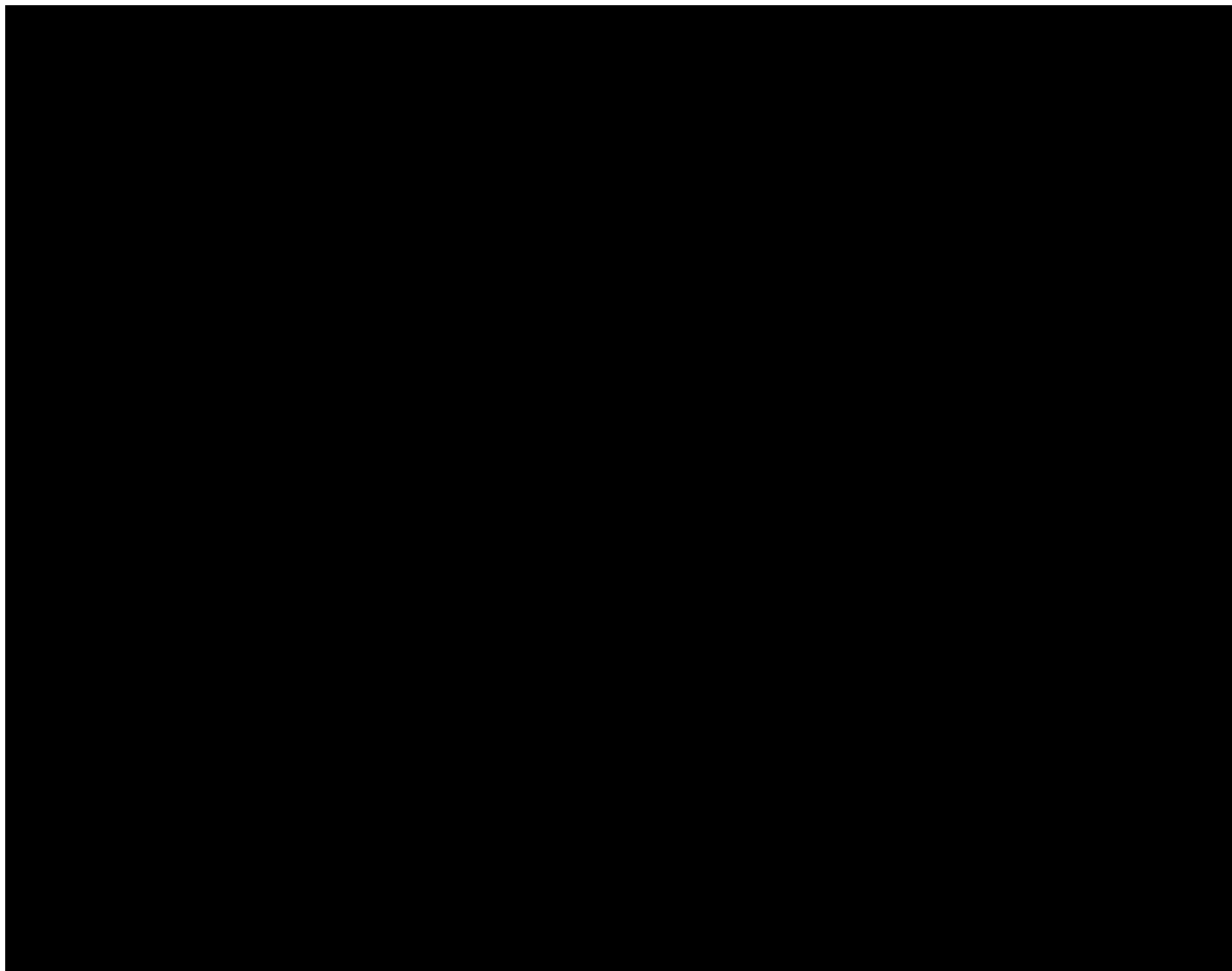
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LINE 406 PHASE 2A HYDROTEST PROJECTS

Figure 6: Satellite Map for Line 406 Section 14 Phase 2A Hydrotest Project



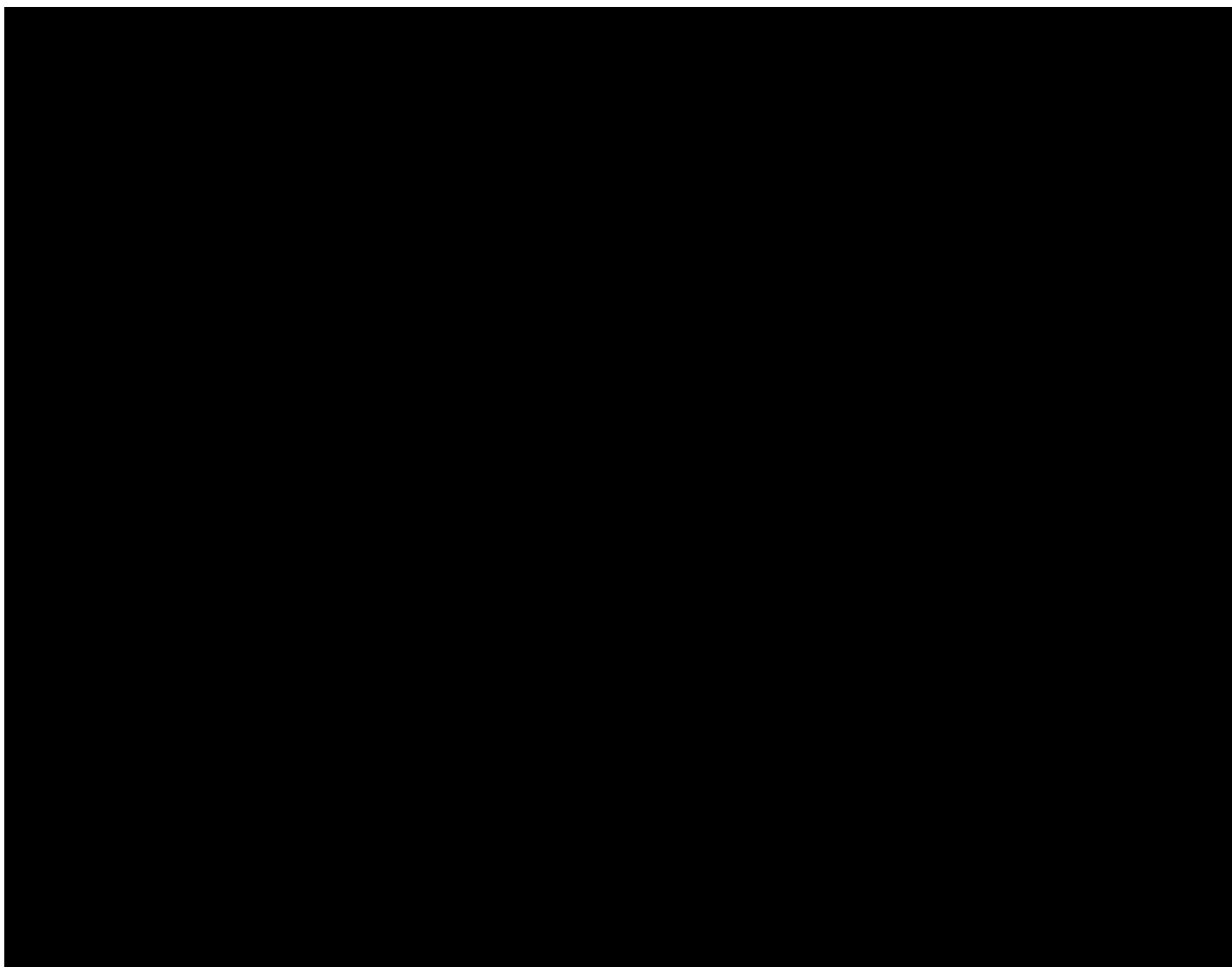
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LINE 406 PHASE 2A HYDROTEST PROJECTS

Figure 7: Satellite Map for Line 406 Section 15 Phase 2A Hydrotest Project



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LINE 406 PHASE 2A HYDROTEST PROJECTS

Figure 6: Satellite Map for Line 406 Section 16 Phase 2A Hydrotest Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 406 PHASE 2A HYDROTEST PROJECTS

Table 4: Project Mileage

PHASE	MILEAGE
PHASE 2A	11.680
ACCELERATED	2.199
COORDINATED	0.845
INCIDENTAL	0.626
TOTAL MILEAGE	15.350

The direct costs for each area are summarized below.

Table 5: Material

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$52	\$1,108,211	\$1,645,472	\$849	\$633	\$2,755,216
TOTAL DIRECT COSTS	\$52	\$1,108,211	\$1,645,472	\$849	\$633	\$2,755,216

Assumptions

Materials for this project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- Section 11
 - 760 feet of [REDACTED] pipe.
 - 16 [REDACTED] ball valves.
- Section 12
 - 280 feet of [REDACTED] pipe.
 - Six [REDACTED] ball valves.
- Section 13
 - 160 feet of [REDACTED] pipe.
 - Four [REDACTED] ball valves.
- Section 14
 - 200 feet of [REDACTED] pipe.
 - Two [REDACTED] ball valves.
- Section 15
 - 240 feet of [REDACTED] pipe.
- Section 16
 - 560 feet of [REDACTED] pipe.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
LINE 406 PHASE 2A HYDROTEST PROJECTS

Table 6: Construction

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$20,400	\$50,698	\$89,159	\$25,650,217	\$312,524	\$26,122,998
TOTAL DIRECT COSTS	\$20,400	\$50,698	\$89,159	\$25,650,217	\$312,524	\$26,122,998

General Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization per Project section.
- Contractor work has been scheduled using a 10-hour per day, five day work week calendar.
- All materials will be received at the laydown yard.
- Mechanical excavation will be authorized up to within two feet of the existing pipeline. Hand excavation will be required within the two foot zone.
- All excavations will be backfilled with zero sack slurry or sand padding to one foot above pipeline. Remainder of backfill will be performed using native soil.
- Non-Destructive Examination/X-Ray of welds.
- Construction Management and Inspection Services during project execution.

Section 11

- 15 water tanks will be used for hydrotesting.
- All materials will be received at the laydown yard.
- 14 test heads with the associated [REDACTED] transfer piping will be fabricated and pre-tested.
- One pipeline feature will be replaced.
- Six pipeline segments will be hydrotested at a rate of two segments per day.
- Final tie-ins have been assumed for a 24-hour continuous duration.
- Hydrotest water will be hauled off and disposed.

Section 12

- Seven water tanks will be used for hydrotesting.
- Four test heads with the associated [REDACTED] transfer piping will be fabricated and pre-tested.
- The pipeline will be tested in two separate test segments.
- A single final tie-in will be performed.
- Isolation and final tie-ins have been assumed for a 24-hour continuous duration.
- Hydrotest water will be hauled off and disposed.

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LINE 406 PHASE 2A HYDROTEST PROJECTS

Section 13

- 10 water tanks will be used for hydrotesting.
- Two test heads with the associated [REDACTED] transfer piping will be fabricated and pre-tested.
- Two existing taps will be isolated during the hydrotest.
- The pipeline will be tested in one test segment.
- Taps will be fabricated and then reconnected after line is brought back into service.
- Line taps will be fabricated and then reconnected after line is brought back into service.

Section 14

- Tie-ins will be performed during a single 24-hour shift.
- Hydroseeding has been included for site restoration activities.
- Laydown yards will be restored to original condition at the end of the project.

Section 15

- Twelve water tanks will be used for hydrotest.
- Test heads will be fabricated and pre-tested.
- The pipeline will be tested in two separate test segments, testing one per day.
- A single final tie-in will be performed.
- Isolation and final tie-ins have been assumed for a 24-hour continuous duration.
- Hydrotest water will be hauled off and disposed.

Section 16

- Eleven water tanks will be used for hydrotesting.
- Ten test heads with the associated [REDACTED] transfer piping will be fabricated and pre-tested.
- Six existing taps will be isolated during the hydrotest.
- No anomalies have been assumed in the estimate.
- A single final tie-in will be performed.
- Isolation and final tie-ins have been assumed for a 24-hour continuous duration.
- Line taps will be fabricated and then reconnected after line is brought back into service.
- Temporary support for one pipe span during hydrotest.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Two office Trailers for management and inspection personnel at various laydown yards across the project.
 - Site facility costs cover for three month duration for Section 11 and two month duration for Section 12, Section 13, Section 14, Section 15, and Section 16.
 - Temporary fencing for laydown yards, test break sites, and any open excavations.
 - Crushed rock for the laydown yards and water tank pad stabilization.

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- **Site Preparation**
 - Preparation activities and grading of access roads include 10 days for Section 11, two days for Section 12, two days for Section 13, one day for Section 14, three days for Section 15, and 14 days for Section 16.
- **Site Management / Best Management Practices (BMPs)**
 - Silt fencing has been included at each of the hydrotest break and anomaly excavations, nine each.
 - BMP materials have been included for all spoil piles, laydown yards, and work sites.
- **Material Handling**
 - Two loads of material will be unloaded at laydown yards and transported as needed for Section 11.
 - One load of material will be unloaded at laydown yards and transported as needed for Section 12.
 - One load of material will be unloaded at laydown yards and transported as needed for Section 13.
 - Two loads of material will be unloaded at laydown yards and transported as needed for Section 14
 - Two loads of material will be unloaded at laydown yards and transported as needed for Section 15.
 - Two loads of material will be unloaded at laydown yards and transported as needed for Section 16.
- **Traffic Control**
 - 12 days of traffic control estimated for Section 14.
- **Utility Locates**
 - Utility locates have been included in order to verify coating and pipe integrity prior to installing testing manifolds.
- **Site Excavation**
 - All excavation work to expose existing piping will be performed mechanically with the exception of areas within two feet of pipe, which will be performed by hand.
 -
- **Isolate Existing Pipeline**
 - One 10-hour shift to isolate pipeline for Section 12, and one 24 hour shift to isolate the pipeline for other Project Sections.
 - Six taps will be isolated prior to hydrotesting for Section 16.
- **Hydrotest / Pressure Test Pipeline**
 - Six hydrotests total with two hydrotests per day.
 - A total of three test breaks sites will be excavated for test head manifold installation.
 - 10 hours for filling for each Project Section.
 - Approximately 12-16 hours for testing each Project Section.
 - 10-12 hours for dewatering each Project Section.
 - 10-20 hours for drying for each Project Section.
- **Fabricate New Features**
 - This estimate assumes the use of a fabrication crew to fabricate piping onsite/in fab yard.
 - Cost to fabricate two test heads and four isolation caps have been included.

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- **Tie-In Pipeline**
 - Tie-ins will be performed in one continuous 24-hour shift for each Project Section.
 - All tie-in welds will be x-rayed.

- **Site Restoration**
 - All work site locations will be restored to original condition. Some worksites will utilize hydroseeding or jute matting.

- **Site Demobilization**
 - All site facilities will be demobilized.
 - One load of excess piping will be hauled to SoCalGas designated yard.
 - Crew and Equipment will be demobilized.

- **Field Overhead**
 - Full-time Superintendent for each Project Section.
 - Full-time Project Engineer for Project Sections 11, 12, 14 and 16.
 - Full-time or Part-time Cost Controller for each Project Section.
 - Full-time Timekeeper for each Project Section.
 - Full-time or Part-time Project Manager for each Project Section.
 - Full-time or Part-time Safety Personnel for each Project Section.
 - Full-time security personnel for each Project Section during all non-working hours.
 - One water truck and driver for the duration of the project for dust control for Project Section 15 and 16.

Table 7: Environmental Survey/Permitting/Monitoring/Abatement

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$353,291	\$763,606	\$1,369,652	\$2,566,058	\$372,287	\$5,424,894
TOTAL DIRECT COSTS	\$353,291	\$763,606	\$1,369,652	\$2,566,058	\$372,287	\$5,424,894

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.
- Permit Fees.

The high-level assumptions and specific level of effort to provide environmental support for this project are described in more detail below.

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- **Environmental Documentation Production**

- Waters delineation.
- Biological Reports.
- Agency (401/404/SAA) applications and notifications.
- Cultural survey report, testing plan, and testing/evaluation report.
- Rare plant survey report.
- Worker Environmental Awareness Procedure (WEAP) document.
- Storm Water Pollution and Prevention Plan (SWPPP) and Notice of Intent (NOI).
- Preconstruction Clearance.
- Environmental Clearance.

- **Preconstruction Surveys**

- Preconstruction wildlife survey reports.
- Rare plant survey and topsoil flagging.
- Cultural survey.
- General Wildlife/Nesting Bird Survey.
- Focused California Gnatcatcher Survey.
- Focused Crotch's Bumble Bee Survey.
- California Gnatcatcher Protocol Surveys.
- Lyon's Pentachaeta Survey.

- **Construction Monitoring**

Section 11

- One monitor for duration of project.
- One archaeological monitor for three days.

Section 12

- One monitor for 17 days during excavation and restoration activities.

Section 13

- One monitor for 18 days during excavation and restoration activities.

Section 14

- One monitor for 18 days during excavation and restoration activities.

Section 15

- Two monitor for 19 days during excavation and restoration activities.

Section 16

- Four monitors for duration of project.
- One environmental monitor during potholing activities assumed for 10 hours.

- **Project Closeout Activities**

- Permit reporting and project closeout.

- **Abatement**

- 16 days for ACM abatement for Section 11.
- Six days for ACM abatement for Section 12.

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- Four days for ACM abatement for Section 13.
 - Five days for ACM abatement for Section 14
 - Three days for ACM abatement for Section 15.
 - Six days for ACM abatement for Section 16.
- **Water Treatment and Hazardous Materials**
 - Hydrotest water disposal to offsite disposal (coastal area 0 to 200 miles roundtrip plus disposal fee) for each Project Section.
 - Hydrotest standby support for each Project Section.
 - Waste sampling and profiling anticipated to support disposal of wastes generated during construction for each Project Section.
 - Hazardous and non-hazardous waste transport and disposal anticipated for various wastes (e.g. lead paint waste, pigs used to dry the pipeline post hydrotest, asbestos containing material, etc.) for each Project Section.
 - **Permit Fees**
 - SWPPP fee (fees are set by the agency and are subject to change).
 - Assumes the worst-case scenario of an IS/MND and ITP for Crotch's Bumble Bee. The CEQA document will be conducted partially by Rincon and partially by the County of Ventura who will bill SoCalGas for their expenses.
 - Exempt from National Environmental Quality Act (NEPA).
 - Assumes formal consultation with the U.S. Fish and Wildlife Service (USFWS) under Sections 7 or 10 of the Endangered Species Act (ESA) or California Endangered Species Act § 2081 will be required.
 - California Department of Fish and Wildlife (CDFW) Section 1600 for span support (fees are determined by the agency and are subject to change).
 - Los Angeles Regional Water Quality Control Board (RWQCB) Section 401 (fees are determined by the agency and are subject to change).
 - Ventura County Demolition permit fees to demo structures less than 50 years old.

Table 8: Land & Right-of-Way Acquisition

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$61,514	\$547,278	\$1,565,329	\$0	\$0	\$2,174,121
TOTAL DIRECT COSTS	\$61,514	\$547,278	\$1,565,329	\$0	\$0	\$2,174,121

Assumptions

In generating for the total estimated cost for each Project the following items were considered:

- **Labor**
 - One contract land agent and support for duration of each Project Section.

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- **Permitting Fees**
 - Encroachment permit from Caltrans and Ventura County will be required for Section 14.
- **Legal Services**
 - Appraisal Reports for all Project Sections.
 - Title Reports for all Project Sections.
- **Temporary Right of Entry (TRE)**
 - TREs for construction laydown yards, workspace and access road at for each Project Section.
- **Crop Damage**
 - Cost estimated for potential loss of fruit trees and/or crops for Project Sections 12, 13, 14, 15 and 16.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry permits.

Table 9: Company Labor

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$88,169	\$718,766	\$718,766	\$1,396,218	\$834,431	\$3,756,351
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$88,169	\$718,766	\$718,766	\$1,396,218	\$834,431	\$3,756,351

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

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Table 10: Other Costs

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$1,474,198	\$2,150,185	\$1,211,345	\$882,117	\$1,298,920	\$7,016,765
TOTAL DIRECT COSTS	\$1,474,198	\$2,150,185	\$1,211,345	\$882,117	\$1,298,920	\$7,016,765

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Surveying and As-builts.
- Project Support Services.

Disallowance

In D.14-06-007, the Commission approved implementation of SoCalGas and SDG&E's PSEP, and disallowed recovery of specified costs associated with pressure testing or replacing pipeline segments installed after July 1, 1961. This decision was later modified by D.15-12-020 to include pipe installed from January 1, 1956 to July 1, 1961. The Line 406 Phase 2A Hydrotest Project includes 280.4 feet/0.053 mile of Category 4 pipe installed after January 1, 1956, that does not have test records to demonstrate compliance with the then-applicable industry or regulatory strength testing and record keeping standards. This resulted in an anticipated cost disallowance of \$101,688. The final value of the Line 406 Phase 2A Hydrotest Project cost disallowance will be adjusted once the project is placed in service.

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LINE 1004 SECTION 2 PHASE 1B REPLACEMENT PROJECT

Table 1: Total Direct Project Cost – All Capital

TOTAL PROJECT COSTS	Stage 1^{1,2}	Stage 2³	Stage 3⁴	Stage 4⁵	Stage 5⁶	Total⁷
DIRECT LABOR	\$98,328	\$303,641	\$303,641	\$455,242	\$352,168	\$1,513,020
DIRECT NON-LABOR	\$1,587,667	\$1,691,978	\$7,851,820	\$35,639,447	\$657,496	\$47,428,408
TOTAL COSTS - CAPITAL	\$1,685,994	\$1,995,619	\$8,155,462	\$36,094,689	\$1,009,664	\$48,941,428

Project Description

The Line 1004 Section 2 Phase 1B Replacement project will replace and reroute approximately 2.6 miles of [REDACTED] pipeline. The project is located in unincorporated Ventura County. The Project will replace and reroute this pipeline through open trench and the use of two horizontal directional drills (HDDs). The HDDs total approximately 1.3 miles of surface-to-surface footage. The Project also includes the abandonment and removal of portions of the existing pipeline, along with the removal of seven catenary spans which support the pipeline over steeply sloping canyons in this area. The spans range from 175 feet to 450 feet in length across canyons up to 150 feet deep that contain environmentally sensitive areas in the canyon bottoms. Removal of the catenary spans will require the use of significant resources during the Construction phase both in order to maintain safe working conditions in the difficult terrain and minimize impacts to environmentally sensitive areas. The primary considerations for this route selection are to reduce the risk of susceptibility to landslides and limit future maintenance constraints associated with environmental resources within the canyons of this region. The utilization of HDD enables greater depth below the ground surface of landslide zones opposed to open trench methods. The replacement will be completed in one mobilization and one demobilization.

Alternatives Considered

Line 1004 and Line 1005 provide critical redundancy for the coastal communities between Ventura and Santa Barbara and are required to fully utilize the Goleta Storage Field. To maintain system capacity, these pipelines cannot be abandoned, derated, or reduced in diameter, and one of these pipelines must remain in service at all times. A hydrotest of the catenary spans is not possible because the span will not support the weight of the water.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC Estimate includes direct costs associated with project management, engineering and design, environmental, permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with

¹ Project Initiation.

² Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

³ Preliminary Design.

⁴ Detailed Design.

⁵ Construction.

⁶ Closeout.

⁷ Values may not add to total due to rounding.

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AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

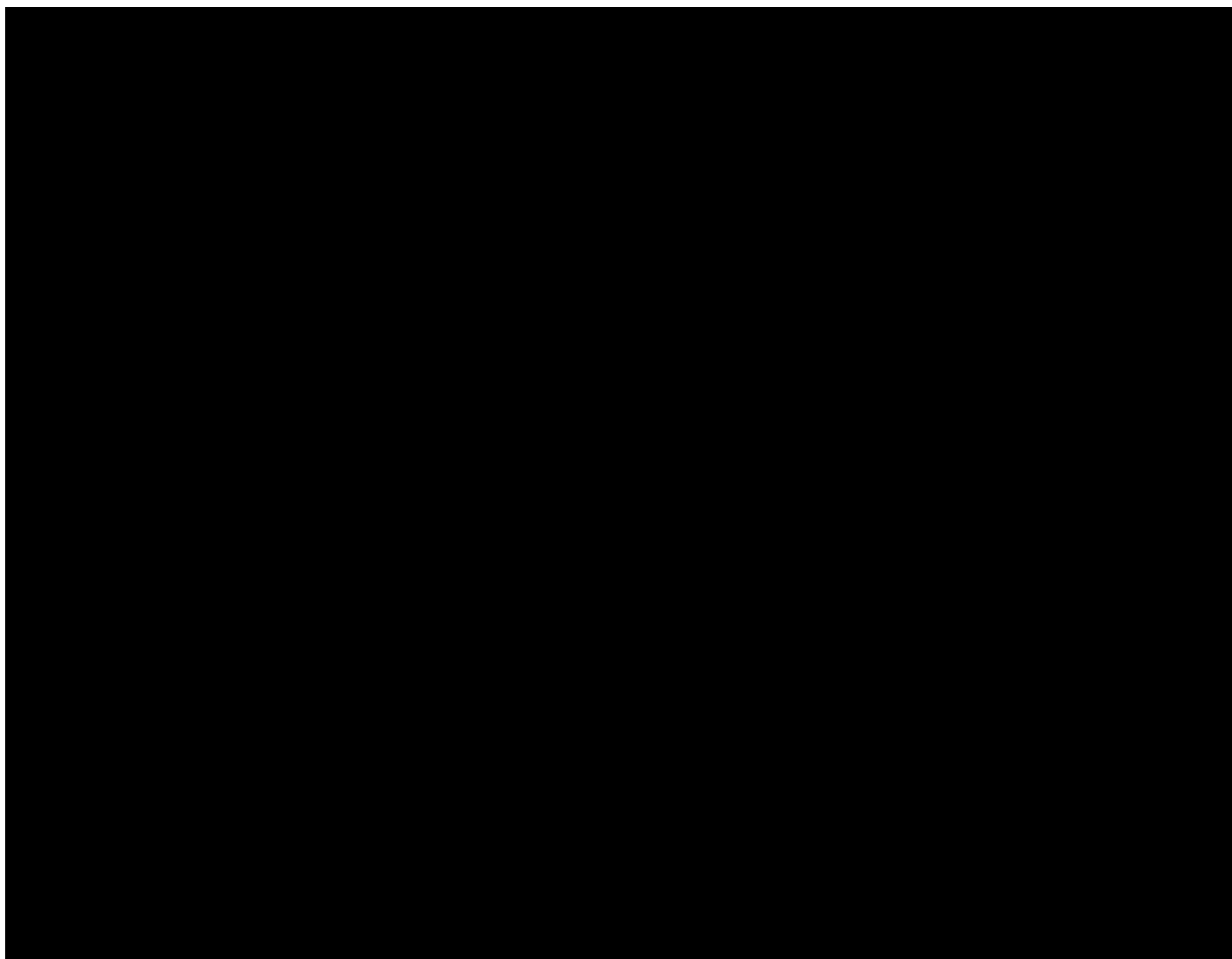
Schedule

The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that the majority of the project costs are expended during the construction phase. The construction schedule is assumed to be 291 days.

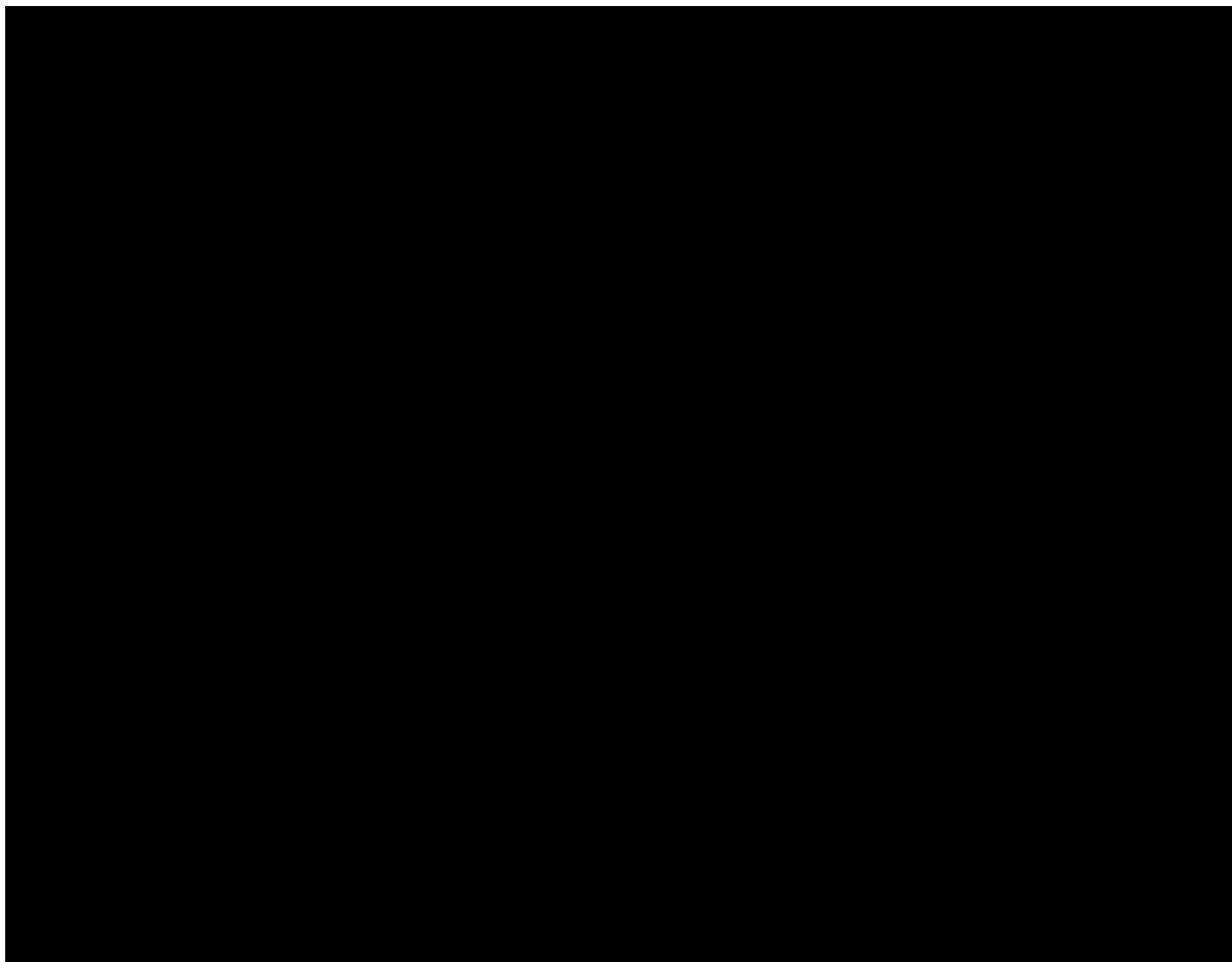
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Figure 1: Overview Map for Line 1004 Section 2 Phase 1B Replacement Project



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Figure 2: Satellite Map for Line 1004 Section 2 Phase 1B Replacement Project



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Figure 3 – Photograph of Existing Catenary Span to be Removed During the Project



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Table 2: Project Mileage

PHASE	MILEAGE
PHASE 1B	2.271
ACCELERATED	0.031
INCIDENTAL	0.002
REPLACEMENT OFFSET	0.263
TOTAL MILEAGE	2.566

The direct costs for each area are summarized below.

Table 3: Material

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$20,178	\$3,343,065	\$0	\$0	\$3,363,243
TOTAL DIRECT COSTS	\$0	\$20,178	\$3,343,065	\$0	\$0	\$3,363,243

Assumptions

Materials for this project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 2.765 miles of [REDACTED] pipe.
- 800 feet of [REDACTED] pipe.

Table 5: Construction

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$0	\$0	\$33,054,689	\$0	\$33,054,689
TOTAL DIRECT COSTS	\$0	\$0	\$0	\$33,054,689	\$0	\$33,054,689

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LINE 1004 SECTION 2 PHASE 1B REPLACEMENT PROJECT

General Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization.
- Contractor work has been scheduled using a 10-hour day, 6 day work week.
- Horizontal Directional Drill (HDD) crew has been scheduled using 12 hour days, 7-day work week.
- All materials will be received at the laydown yard.
- Four test heads will be fabricated for the HDD pretest.
- Mechanical excavation will be authorized up to within two feet of the existing pipeline. Hand excavation will be required within the two-foot zone.
- Restoration will include hydroseeding and slope stabilization (jute matting).
- Trench breakers for steep slope installations.
- All excavations will be backfilled with zero sack slurry or sand padding to one foot above pipeline. Remainder of backfill will be performed using native soil.
- Pretesting of HDD piping.
- Certified Clean Water Truck for hydrostatic test water to delivery 22,000 gallons of water in 5 days.
- Four 12-hour cold ties for the HDD to Mainline and one 24-hour hot tie will be performed.
- Three days for line seasoning.
- Local access of water which can be piped to water tanks for hydrotesting. Hydrotest water will be pumped to the landowner's holding tanks.
- Abatement in place is considered.
- Restoration of trees is included.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Two office trailers will be placed at the laydown yard.
 - Site facility costs cover an eight-month duration.
 - 200 feet of temporary fill piping will be installed from the frac tanks to the test head.
 - Includes Oak tree protection fencing.
 - Temporary fencing to delineate the laydown yards.
- **Site Preparation**
 - 30 days for clearing, grubbing, and grading crew to clean access roads and clear the right-of-way (ROW) for construction workspace.
- **Site Management / Best Management Practices (BMPs)**
 - Environmental protective silt fencing and wattles for slopes, workspace, and around the laydown yard.
 - BMP materials for all spoil piles, laydown yards, and work sites.
- **Material Handling**
 - 25 loads of material will be unloaded at laydown yard and transported as needed.

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- **Utility Locates**
 - Utility locates to verify coating and pipe integrity prior to installing new pipe.
 - Includes five locates.
- **Pipeline Installation**
 - Assuming open cut installation of 6,909 feet of pipe during Phase 2.
 - Equipment tie-offs will be utilized only for installation of pipe in slopes in excess of 30%.
 - Padding material and shading of pipe will be sand.
 - Remainder of trench will be backfilled to 85% compaction with native backfill.
 - Excess material will be hauled off and disposed of.
- **HDD Installation**
 - Two Mainline HDDs and two HDDs for Fiber Optic, each with support crew.
 - HDD No. 1 at 3,591 linear feet (LF) of 16-inch steel pipe (surface to surface).
 - HDD No. 2 at 3,300 LF of 16-inch steel pipe (surface to surface).
 - HDD No. 3 at 3,591 LF of 8-inch pipe for fiber optic.
 - HDD No. 4 at 3,300 LF of 8-inch pipe for fiber optic.
- **Isolate Existing Pipeline**
 - Pipeline will only be isolated prior to tie-ins.
 - Two shifts with a support crew to support cross compression and purging activities.
- **Hydrotest / Pressure Test Pipeline**
 - HDD Piping will receive a one-hour pretest prior to pull back.
 - Four 10-hour days for the following hydrotest activities for each HDD piping: filling, testing, dewatering, and drying.
 - Test cap fabrication for Phase 1 will be performed by the contractor.
 - Fill piping shall not exceed 500 LF.
- **Tie-In Pipeline**
 - Assuming one tie-in will occur at either end of the project and will be performed as a single hot tie-in during a one 24-hour period and four cold tie-ins for a 12-hour period.
 - Construction contractor costs to support 10-hour close in and purge of existing line.
 - All tie-in welds will be x-rayed.
- **Retire / Abandon Existing Pipeline**
 - Removal of approximately 1.45 miles of [REDACTED] pipe; 0.445 miles of pipe from seven catenary spans and one mile of pipeline by open trench.
 - Adequate space identified for crane support services to assist in the removal of the large catenary spans.
 - Dozer with winch equipment to support the cut span as it is removed on opposite side of ravine.
 - Remaining pipe will be abandoned in place and not removed except for portions of pipe removed for tie-ins.

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LINE 1004 SECTION 2 PHASE 1B REPLACEMENT PROJECT

- Pipe demolition crew to cut and remove the 5,324 LF of existing pipeline in 21 shifts.
- Support crew to assist abatement contractor.
- Fabrication crew to install 4 abandonment caps.
- Backfill crew to backfill the abandonment pits in 11 shifts.
- **Site Restoration**
 - All work site locations will be restored to original condition.
 - Hillsides will be restabilized using jute matting and hydroseed.
- **Site Demobilization**
 - All site facilities will be demobilized.
 - One load of material assumed to be hauled to SoCalGas designated yard.
 - Crew and equipment will be demobilized.
- **Field Overhead**
 - One Full-Time Project Manager.
 - One Full-Time Superintendent.
 - One Full-Time Cost Controller.
 - One Full-Time Safety personnel.
 - One Part-Time Scheduler.
 - One Full-Time water truck and driver for dust suppression.
 - One low bed truck to assist with equipment move arounds between North and South access and yards.
 - Two site security personnel for all non-working hours.

Table 6: Environmental Survey/Permitting/Monitoring/Abatement

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$844,921	\$203,743	\$611,230	\$1,136,462	\$0	\$2,796,356
TOTAL DIRECT COSTS	\$844,921	\$203,743	\$611,230	\$1,136,462	\$0	\$2,796,356

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment and disposal.
- Abatement of Asbestos Containing Material (ACM).
- Hazardous Materials.
- Permit Fees.

The high-level assumptions and specific level of effort to provide environmental support for this project are

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LINE 1004 SECTION 2 PHASE 1B REPLACEMENT PROJECT

described in more detail below.

- **Environmental Labor**
 - Environmental Consultants for preconstruction assessments, construction monitoring, and environmental closeout support.
 - Document production for Storm Water Pollution and Prevention Plan (SWPPP).
 - Document production for CDFW Streambed Alteration Agreement.
- **Preconstruction Surveys**
 - Preconstruction wildlife and nesting bird survey reports.
 - Preconstruction wildlife survey reports.
- **Construction Monitoring**
 - Two Full-Time Biological Monitors.
 - One Full-Time Cultural Monitor.
- **Project Closeout Activities**
 - Site restoration, permit reporting, and closeout.
 - Biological Post-Construction Survey
- **Abatement**
 - 75 days for abatement of ACMs.
- **Water Treatment and Hazardous Materials**
 - Hydrostatic test water, estimated at 20,000 gallons, to be acquired by the pipeline contractor.
 - Hydrostatic test water will be potable and reused for onsite dust control.
- **Permit Fees**
 - Environmental discharge permits and Inspection and Test Procedure (ITP).
 - Storm Water Pollution Prevention Plan (SWPPP) Notice of Intent (NOI) filing
 - Los Angeles Regional Water Quality Control Board (RWQCB) Section 401.
 - Span Removal Crossings Permit.
 - Permitting fees related to encroachment permit and traffic control plan costs.
 - Local, state, and federal permitting costs.

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LINE 1004 SECTION 2 PHASE 1B REPLACEMENT PROJECT

Table 7: Land & Right-of-Way Acquisition

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$78,372	\$1,201,446	\$3,604,339	\$0	\$0	\$4,884,156
TOTAL DIRECT COSTS	\$78,372	\$1,201,446	\$3,604,339	\$0	\$0	\$4,884,156

Assumptions

In generating for the total estimated cost for Line 1004 Section 2 Phase 1B Replacement Project the following items were considered:

- **Labor**
 - One contract land agent to obtain laydown yard, workspaces, and access roads.
- **Temporary Right of Entry**
 - Appraisal Reports and Title Reports.
 - Laydown yard.
 - Access road.
 - Workspace for the HDD equipment, HDD pipe string, and pullback equipment spacing.
- **Crop Damage**
 - Cost for replacement of various fruit trees.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry.

Table 8: Company Labor

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$98,328	\$303,641	\$303,641	\$455,242	\$352,168	\$1,513,020
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$98,328	\$303,641	\$303,641	\$455,242	\$352,168	\$1,513,020

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.

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- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 9: Other Costs

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$664,374	\$266,610	\$293,186	\$1,448,297	\$657,496	\$3,329,962
TOTAL DIRECT COSTS	\$664,374	\$266,610	\$293,186	\$1,448,297	\$657,496	\$3,329,962

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Construction Management and Inspection Services.
- Surveying and As-builts.

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LINE 3000 EAST PHASE 2A HYDROTEST PROJECTS

Table 1: Total Direct O&M Cost

PROJECT COSTS – O&M	Stage 1¹	Stage 2²	Stage 3³	Stage 4⁴	Stage 5⁵	Total
DIRECT LABOR	\$138,477	\$438,468	\$234,264	\$1,222,007	\$338,648	\$2,371,864
DIRECT NON-LABOR	\$626,456	\$1,511,957	\$3,164,615	\$40,953,587	\$775,426	\$47,032,041
TOTAL DIRECT O&M COSTS	\$764,934	\$1,950,424	\$3,398,879	\$42,175,594	\$1,114,074	\$49,403,905

Note: Costs shown are cumulative for the three individual hydrotest bundles represented below.

Table 2: Total Direct Capital Cost

PROJECT COSTS – CAPITAL	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$92,180	\$291,875	\$877,105	\$1,747,205	\$379,540	\$3,387,906
DIRECT NON-LABOR	\$534,602	\$1,039,631	\$5,711,007	\$41,218,164	\$777,209	\$49,280,614
TOTAL DIRECT CAPITAL COSTS	\$626,783	\$1,331,506	\$6,588,113	\$42,965,370	\$1,156,749	\$52,668,520

Note: Costs shown are cumulative for the three individual hydrotest bundles represented below.

Table 3: Total Direct Project Cost

TOTAL PROJECT COSTS	Stage 1⁶	Stage 2	Stage 3	Stage 4	Stage 5	Total⁷
DIRECT LABOR	\$230,658	\$730,343	\$1,111,369	\$2,969,213	\$718,188	\$5,759,770
DIRECT NON-LABOR	\$1,238,434	\$2,573,411	\$8,625,750	\$82,365,698	\$1,509,362	\$96,312,655
TOTAL COSTS	\$1,469,092	\$3,303,754	\$9,737,119	\$85,334,911	\$2,227,550	\$102,072,425

Note: Costs shown are cumulative for the three individual hydrotest bundles represented below.

¹ Project Initiation.

² Preliminary Design.

³ Detailed Design.

⁴ Construction.

⁵ Closeout.

⁶ Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

⁷ Values may not add to total due to rounding.

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LINE 3000 EAST PHASE 2A HYDROTEST PROJECTS

Project Description

The Line 3000 East Phase 2A Hydrotest Projects consist of hydrotesting approximately 89 miles of [REDACTED] pipe. The Projects are located in San Bernardino County, starting in the city of Needles and traveling near [REDACTED] to Ludlow. The Projects comprise a total of 40 hydrotest sections to address limitations due to elevation changes. The Projects will be executed in three separate hydrotest bundles: Hydrotest Bundle 1 (Needles #1) will complete 13 hydrotest sections, Hydrotest Bundle 2 (Needles #2) will complete 17 hydrotest sections, and Hydrotest Bundle 3 (Newberry #1) will complete ten hydrotest sections. As shown in Figure 1 below, the hydrotest bundles are located in different geographical areas along the same pipeline, and can be executed independently of one another.

Project activities described below will identify cumulative estimating assumptions for all hydrotest bundle projects and will also separately identify any estimating assumptions unique to one or more of the hydrotest bundle projects.

Alternatives Considered

Line 3000 East is a backbone pipeline that plays a critical role in meeting the operation needs of the SoCalGas transmission system between Needles and Newberry Springs. The abandonment of this section of Line 3000 East would result in a substantial loss in capacity to the area and is not a viable option. Derating the pipeline would reduce the capacity of the pipeline, resulting in an inability to meet customer demand and also is not an option.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC Estimate includes direct costs associated with project management, engineering and design, environmental permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

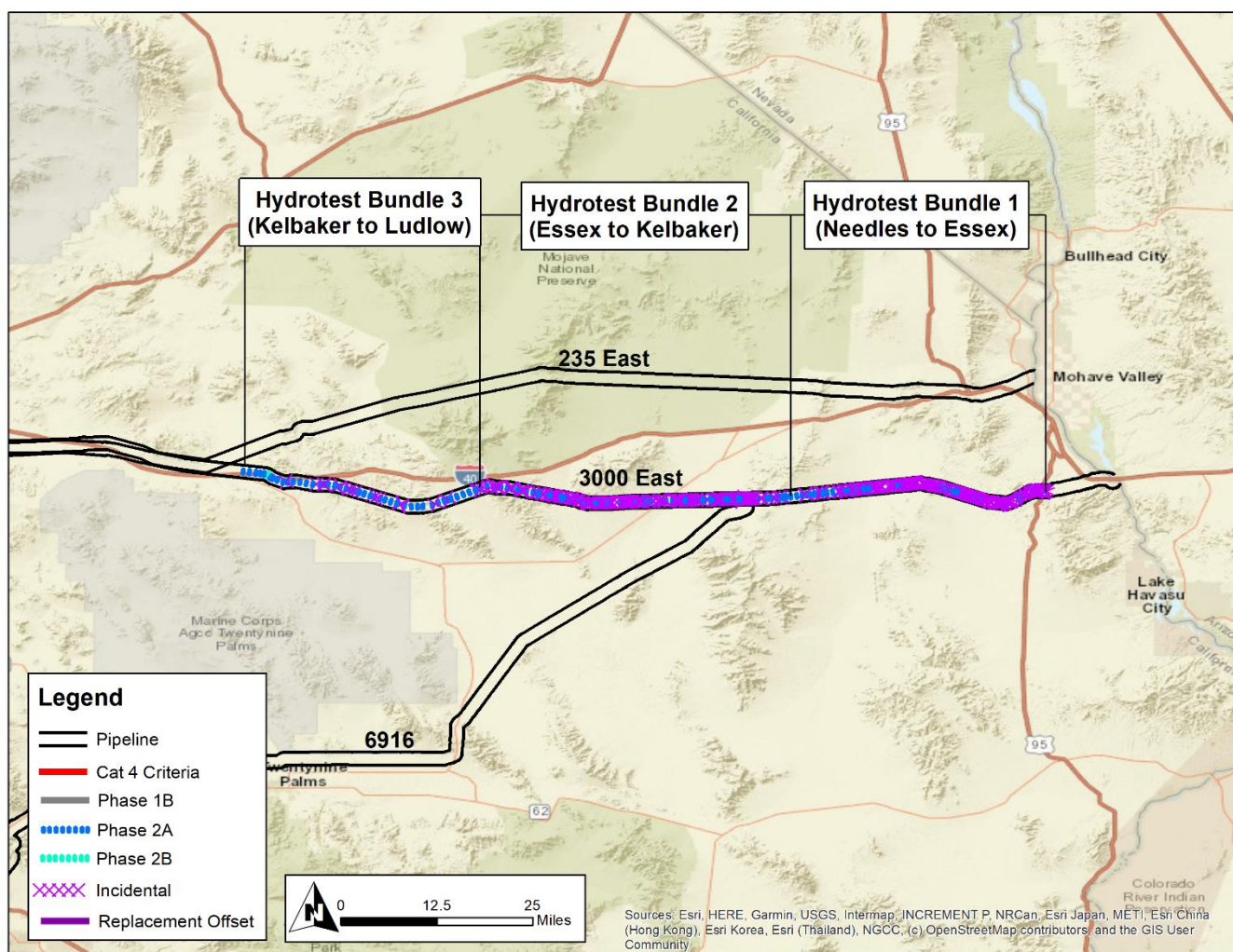
Schedule

The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that typically 50% of the project costs are expended during the construction phase. The construction schedule is assumed to be 142 days for Hydrotest Bundle 1, 154 days for Hydrotest Bundle 2, and 92 days for Hydrotest Bundle 3.

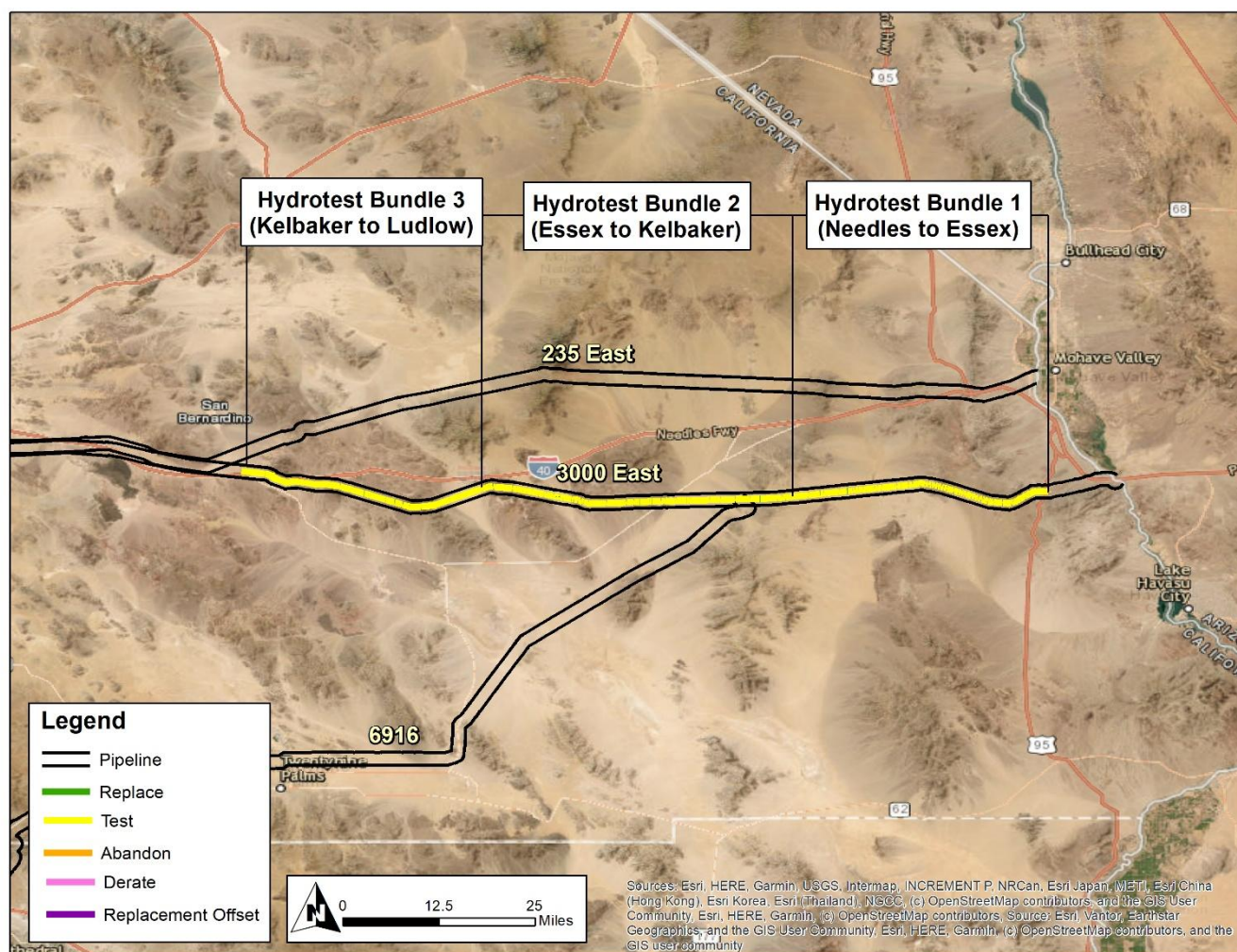
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LINE 3000 EAST PHASE 2A HYDROTEST PROJECTS

Figure 1: Overview Map for Line 3000 East Phase 2A Hydrotest Projects



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LINE 3000 EAST PHASE 2A HYDROTEST PROJECTS

Figure 2: Satellite Map for Line 3000 East Phase 2A Hydrotest Projects



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LINE 3000 EAST PHASE 2A HYDROTEST PROJECTS

Table 4: Total Project Mileage

PHASE	MILEAGE
PHASE 2A	72.588
INCIDENTAL	16.089
ACCELERATED	0.820
REPLACEMENT OFFSET	0.025
TOTAL MILEAGE	89.522

The direct costs for each area are summarized below.

Table 5: Material

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$54	\$375,005	\$3,443,791	\$720,098	\$1,475	\$4,540,423
TOTAL DIRECT COSTS	\$54	\$375,005	\$3,443,791	\$720,098	\$1,475	\$4,540,423

Assumptions

Materials for these projects will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start dates. The principal cost-driving materials necessary for these projects include:

- 0.53 miles of [REDACTED] pipe.
- 16 [REDACTED] caps.

Table 6: Construction

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$43,311	\$431,634	\$465,376	\$65,654,499	\$767,323	\$67,362,143
TOTAL DIRECT COSTS	\$43,311	\$431,634	\$465,376	\$65,654,499	\$767,323	\$67,362,143

Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made for these projects:

- One mobilization and one demobilization per hydrotest bundle.
- Work has been scheduled using a 10-hour per day, five day work week.

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LINE 3000 EAST PHASE 2A HYDROTEST PROJECTS

- Work will be scheduled Monday through Friday.
- The pipeline will be tested in 40 total test sections for the three hydrotest bundles.
- Lake tanks will be installed for water storage, to support hydrotesting operations.
- Mechanical excavation will be authorized up to within two feet of the existing pipeline. Hand excavation will be required within the two foot zone.
- All excavations will be backfilled with zero sack slurry or sand padding to one foot above pipeline. Remainder of backfill will be performed using zero sack and one sack.
- All construction materials, equipment, and testing components are assumed to be received, staged, and distributed from the designated laydown yards.
- Temporary water storage and pumping equipment (lake tanks and associated temporary fill piping) are to support hydrostatic testing operations.
- Hydrostatic testing is to be performed on three primary bundles, with individual test breaks and test heads installed.
- Pipeline isolation required for hydrostatic testing is assumed to be achieved through a combination of existing mainline valves prior to testing activities.
- Hydrotest water is to be hauled off and properly disposed of by the Environmental Contractor following completions of testing activities.
- Construction Management and Inspection Services.
- Non-Destructive Examination and X-Ray of welds are included.

Additional Construction Information

- **Site Mobilization / Preparation / Site Facilities**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- One mobilization and one demobilization per hydrotest bundle.
- 30,500 linear feet (LF) of temporary fencing for laydown yards and work sites.
- Three laydown yards.
- Approximately 55 miles of access routes will be graded.
- 14 pipeline span supports will be installed.
- Two tank stage areas will be graded and prepped.
- Two office trailers will be placed at the laydown yard.
- Site facilities for 15 month duration.
- Clearing and grading of three laydown yards.

- **Site Management / Best Management Practices (BMPs)**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- Fiber rolls, sandbags, straw bales, poly sheeting, silt fencing and demarcation fencing will be procured and installed for BMP measures.
- 18 rumble plates.

- **Material Handling**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

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- 46 loads of material will be unloaded at laydown yard and transported as needed.

- **Utility Locates**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- 56 utility locates.

- **Pipeline Excavation / Fabrication / Installation**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- Excavation
 - Approximately 16,000 Cubic Yards (CY) of excavation for test breaks, MLVs, and other work locations in preparation for hydrotest activities.
- Fabrication of Test Heads and Isolation Caps
 - Fabrication of 44 [REDACTED] test heads.
 - Fabrication of 14 [REDACTED] isolation caps.
 - Fabrication of Ten [REDACTED] isolation/test flanges.
 - Fabrication of Six [REDACTED] isolation caps.
 - Fabrication of Two [REDACTED] isolation caps.
- Cut Out Sections, Cap, and Isolate
 - 58 cut points for test breaks.
 - Seven replacement segments.
 - Abatement support is included.
 - Isolation, cut and cap for each Line 3000 bundle.
 - Three modified blowdown stacks at MLV Stations.
 - Replacements of [REDACTED] flange gaskets and bolts at MLV Stations.
 - Disconnects and caps of sensing lines at MLV Stations.
 - purging of existing pipeline with nitrogen.
 - welds to fabricate replacement piping section.

- **Hydrotest Pipeline**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- 40 test sections will be hydrotested.
- 87 test heads will be installed below grade.
- Installations of [REDACTED] test caps at replacement pipe test locations.
- Installations of [REDACTED] test caps at replacement pipe test locations.
- Installations of [REDACTED] test caps and [REDACTED] flanges at MLV Stations.
- Fabrication of [REDACTED] water transfer bypasses.
- Fabrication of [REDACTED] jumper piping.

- **Tie-In Pipeline**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- Three days to prepare tie-ins for test breaks and replacement sections.

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- Eight days to install MLV Stations replacement pipe.
- Ten days to install test break replacement spools for two test breaks.
- 15 days to install test break replacement spools for two test breaks.
- Two days to install additional test break replacement spools.
- One day to install [REDACTED] spool at tap.
- One day to install [REDACTED] spool at tap.
- Six days to make final tie-ins.

- **Reconnect Gas Connections After Gas Up**

Cumulative Assumptions for Hydrotest Projects 1 to 3

- 32 reconnections of sensing lines at MLV Stations.
- Replace 16 [REDACTED] flange gaskets and bolts at MLV Stations.
- Replace eight [REDACTED] flange gaskets and bolts at MLV stations.
- 21 reconnections of CP engines/generators.

- **Backfill Excavations**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- Shade, backfill and compact excavations at all test breaks, MLVs, and other work locations.

- **Site Restoration**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- Remove 460,480 LF of temporary fencing.
- 960 LF station fencing repairs.
- Cost included for BMP removal and final cleanup.

- **Site Demobilization**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- All site facilities will be demobilized.
- One shift included for excess piping to be hauled to SoCalGas designated yard.
- One demobilization for crew and equipment.

- **Field Overhead**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- One Full-Time Project Manager.
- One Part-Time Foreman.
- One Full-Time Superintendent.
- One Full-Time Cost Controller.
- Two Full-Time Safety Personnel.
- One Part-Time Scheduler.
- One Full-Time Time Keeper.
- One Full-Time water trucks for dust suppression.
- Two Full-Time site security personnel for all non-working hours.

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LINE 3000 EAST PHASE 2A HYDROTEST PROJECTS

Table 7: Environmental Survey/Permitting/Monitoring/Abatement

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$205,491	\$1,178,508	\$3,150,731	\$11,332,028	\$362,783	\$16,229,541
TOTAL DIRECT COSTS	\$205,491	\$1,178,508	\$3,150,731	\$11,332,028	\$362,783	\$16,229,541

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.
- Mitigation Fees.

The high-level assumptions and specific level of effort to provide environmental support for these projects are described in more detail below.

- **Environmental Document Production**
 - Environmental Consultants for preconstruction assessments, construction monitoring, and environmental closeout support.
 - Preconstruction Environmental Clearance.
 - Storm Water Pollution and Prevention Plan (SWPPP) and Notice of Intent (NOI).
 - Worker Environmental Awareness Program (WEAP) development.
 - Cultural report for consultation with Bureau of Land Management (BLM).
 - Hazardous Materials Business Plan (HMBP).
- **Preconstruction Surveys**
 - Preconstruction wildlife and nesting bird survey reports.
 - Rare plant survey and topsoil flagging.
 - Habitat and impact assessment during planning phase.
 - Waters delineation and permitting.
 - Protocol Surveys three to four surveys for burrowing owls.
 - Cultural survey for consultation with BLM including a field survey with archaeologists.
 - Two environmental monitors to complete pre-construction surveys prior to the start of construction.
- **Construction Monitoring**
 - Total of 12 monitors during construction including: two biologists per crew, one lead monitor, one floating monitor, plus two monitors to escort crews to and from the jobsite.

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LINE 3000 EAST PHASE 2A HYDROTEST PROJECTS

- **Project Closeout Activities**
 - Restoration support, permit reporting and closeout.
- **Abatement**
 - 80 days for abatement of ACMs.
- **Water Treatment and Hazardous Materials**
 - 2,500,000 gallons of water will be trucked in for the hydrotests and discharged following the completion of the hydrotests.
 - Eight days for water delivery to the Project site.
 - Hydrotest Water to be treated and discharged at multiple locations.
 - Hydrotest standby support including one vacuum truck for each test.
 - Soil contamination is not anticipated.
 - Groundwater is not anticipated for these Projects.
 - Waste sampling and profiling anticipated to support disposal of wastes generated during construction.
 - Hazardous and non-hazardous waste transport and disposal anticipated for various wastes (e.g. lead paint waste, pigs used to dry the pipeline post hydrotest, asbestos containing material, etc.).
- **Mitigation Fees**
 - Estimated fees per BLM/Desert Wildlife Management Area (DWMA) requirements for impacted Hydrotest Bundles.

Table 8: Land & Right-of-Way Acquisition

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$10,364	\$22,395	\$54,397	\$67,890	\$7,403	\$162,448
TOTAL DIRECT COSTS	\$10,364	\$22,395	\$54,397	\$67,890	\$7,403	\$162,448

Assumptions

In generating for the total estimated cost for Line 3000 East Phase 2A Hydrotest Projects, the following items were considered:

- **Temporary Right of Entry**
 - Temporary Revocable Easements (TREs) and Temporary Use Permits (TUPs) as necessary.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry.

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LINE 3000 EAST PHASE 2A HYDROTEST PROJECTS

Table 9: Company Labor

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$230,658	\$730,343	\$1,111,369	\$2,969,213	\$718,188	\$5,759,770
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$230,658	\$730,343	\$1,111,369	\$2,969,213	\$718,188	\$5,759,770

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 10: Other Costs

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$979,213	\$565,870	\$1,511,455	\$4,591,184	\$370,378	\$8,018,100
TOTAL DIRECT COSTS	\$979,213	\$565,870	\$1,511,455	\$4,591,184	\$370,378	\$8,018,100

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Surveying and As-builts .
- Project Support Services.

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Disallowance

In D.14-06-007, the Commission approved implementation of SoCalGas and SDG&E's PSEP, and disallowed recovery of specified costs associated with pressure testing or replacing pipeline segments installed after July 1, 1961. This decision was later modified by D.15-12-020 to include pipe installed from January 1, 1956 to July 1, 1961. The Line 3000 East Phase 2A Hydrotest Projects include 91,297 feet/17.29 miles of Category 4 pipe installed after January 1, 1956 that does not have test records to demonstrate compliance with the then-applicable industry or regulatory strength testing and record keeping standards. This resulted in an anticipated cost disallowance of \$ 10,527,291. The final value of the Line 3000 East Phase 2A Hydrotest Projects cost disallowance will be adjusted once the projects are placed in service.

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LINE 4000 PHASE 2A HYDROTEST PROJECTS

Table 1: Total Direct O&M Cost

PROJECT COSTS – O&M	Stage 1¹	Stage 2²	Stage 3³	Stage 4⁴	Stage 5⁵	Total
DIRECT LABOR	\$93,984	\$614,392	\$631,335	\$1,240,480	\$298,143	\$2,878,333
DIRECT NON-LABOR	\$2,149,261	\$2,106,540	\$4,615,163	\$41,619,123	\$745,844	\$51,235,932
TOTAL DIRECT O&M COSTS	\$2,243,245	\$2,720,932	\$5,246,499	\$42,859,602	\$1,043,986	\$54,114,264

Note: Costs shown are cumulative for the three individual hydrotest bundles represented below.

Table 2: Total Direct Capital Cost

PROJECT COSTS – CAPITAL	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$70,230	\$468,420	\$483,150	\$885,944	\$209,910	\$2,117,654
DIRECT NON-LABOR	\$1,101,355	\$1,631,174	\$4,173,117	\$29,498,086	\$480,626	\$36,884,359
TOTAL DIRECT CAPITAL COSTS	\$1,171,585	\$2,099,594	\$4,656,267	\$30,384,031	\$690,536	\$39,002,013

Note: Costs shown are cumulative for the three individual hydrotest bundles represented below.

Table 3: Total Direct Project Cost

TOTAL PROJECT COSTS	Stage 1⁶	Stage 2	Stage 3	Stage 4	Stage 5	Total⁷
DIRECT LABOR	\$164,213	\$1,082,812	\$1,114,485	\$2,126,424	\$508,053	\$4,995,987
DIRECT NON-LABOR	\$3,250,616	\$3,737,715	\$8,788,281	\$71,117,209	\$1,226,470	\$88,120,291
TOTAL COSTS	\$3,414,829	\$4,820,526	\$9,902,766	\$73,243,633	\$1,734,523	\$93,116,278

Note: Costs shown are cumulative for the three individual hydrotest bundles represented below.

¹ Project Initiation.

² Preliminary Design.

³ Detailed Design.

⁴ Construction.

⁵ Closeout.

⁶ Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

⁷ Values may not add to total due to rounding.

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LINE 4000 PHASE 2A HYDROTEST PROJECTS

Project Description

The Line 4000 Phase 2A Hydrotest Projects will hydrotest approximately 37.5 miles of [REDACTED] pipe. These Projects are located in the San Bernardino County area starting south of [REDACTED], traversing through [REDACTED], ending near [REDACTED]. These Projects comprise a total of 45 hydrotest sections to address limitations due to elevation changes. The hydrotest sections will be executed in three separate bundle projects: Hydrotest Bundle 1 (Ord Mountain to Newberry Station) will complete 18 hydrotest sections, Hydrotest Bundle 2 (Lucerne Valley to Ord Mountain) will complete 21 hydrotest sections, and Hydrotest Bundle 3 (Apple Valley to Lucerne Valley) will complete 6 hydrotest sections. As shown in Figure 1 below, the hydrotest bundles are located in different geographical areas along the same pipeline, and can be executed independently of one another.

Project activities described below will identify cumulative estimating assumptions for all hydrotest bundle projects and will also separately identify any estimating assumptions unique to one or more of the hydrotest bundle projects.

Alternatives Considered

Line 4000 is a backbone pipeline that plays a critical role in meeting the operation needs of the SoCalGas transmission system between Newberry Springs and Fontana. The abandonment of this section of Line 4000 would result in a substantial loss in capacity to the area and is not a viable option. Derating the pipeline would reduce the capacity of the pipeline, resulting in an inability to meet customer demand and also is not an option.

Shut-In Analysis

The line sections can be temporarily taken out of service to perform the hydrotests during the summer conditions. The line will be isolated through the shut-in of mainline valves (MLVs). During the outage, customers served by regulator stations within the isolated section will be supplied by Line 4002 which is bridled to Line 4000 at those locations.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC Estimate includes direct costs associated with project management, engineering and design, environmental permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

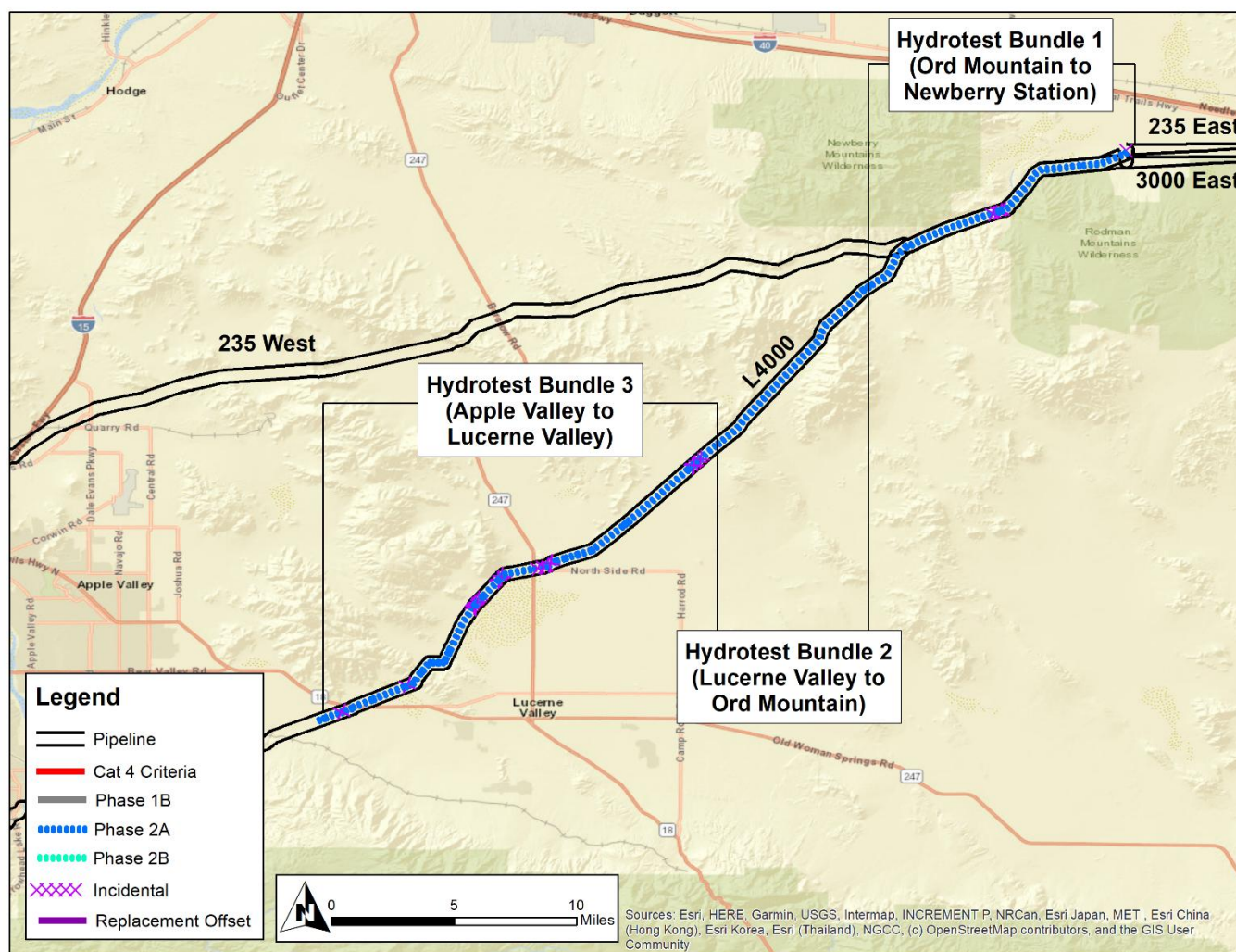
Schedule

The schedule was developed based on the five-stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that typically 50% of the project costs are expended during the construction phase. The construction schedule is assumed to be: 170 days for Hydrotest Bundle 1, 225 days for Hydrotest Bundle 2, and 104 days for Hydrotest Bundle 3.

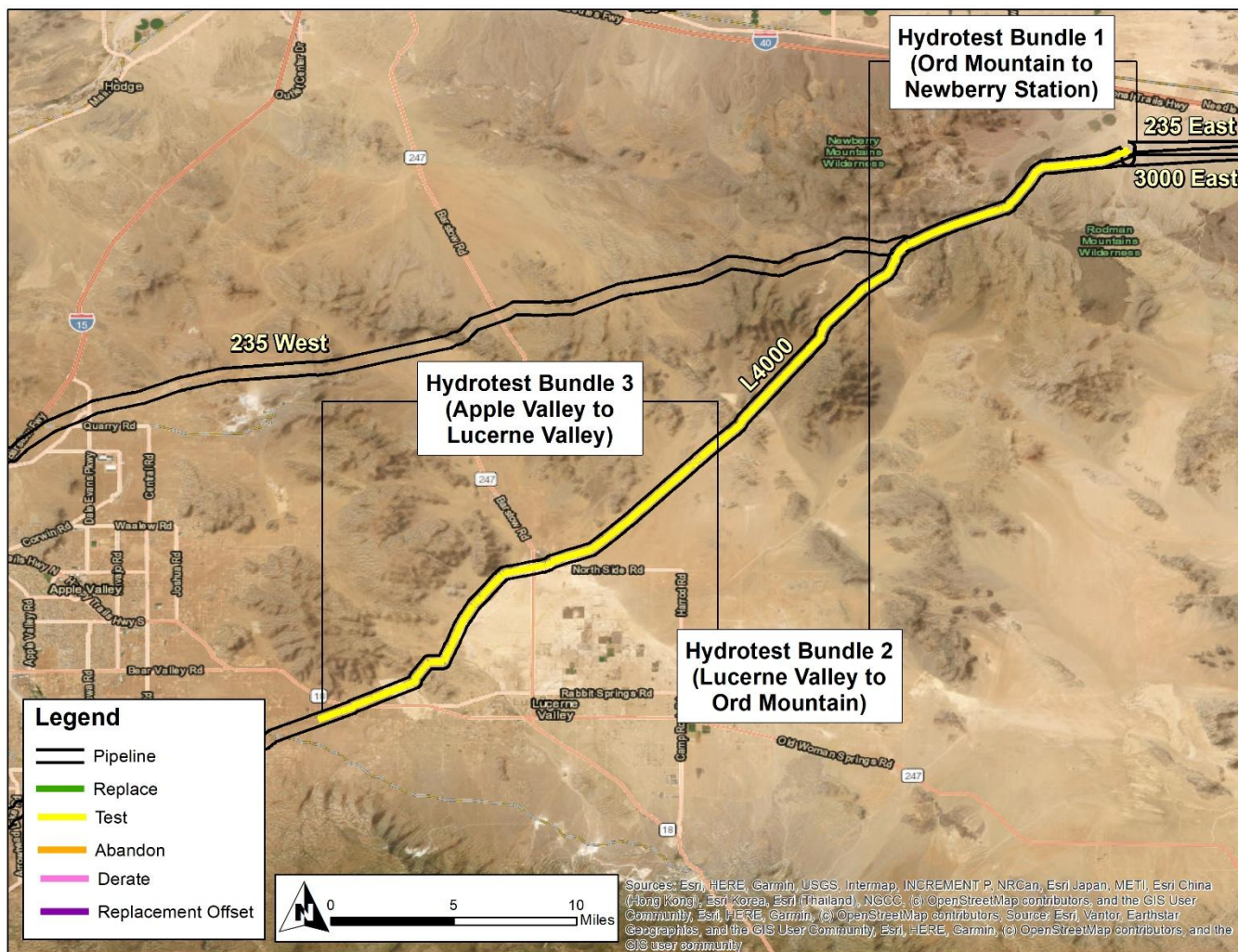
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LINE 4000 PHASE 2A HYDROTEST PROJECTS

Figure 1: Overview Map for Line 4000 Phase 2A Hydrotest Projects



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LINE 4000 PHASE 2A HYDROTEST PROJECTS

Figure 2: Satellite Map for Line 4000 Phase 2A Hydrotest Projects



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LINE 4000 PHASE 2A HYDROTEST PROJECTS

Table 4: Project Mileage

PHASE	MILEAGE
PHASE 2A	33.183
INCIDENTAL	3.973
ACCELERATED	0.311
TOTAL MILEAGE	37.467

The direct costs for each area are summarized below.

Table 5: Material

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$151,491	\$3,910,896	\$0	\$0	\$4,062,387
TOTAL DIRECT COSTS	\$0	\$151,491	\$3,910,896	\$0	\$0	\$4,062,387

Assumptions

Materials for these projects will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start dates. The principal cost-driving materials necessary for these projects include:

- 0.8 miles of [REDACTED] pipe.
- [REDACTED] elbow fittings.
- [REDACTED] wedding bands.

Table 6: Construction

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$51,385	\$27,730	\$42,304	\$51,357,046	\$211,520	\$51,689,984
TOTAL DIRECT COSTS	\$51,385	\$27,730	\$42,304	\$51,357,046	\$211,520	\$51,689,984

Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization per hydrotest project.
- Work has been scheduled using a 10-hour work day, six-day work week.
- Seven Lake tanks will be installed for water storage, to support hydrotesting operations.

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- All materials will be received at the laydown yard.
- Mechanical excavation will be authorized up to within two feet of the existing pipeline. Hand excavation will be required within the two-foot zone.
- All excavations will be backfilled with zero sack slurry or sand padding to one foot above pipeline. Remainder of backfill will be performed using native soil. One sack slurry will be utilized.
- Multiple crews are required to meet the construction window.
- A single final hot tie-in will be performed for each project.
- 12-hour continuous duration for isolation and cold tie-ins.
- 24-hour continuous duration for final hot tie-in.
- Line taps will be fabricated and then reconnected after line is brought back into service.
- Construction Management and Inspection Services.
- Non-Destructive Examination and X-Ray of welds are included.
- Satellite phones for construction crew will be provided in the rural areas.
- Materials will be transported using side booms.
- Dust control anticipated for construction sites.

Additional Construction Information

• **Site Mobilization / Preparation / Site Facilities**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- One mobilization and one demobilization per hydrotest project.
- Grading for seven lake tanks.
- Seven laydown yards.
- 4.8 miles of temporary fencing to delineate the laydown yards, bell holes, test break & tap excavations.
- Five office trailers.
- Site facility costs cover a 21-month duration.
- 49 sites identified for ROW clearing.

• **Site Management / Best Management Practices (BMPs)**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- Fiber rolls, sandbags, straw bales, poly sheeting, silt fencing and demarcation fencing will be procured and installed for BMP measures.
- 22 rumble plates.
- 13 days for setup and maintain BMP measures.

• **Material Handling**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- 65 loads of material will be unloaded at a laydown yard and transported as needed.

• **Traffic Control**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- Eight days for trenching and backfilling of access roads.

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- **Utility Locates**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- 133 gas locates.

- **Site Excavation and Shoring**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- Shoring and plywood panel set up for a 9-month duration.
- 51 test break excavations include 42 days for machine excavation and 103 days for hand excavation.
- Station hand excavate for four days to expose MLV bridle valve supports.
- Six days for excavation of temporary water line crossings.
- 60 days of move arounds for machine excavation crew and hand excavation crew.
- 28 days to excavate trench for removal and replacement of pipeline.

- **Remove Existing / Install New Features**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- Fabricate eight [REDACTED] isolation caps, 24 [REDACTED] test caps and 18 [REDACTED] isolation test flanges and caps.
- Additional fabrication assumed for 41 water transfer manifolds and 13 jumper lines.
- 37 days to fabricate [REDACTED] test break replacement pipe assemblies.
- 12 days to fabricate and install 725 LF [REDACTED] replacement pipe section.

- **Isolate Existing Pipeline**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- Valve closure support of six [REDACTED] bridle valves and six [REDACTED] MLVs.
- 24-hours to cut, cap, and isolate each bundle of [REDACTED] Line 4000 pipeline projects.
- Three days of support to nitrogen purge the existing pipeline.
- 72 days of abatement support.
- Cut out 40 [REDACTED] test break pipe sections.
- Disconnect bridle valve connections at two [REDACTED] MLVs and modify blowdown stacks.
- Cut out mainline taps at two cut points of [REDACTED] pipe sections.
- Four Cathodic Protection (CP) Generator supports for a 15-month duration.

- **Pressure Test Pipeline**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- Approximately 2,700,000 gallons of water.
- Installation of 90 [REDACTED] test heads on 45 total test sections for the three hydrotest bundles.
- Installation of 18 water transfer manifolds.
- Installation of 22 [REDACTED] test caps on test break pipe replacement assemblies.
- Installation of 10 [REDACTED] test caps and flanges on bridle and blowdown assemblies.
- Installation of two [REDACTED] test heads on 725 LF of replacement pipe section.
- Six days to fabricate and install [REDACTED] fill and drain lines at test breaks.
- Fill Pipeline with Water
 - 28 days of 12 hours for filling 45 [REDACTED] test segments.

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- Three days for filling of [REDACTED] bridle and blowdown assembly sections.
- Three days for filling of [REDACTED] test break replacement pipe assemblies.
- One day for filling 725 LF [REDACTED] pipe replacement section.
- Test Pipeline
 - 43 shifts of 12-hour days for testing 45 [REDACTED] test segments.
 - Three days to test [REDACTED] bridle and blowdown assembly section.
 - One day to test 725 LF [REDACTED] pipe replacement section.
 - Three days to test of [REDACTED] test break replacement pipe bullet assemblies.
- Dewater Pipeline
 - 45 shifts of 12-hour days dewatering 45 [REDACTED] test segments.
 - Three days for dewatering of [REDACTED] bridle and blowdown assembly section.
 - One day for dewatering 725 LF [REDACTED] pipe replacement section.
 - Three days for dewatering of [REDACTED] test break replacement pipe bullet assemblies.
- Dry Pipeline
 - 45 shifts of 12-hour days for drying 45 [REDACTED] test segments.
 - Three days for drying of [REDACTED] bridle and blowdown assembly section.
 - One day for drying of 725 LF [REDACTED] pipe replacement section.
 - Three days for drying of [REDACTED] test break replacement pipe bullet assemblies.
- **Tie-In Pipeline**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

 - Removal of 30 [REDACTED] test caps on test break pipe replacement assemblies.
 - Removal of 10 [REDACTED] test caps and flanges on bridle and blowdown assemblies.
 - Removal of two [REDACTED] test headers on 725 LF of [REDACTED] pipe replacement section.
 - Removal of 102 [REDACTED] test heads on a total of 45 test sections from the three hydrotest bundles.
 - Three 24-hour shifts to perform final [REDACTED] tie-ins.
 - Fabricate and tie-in of 725 LF of [REDACTED] pipe replacement section.
 - Fabrication and tie-in of [REDACTED] tap replacement spool.
 - Reconnect gas connections after gas up.
- **Backfill Excavations**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

 - Coat 69 test break tie-in welds, including bridle and blowdown assembly tie-ins.
 - Coat 20 tie-in welds of the [REDACTED] replacement pipe section and tap tie-ins.
 - 40 days for backfill of [REDACTED] test break excavations.
 - Six days for backfill of bridle excavations and temporary road crossings of water fill and drain lines.
 - Additional ten days allotted for backfill crew move arounds.
 - Ten days for backfill of [REDACTED] pipe replacement trench excavations.
 - Two days for backfill 384 CY [REDACTED] tap cut-out excavations.

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• **Site Restoration**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- Four days for removal of temporary fencing.
- 13 days for removal of SWPPP/BMP measures.
- Two days for final cleaning.

• **Site Demobilization**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- All site facilities will be demobilized.
- 39 loads of [REDACTED] test headers returned to designated yard.
- Two loads of [REDACTED] isolation caps.
- Four loads of miscellaneous piping materials.
- One demobilization for crew and equipment for each hydrotest project.

• **Field Overhead**

Cumulative Assumptions for Hydrotest Bundles 1 to 3

- One Full-Time Project Manager.
- One Full-Time Superintendent.
- One Full-Time Cost Controller.
- Two Full-Time Safety Personnel.
- One Part-Time Scheduler.
- One aerial manlift and one axle trailer.
- Full-Time General Assistance Team to operate vehicles and perform general labor.
- Three Full-Time water trucks and drivers for dust suppression.
- One hauler to assist with equipment move arounds.
- Four site security personnel for all non-working hours.

Table 7: Environmental Survey/Permitting/Monitoring/Abatement

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$951,287	\$1,763,973	\$3,473,739	\$19,047,806	\$142,204	\$25,379,009
TOTAL DIRECT COSTS	\$951,287	\$1,763,973	\$3,473,739	\$19,047,806	\$142,204	\$25,379,009

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting, surveys, and monitoring).
- Abatement (asbestos and lead).
- Hazardous and Non-hazardous Waste Containment/Disposal (including hydrotest water hauling, treatment, and

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disposal).

- Mitigation fees.
- Permit fees.

The high-level assumptions and specific level of effort to provide environmental support for these projects are described in more detail below.

- **Document Preparation and Project Management**
 - Environmental Consultants for preconstruction assessments, construction monitoring, and environmental closeout support.
 - Preconstruction Clearance.
 - Environmental Clearance.
 - Storm Water Pollution and Prevention Plan (SWPPP) and Notice of Intent (NOI).
 - Worker Environmental Awareness Program (WEAP).
 - Cultural Report for consultation with Bureau of Land Management (BLM).
- **Preconstruction Surveys**
 - Preconstruction wildlife and nesting bird survey reports.
 - Rare plant survey and topsoil flagging.
 - Habitat and impact assessment during planning phase.
 - Waters delineation and permitting.
 - Bighorn sheep clearance surveys
 - Golden eagle clearance surveys.
 - Biological Opinion Clearance Surveys four surveys for burrowing owls.
 - Cultural survey for consultation with BLM.
- **Construction Monitoring**
 - Estimating approximately 9 to 16 full-time construction monitors, depending on the specific requirements for the Line 4000 Hydrotest Project Bundle.
 - Includes two biologists per crew with six crews working at one time, two floating monitors, plus two monitors during ground disturbance.
 - California Department Fish & Wildlife (CDFW) approved Desert Tortoise monitors per our current Memorandum of Understanding (MOU) under the California Desert Conservation Area (CDCA).
- **Project Closeout Activities**
 - Restoration support, permit reporting and closeout.
- **Abatement**
 - 127 days for abatement of ACMs.
 - Waste sampling and profiling anticipated to support disposal of coal tar pipe wrap generated during construction.
 - Hazardous and non-hazardous waste transport and disposal anticipated depending on sampling results.

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- **Water Treatment and Hazardous Materials**
 - Hydrostatic test water, estimated at 2,700,000 gallons, from hydrant and obtained by pipeline contractor.
 - Water delivery to the project site is included.
 - Hydrotest Water Disposal with water treatment included.
 - Waste sampling and profiling anticipated to support disposal of wastes generated during construction.
 - Hazardous and non-hazardous waste transport and disposal anticipated for various wastes (e.g. lead paint waste, pigs used to dry the pipeline post hydrotest, asbestos containing material, etc.).
- **Mitigation Fees**
 - Estimated fees per BLM/Desert Wildlife Management Area (DWMA) requirements for each impacted hydrotest project.
- **Permitting Fees**
 - Estimated fees associated with SWPPP, Mojave Desert Air Quality Management District (AQMD) Dust Control Plan, and Waste Discharge Requirements.

Table 8: Land & Right-of-Way Acquisition

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$138,650	\$87,710	\$225,717	\$0	\$0	\$452,076
TOTAL DIRECT COSTS	\$138,650	\$87,710	\$225,717	\$0	\$0	\$452,076

Assumptions

In generating the total estimated cost for Line 4000 Phase 2A Hydrotest Projects the following items were considered:

- **Labor**
 - One Senior Land Agent to support land acquisition.
- **Temporary Right of Entry**
 - 27 Temporary Revocable Easements (TREs) and three Temporary Use Permits (TUPs) for laydown yards and workspaces.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry.

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Table 9: Company Labor

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$164,213	\$1,082,812	\$1,114,485	\$2,126,424	\$508,053	\$4,995,987
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$164,213	\$1,082,812	\$1,114,485	\$2,126,424	\$508,053	\$4,995,987

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 10: Other Costs

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$2,109,294	\$1,706,812	\$1,135,625	\$712,358	\$872,747	\$6,536,835
TOTAL DIRECT COSTS	\$2,109,294	\$1,706,812	\$1,135,625	\$712,358	\$872,747	\$6,536,835

Assumptions

Other costs assume the use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Project Support Services
- Surveying and As-builts.

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Disallowance

In D.14-06-007, the Commission approved implementation of SoCalGas and SDG&E's PSEP, and disallowed recovery of specified costs associated with pressure testing or replacing pipeline segments installed after July 1, 1961. This decision was later modified by D.15-12-020 to include pipe installed from January 1, 1956, to July 1, 1961. The Line 4000 Phase 2A Hydrotest Projects includes 426.9 feet/0.081 miles of Category 4 pipe installed in 1965 that does not have test records to demonstrate compliance with the then-applicable industry or regulatory strength testing and record keeping standards. This resulted in an anticipated cost disallowance of \$191,207. The final value of the Line 4000 Phase 2A Hydrotest Projects cost disallowance will be adjusted once the project is placed in service.

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Table 1: Total Direct O&M Cost

PROJECT COSTS – O&M	Stage 1 ¹	Stage 2 ²	Stage 3 ³	Stage 4 ⁴	Stage 5 ⁵	Total
DIRECT LABOR	\$0	\$118,043	\$118,043	\$137,972	\$133,388	\$507,447
DIRECT NON-LABOR	\$249,781	\$214,877	\$384,005	\$3,006,269	\$180,410	\$4,035,341
TOTAL DIRECT O&M COSTS	\$249,781	\$332,920	\$502,048	\$3,144,242	\$313,798	\$4,542,789

Table 2: Total Direct Capital Cost

PROJECT COSTS – CAPITAL	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$37,330	\$37,330	\$41,794	\$42,531	\$158,985
DIRECT NON-LABOR	\$602,479	\$88,416	\$169,366	\$766,690	\$49,435	\$1,676,386
TOTAL DIRECT CAPITAL COSTS	\$602,479	\$125,746	\$206,696	\$808,484	\$91,966	\$1,835,370

Table 3: Total Direct Project Cost

TOTAL PROJECT COSTS	Stage 1 ⁶	Stage 2	Stage 3	Stage 4	Stage 5	Total ⁷
DIRECT LABOR	\$0	\$155,373	\$155,373	\$179,766	\$175,919	\$666,432
DIRECT NON-LABOR	\$852,259	\$303,293	\$553,371	\$3,772,960	\$229,844	\$5,711,727
TOTAL COSTS	\$852,259	\$458,666	\$708,744	\$3,952,726	\$405,764	\$6,378,159

Project Description

The Supply Line 36-9-09 North Phase 2A project will hydrotest approximately 1.4 miles of existing [REDACTED] pipe, located west from the city of Santa Margarita in San Luis Obispo County. The project scope includes 1.4 miles from Section 11 with 0.4 miles and Section 13 with 0.1 mile. The hydrotest will span across Sections 11, 12, and 13 with Section

¹ Project Initiation.

² Preliminary Design.

³ Detailed Design.

⁴ Construction.

⁵ Closeout.

⁶ Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

⁷ Values may not add to total due to rounding.

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12 being incidental test pipe. The project will include a drop section along the test segment where an exposure has occurred. An additional hydrotest will be conducted at the laydown yard as a pre-test for one test head, isolation cap and all tie-in spools associated with the project prior to installation.

Alternatives Considered

Supply Line 36-9-09 North is a critical line within the coastal distribution system and is the major supply line for customers in the area. Abandoning this line would result in an inability to meet needs of customers in the Central Coast. Because of this, abandonment is not a viable option. Derating this section of SL- 36-9-09 North to less than  SMYS would reduce the capacity of the system resulting in an inability to meet customer demand during peak seasons and is also not an option.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC Estimate includes direct costs associated with project management, engineering and design, environmental, permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques

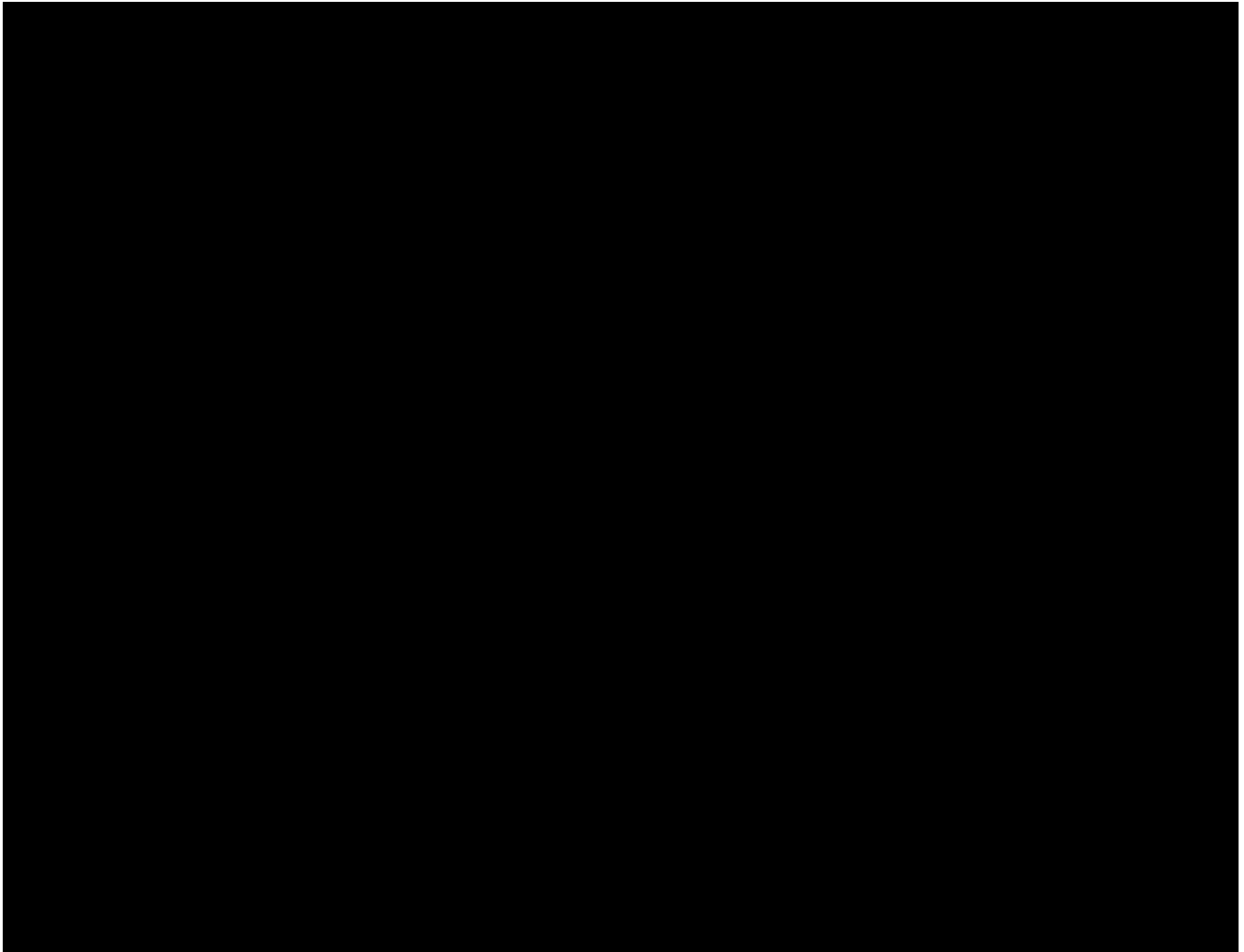
Schedule

The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that the majority of the project costs are expended during the construction phase. The construction schedule is assumed to be 75 days.

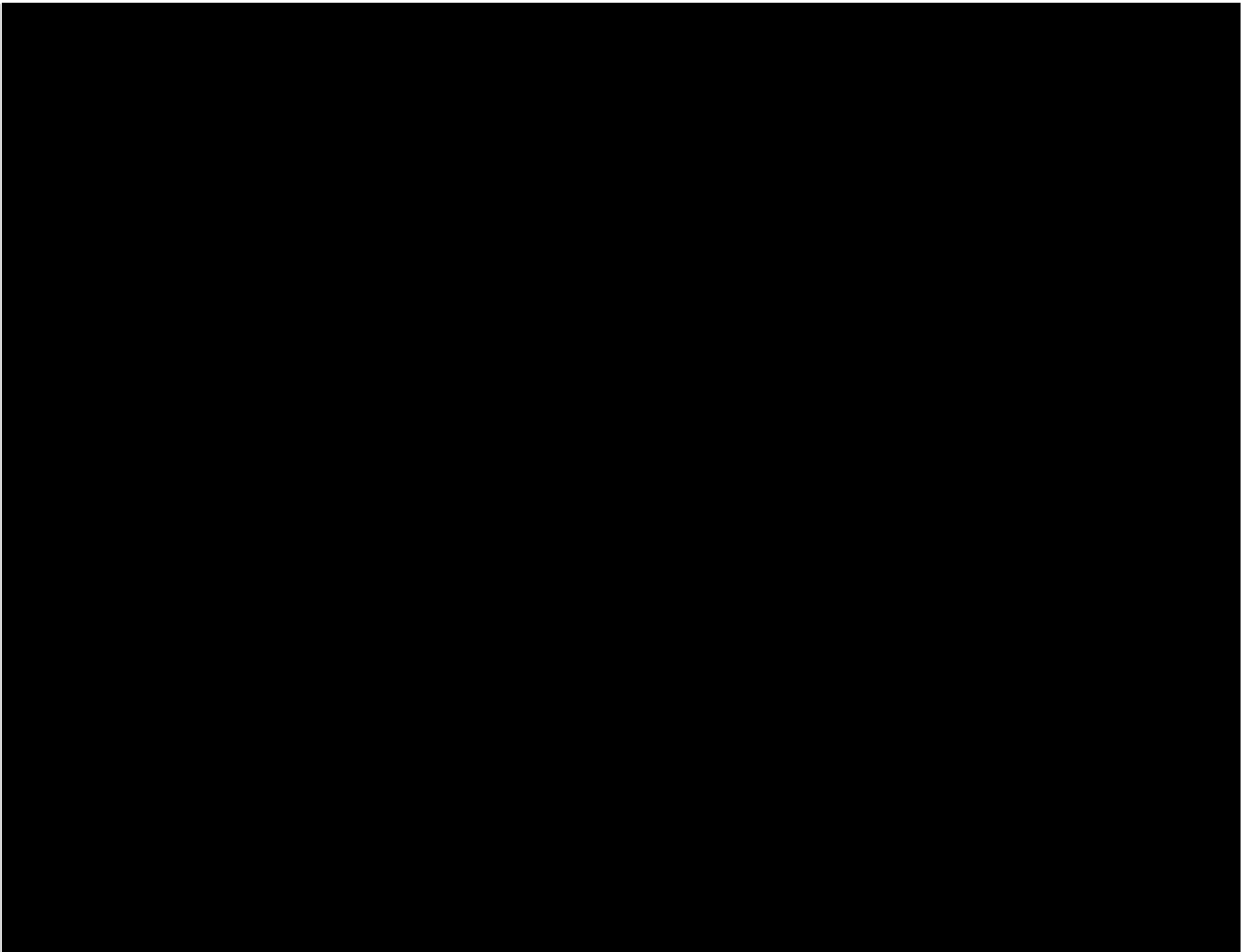
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Figure 1: Overview Map for Supply Line 36-9-09 North Phase 2A Sections 11 & 13 Hydrotest Project



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SUPPLY LINE 36-9-09 NORTH PHASE 2A SECTIONS 11 & 13 HYDROTEST PROJECT

Figure 2: Satellite Map for Supply Line 36-9-09 North Phase 2A Sections 11 & 13 Hydrotest Project



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SUPPLY LINE 36-9-09 NORTH PHASE 2A SECTIONS 11 & 13 HYDROTEST PROJECT

Table 4: Project Mileage

PHASE	MILEAGE
PHASE 2A	0.515
ACCELERATED	0.000
INCIDENTAL	0.935
REPLACEMENT OFFSET	-0.003
TOTAL MILEAGE	1.446

The direct costs for each area are summarized below.

Table 5: Material

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$29,537	\$64,144	\$0	\$0	\$93,681
TOTAL DIRECT COSTS	\$0	\$29,537	\$64,144	\$0	\$0	\$93,681

Assumptions

Materials for this project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 80 feet of [REDACTED] pipe.
- 160 feet of [REDACTED] pipe.
- Two [REDACTED] ball valves.

Table 6: Construction

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$2,991	\$0	\$21,450	\$3,407,120	\$107,252	\$3,538,814
TOTAL DIRECT COSTS	\$2,991	\$0	\$21,450	\$3,407,120	\$107,252	\$3,538,814

Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization.
- Work has been scheduled using a 10 hour per day, five-day work week.

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- All materials will be received at the laydown yard.
- Mechanical excavation will be authorized up to within two feet of the existing pipeline. Hand excavation will be required within the two feet zone.
- All excavations will be backfilled with zero sack slurry or sand padding to one foot above pipeline. Remainder of backfill will be performed using native soil. One sack slurry will be utilized.
- Isolation and final tie-ins will take place for a 12-hour continuous duration.
- Line taps will be fabricated and then reconnected after the line is brought back into service.
- Satellite phones will be required for construction crews due to dead zones.
- Dust control is required.
- Separate hydrotest for tie-in spool pieces and replacement section piping.
- Construction Management and Inspection Services during project execution.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Two office trailers have been included for management and inspection personnel at the northern and southern station laydown yards.
 - Site facility costs cover a three-month duration.
 - 3,369 feet of temporary fencing for all laydown yards.
 - Four track out plates have been included at street access points.
- **Site Management / Best Management Practices (BMPs)**
 - Fiber rolls, sandbags, reinforced poly sheeting, and silt fencing will be procured and installed for BMP measures.
- **Material Handling**
 - Three loads of material will be unloaded at laydown yard and transported as needed.
 - Material will be transported via side booms.
- **Utility Locates**
 - Included two shifts for utility locates.
- **Pipeline Excavation / Fabrication / Installation**
 - Excavation, layout, weld, string, coating of pipeline, backfill and base pave included for the mainline and laterals.
 - Fabrication included for two [REDACTED] Test Heads
 - Fabricate, test and install launcher and receivers.
- **Isolate Existing Pipeline**
 - Pipeline will be isolated with the use of a Pressure Control Fitting (PCF) bypass.
 - Isolation has been assumed for a 12-hour continuous duration.

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- **Hydrotest / Pressure Test Pipeline**
 - Contractor will assist with the preparatory work for water contractor.
 - Test heads will be fabricated by onsite Contractor.
 - The strength test will include the isolation caps, bypass, and new pipe.
- **Tie-In Pipeline**
 - The existing pipeline will be tied in during a 24-hour continuous shift.
 - X-ray / NDE of all welds.
 - Cold Tie-ins have been assumed for a 12-hour continuous duration.
- **Retire / Abandon Existing Pipeline**
 - Piping past the customer tap will be abandoned with nitrogen.
- **Site Restoration**
 - Hydroseeding of disturbed areas.
 - Restoration of work site locations to original condition.
- **Site Demobilization**
 - Demobilization of site facilities, crew, and equipment.
 - Hauling of one load of excess piping to SoCalGas designated yard.
- **Field Overhead**
 - Full-Time Construction Manager.
 - Full-Time Project Engineer.
 - Part-Time Construction Team Lead.

Table 7: Environmental/Permitting/Monitoring/Abatement

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$176,746	\$58,117	\$174,352	\$273,140	\$0	\$682,355
TOTAL DIRECT COSTS	\$176,746	\$58,117	\$174,352	\$273,140	\$0	\$682,355

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Hazardous Materials.

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SUPPLY LINE 36-9-09 NORTH PHASE 2A SECTIONS 11 & 13 HYDROTEST PROJECT

The high-level assumptions and specific level of effort to provide environmental support for this project are described in more detail below.

- **Environmental Document Production**
 - Environmental Consultants for preconstruction assessments, construction monitoring, and environmental closeout support.
 - Protocol Survey Reports.
 - Preconstruction Clearance.
 - Storm Water Pollution and Prevention Plan (SWPPP) and Notice of Intent (NOI).
 - Worker Environmental Awareness Procedure (WEAP).
 - Environmental Clearance.
- **Preconstruction Surveys**
 - Preconstruction wildlife and nesting bird survey reports.
 - Preconstruction wildlife survey report.
 - Cultural survey.
 - Rare plant survey and topsoil flagging.
- **Construction Monitoring**
 - One full-time monitor for duration of project.
 - One part time species specific biological monitor.
- **Project Closeout Activities**
 - Restoration support, permit reporting, and closeout.
- **Abatement**
 - Six days for abatement of ACMs.
- **Water Treatment and Hazardous Materials**
 - Potable water from fire hydrants is estimated at 27,700 gallons for hydrotest.
 - Two Frac tanks would be utilized for water storage.
 - Water disposal will take place offsite.

Table 8: Land & Right-of-Way Acquisition

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$56,608	\$55,672	\$167,017	\$0	\$0	\$279,298
TOTAL DIRECT COSTS	\$56,608	\$55,672	\$167,017	\$0	\$0	\$279,298

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SUPPLY LINE 36-9-09 NORTH PHASE 2A SECTIONS 11 & 13 HYDROTEST PROJECT

Assumptions

In generating for the total estimated cost for Supply Line 36-9-09 North Sections 11 & 13 Hydrotest Project the following items were considered:

- **Labor**
 - One Senior Land Agent for project land acquisition.
- **Land Acquisition**
 - Temporary Right of Entry (TREs) for a Laydown Yard and workspaces.
 - Non-Exclusive Laydown Yard.
 - Access roads.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry permits.

Table 9: Company Labor

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	155,373	\$155,373	\$179,766	\$175,919	\$666,432
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$0	155,373	\$155,373	\$179,766	\$175,919	\$666,432

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

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SUPPLY LINE 36-9-09 NORTH PHASE 2A SECTIONS 11 & 13 HYDROTEST PROJECT

Table 10: Other Costs

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$615,913	\$159,966	\$126,407	\$92,700	\$122,593	\$1,117,579
TOTAL DIRECT COSTS	\$615,913	\$159,966	\$126,407	\$92,700	\$122,593	\$1,117,579

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Surveying and As-builts.
- Project Support Services.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 36-1032 SECTION 14-Z REPLACEMENT PROJECT

Table 1: Total Direct O&M Cost

PROJECT COSTS – O&M	Stage 1 ¹	Stage 2 ²	Stage 3 ³	Stage 4 ⁴	Stage 5 ⁵	Total
DIRECT LABOR	\$0	\$1,396	\$1,396	\$2,379	\$1,594	\$6,765
DIRECT NON-LABOR	\$0	\$19,824	\$2,770	\$3,726	\$1,577	\$27,897
TOTAL DIRECT O&M COSTS	\$0	\$21,219	\$4,166	\$6,106	\$3,171	\$34,662

Table 2: Total Direct Capital Cost

PROJECT COSTS – CAPITAL	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$9,144	\$96,272	\$96,272	\$159,903	\$110,223	\$471,815
DIRECT NON-LABOR	\$262,184	\$134,822	\$223,495	\$1,402,551	\$103,526	\$2,126,577
TOTAL DIRECT CAPITAL COSTS	\$271,328	\$231,095	\$319,767	\$1,562,454	\$213,748	\$2,598,392

Table 3: Total Direct Project Cost

TOTAL PROJECT COSTS	Stage 1 ⁶	Stage 2	Stage 3	Stage 4	Stage 5	Total ⁷
DIRECT LABOR	\$9,144	\$97,668	\$97,668	\$162,282	\$111,817	\$478,579
DIRECT NON-LABOR	\$262,184	\$154,646	\$226,265	\$1,406,277	\$105,103	\$2,154,474
TOTAL COSTS	\$271,328	\$252,314	\$323,933	\$1,568,560	\$216,920	\$2,633,054

Project Description

The Supply Line 36-1032 Section 14-Z Replacement project will install 0.9 miles of existing [REDACTED] and [REDACTED] pipe starting at [REDACTED] in Santa Barbara County. This project represents the final phase of the Supply Line 36-1032 Section 14 multi-phase project to complete tie-in activities for the south side of the project.

¹ Project Initiation.

² Preliminary Design.

³ Detailed Design.

⁴ Construction.

⁵ Closeout.

⁶ Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

⁷ Values may not add to total due to rounding.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 36-1032 SECTION 14-Z REPLACEMENT PROJECT

Supply Line 36-1032 Section 14 extends from Lompoc Valley, continuing south adjacent to [REDACTED]. Phase I and II of the Project consisted of pipeline alignments that were rerouted to avoid or minimize impacts to natural vegetation within the ecological reserve, including a reroute onto [REDACTED] at the northern end of the replacement to avoid environmentally sensitive areas. An additional 0.04 miles of incidental pipe is included due to relocation of the southern tie-in point and the addition of a short segment between two Phase 1B sections to improve constructability by reducing excavation and tie-in work.

Supply Line 36-1032 Section 14-Z will complete the southern tie-in where Phase II was completed. The transition from Phase II to Section 14-Z (Phase 3) includes the removal of the existing [REDACTED] elbow and cap, installation of an [REDACTED] tee to place the remaining pipeline into service, and disconnect the nearby [REDACTED] pressure control fitting (PCF) and install of a [REDACTED] h cap.

Alternatives Considered

Supply Line 36-1032 Section 14 is a critical line with Santa Barbara County and is a major supply line for customers in the area. Abandoning this section would create a substantial loss in capacity and would result in an inability to meet the needs of customers in Santa Barbara County during the winter months as the system relies on the combined north and south feeds of SL-36-1032. Additionally, SL-36-1032 is the sole feed to SL-36-9-04 which serves a critical customer. Because of this, abandonment is not a viable option. Derating the pipeline to less than [REDACTED] SMYS would reduce the capacity of the system resulting in an inability to meet customer demand and also is not an option.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC estimate includes direct costs associated with project management, engineering and design, environmental, permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

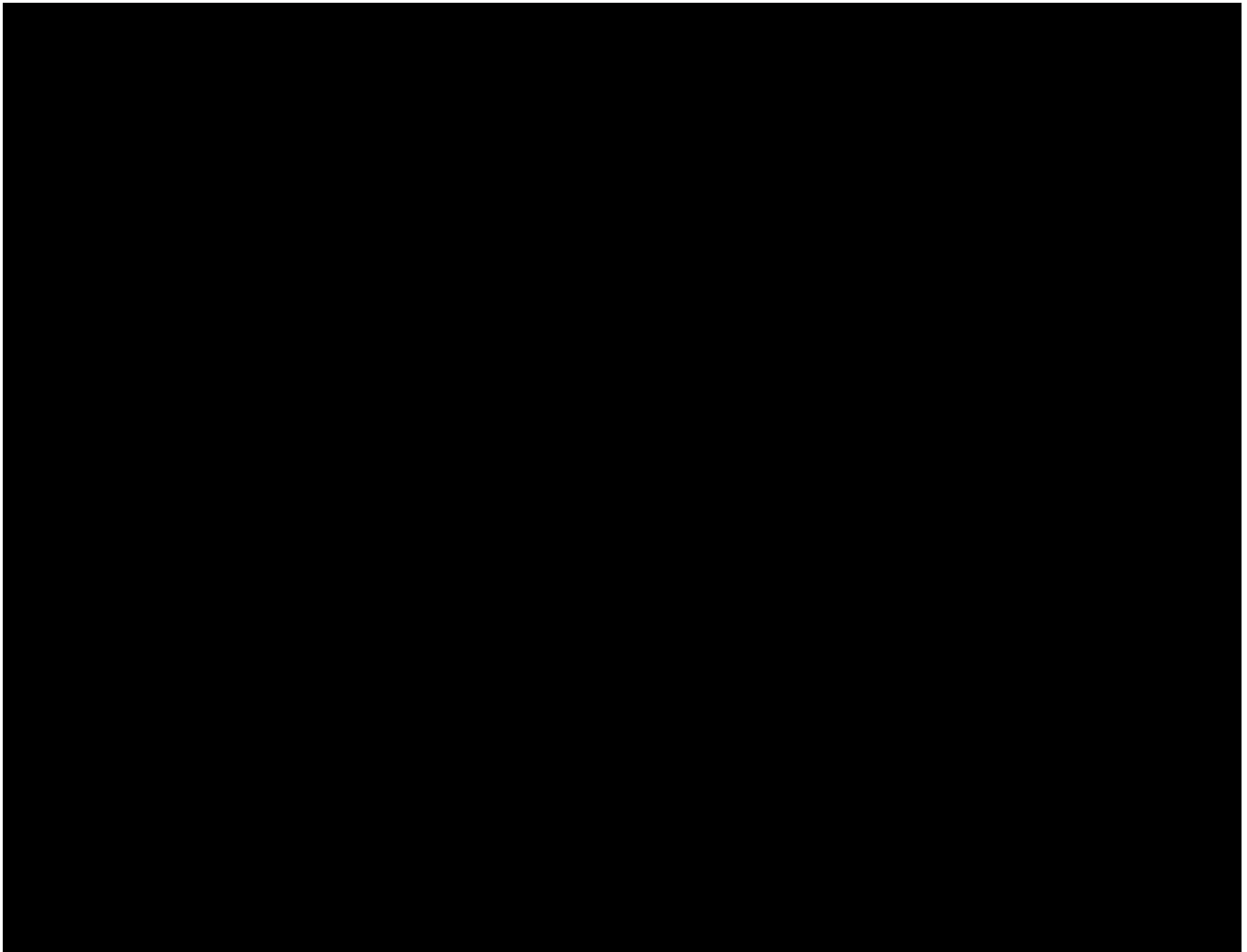
Schedule

The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that the majority of the project costs are expended during the construction phase. The construction schedule is assumed to be 39 days.

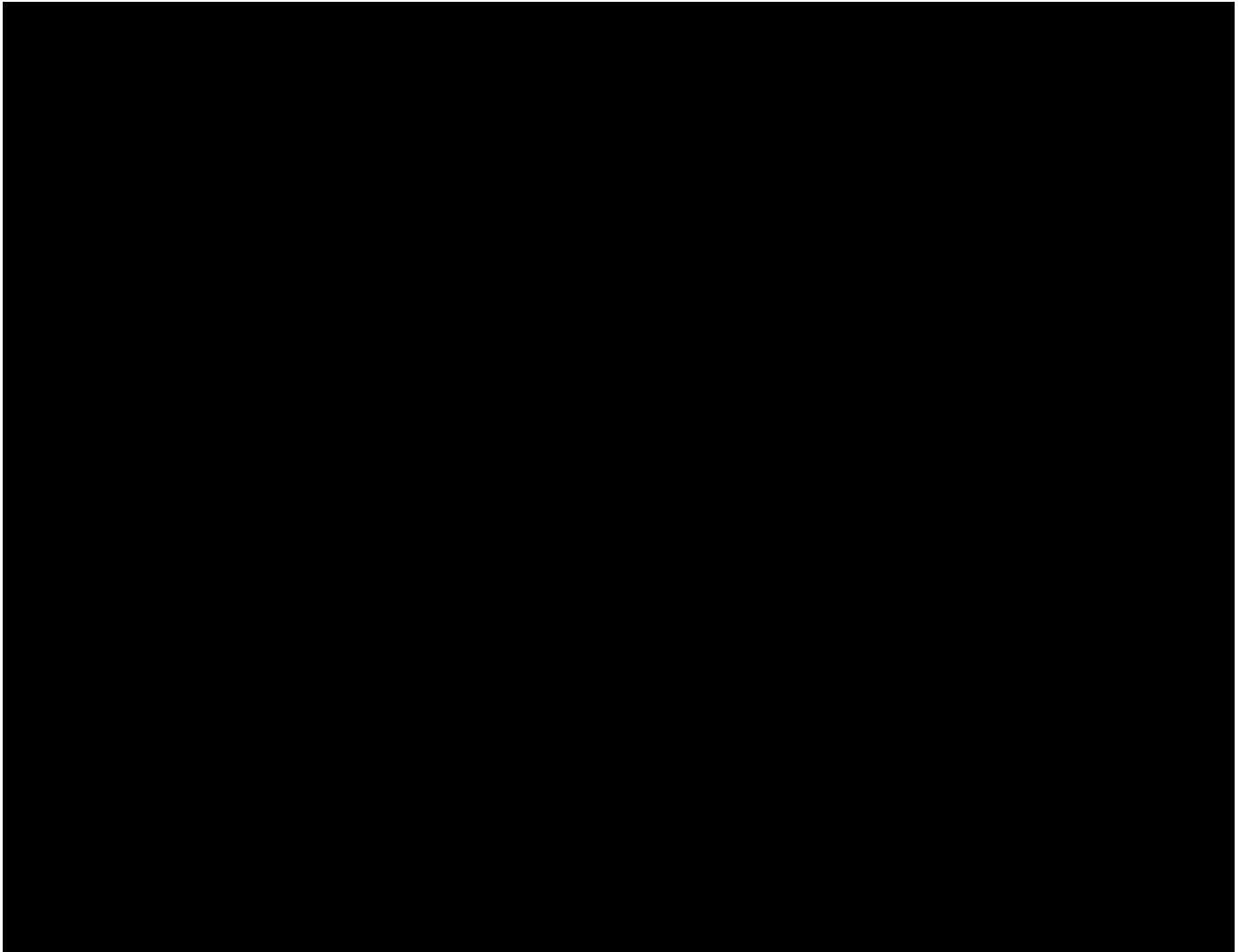
Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 36-1032 SECTION 14-Z REPLACEMENT PROJECT

Figure 1: Overview Map for Supply Line 36-1032 Section 14-Z Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 36-1032 SECTION 14-Z REPLACEMENT PROJECT

Figure 2: Satellite Map for Supply Line 36-1032 Section 14-Z Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 36-1032 SECTION 14-Z REPLACEMENT PROJECT

Table 4: Project Mileage

PHASE	MILEAGE
PHASE 1B	0.747
INCIDENTAL	0.032
ACCELERATED	0.142
REPLACEMENT OFFSET	0.136
TOTAL MILEAGE	1.057

The direct costs for each area are summarized below.

Table 5: Material

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$17,770	\$41,653	\$0	\$0	\$59,423
TOTAL DIRECT COSTS	\$0	\$17,770	\$41,653	\$0	\$0	\$59,423

Assumptions

Materials for this project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 90 feet of [REDACTED] pipe.
- One [REDACTED] pressure control fitting (PCF).
- Four [REDACTED] ball valves.

Table 6: Construction

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$0	\$7,563	\$1,266,692	\$37,813	\$1,312,068
TOTAL DIRECT COSTS	\$0	\$0	\$7,563	\$1,266,692	\$37,813	\$1,312,068

Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization.
- Work has been scheduled using a 10 hour per day, five-day work week.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 36-1032 SECTION 14-Z REPLACEMENT PROJECT

- Construction schedule is assumed to be 39 working days.
- Construction staging will take place at the laydown yard.
- The Construction Contractor will be unloading SoCalGas material at the project site.
- Mechanical excavation will be authorized up to within two feet of the existing pipeline. Hand excavation will be required within the two feet zone of the pipe.
- The excavation will be backfilled with zero sack slurry to one foot above pipeline.
- One excavation crew and one Fabrication crew.
- Non-Destructive Examination/X-Ray of welds.
- Construction Management and Inspection Services during project execution.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Two office trailers have been included for management.
 - Site facility costs cover a two month duration.
 - Temporary fencing will be set up at the laydown yard.
- **Site Management / Best Management Practices (BMPs)**
 - Fencing will be procured and installed for BMP measures.
- **Traffic Control**
 - Assume six days needed for traffic control.
- **Tie-In Pipeline / Pressure Test Pipeline**
 - The sensing line piping and manifolds will be tested using nitrogen.
 - Cathodic Protection is assumed for this project.
 - X-ray of all welds.
- **Pipeline Excavation / Fabrication / Installation**
 - Three excavations planned in preparation for pipeline installation.
 - One excavation is located northeast of [REDACTED] with approximately 13 cubic yards (CY) of anticipated material.
 - One excavation is located south of [REDACTED] with approximately 96 CY of material.
 - One excavation is located northwest of [REDACTED] with approximately 22 CY of material.
- **Site Restoration**
 - 320 square feet (SF) of AC paving for [REDACTED] and [REDACTED].
 - Laydown yards will be restored to the original condition.
 - Restoration of work site location to original condition.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 36-1032 SECTION 14-Z REPLACEMENT PROJECT

- **Site Demobilization**
 - Clean up crew assumed to assist with demobilization and restoration activities.
 - Demobilization of site facilities, crew, and equipment.
- **Field Overhead**
 - Full-Time Superintendent.
 - Full-Time Cost Controller.
 - Full-Time Safety Person.
 - One site security personnel for non-working hours.

Table 7: Environmental/Permitting/Monitoring/Abatement

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$21,632	\$19,855	\$59,566	\$92,502	\$0	\$193,554
TOTAL DIRECT COSTS	\$21,632	\$19,855	\$59,566	\$92,502	\$0	\$193,554

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting support and document production, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Hazardous Materials.
- Permit Fees.

The high-level assumptions and specific level of effort to provide environmental support for this project are described in more detail below.

- **Project Closeout Activities**
 - Site restoration support and permit reporting, and closeout activities.
- **Abatement**
 - Three days for abatement of ACMs.
- **Water Treatment and Hazardous Materials**
 - Hydrotest water estimated at 200 gallons from local fire hydrant.
Hydrotest Water Disposal – Onsite discharge.
 - Waste sampling and profiling anticipated to support disposal of wastes generated during construction.
 - Hazardous and non-hazardous waste transport and disposal anticipated for various wastes.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 36-1032 SECTION 14-Z REPLACEMENT PROJECT

- **Permit Fees**
 - Permitting fees related to an encroachment permit.
 - Permitting fees for Santa Barbara County and Caltrans.
 - California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement fee (Fees are set by the agency and are subject to change).

Table 8: Land & Right-of-Way Acquisition

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$11,788	\$13,893	\$41,680	\$0	\$0	\$67,361
TOTAL DIRECT COSTS	\$11,788	\$13,893	\$41,680	\$0	\$0	\$67,361

Assumptions

In generating for the total estimated cost for Supply Line 36-1032 Section 14-Z Replacement Project the following items were considered:

- **Labor**
 - One contract land agent.
 - Administrative support.
- **Land Acquisition**
 - Appraisal Reports.
 - Crop Loss/Business Loss Appraisal.
- **Temporary Right of Entry**
 - Workspace.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry permits.

Table 9: Company Labor

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$9,144	\$97,668	\$97,668	\$162,282	\$111,817	\$478,579
DIRECT NON-LABOR	\$0	\$0	\$7,563	\$105,876	\$37,813	\$151,251
TOTAL DIRECT COSTS	\$9,144	\$97,668	\$97,668	\$162,282	\$111,817	\$478,579

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 36-1032 SECTION 14-Z REPLACEMENT PROJECT

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 10: Other Costs

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$228,764	\$103,128	\$75,804	\$47,083	\$67,290	\$522,069
TOTAL DIRECT COSTS	\$228,764	\$103,128	\$75,804	\$47,083	\$67,290	\$522,069

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Surveying and As-builts.
- Project Support Services.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 38-362 PHASE 2A HYDROTEST PROJECT

Table 1: Total Direct O&M Cost

PROJECT COSTS – O&M	Stage 1¹	Stage 2²	Stage 3³	Stage 4⁴	Stage 5⁵	Total
DIRECT LABOR	\$521	\$65,155	\$64,287	\$138,541	\$74,917	\$343,421
DIRECT NON-LABOR	\$91,736	\$428,629	\$338,681	\$6,297,504	\$216,341	\$7,372,892
TOTAL DIRECT O&M COSTS	\$92,258	\$493,785	\$402,968	\$6,436,045	\$291,258	\$7,716,314

Table 2: Total Direct Capital Cost

PROJECT COSTS – CAPITAL	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$198,827	\$270,329	\$814,736	\$178,369	\$1,462,261
DIRECT NON-LABOR	\$0	\$53,357	\$89,487	\$379,470	\$33,218	\$555,531
TOTAL DIRECT CAPITAL COSTS	\$0	\$252,184	\$359,816	\$1,194,206	\$211,586	\$2,017,792

Table 3: Total Direct Project Cost

TOTAL PROJECT COSTS	Stage 1⁶	Stage 2	Stage 3	Stage 4	Stage 5	Total⁷
DIRECT LABOR	\$521	\$113,684	\$112,815	\$216,619	\$131,811	\$575,451
DIRECT NON-LABOR	\$91,736	\$670,591	\$688,276	\$7,470,036	\$416,092	\$9,336,731
TOTAL COSTS	\$92,258	\$784,275	\$801,091	\$7,686,655	\$547,904	\$9,912,182

¹ Project Initiation.

² Preliminary Design.

³ Detailed Design.

⁴ Construction.

⁵ Closeout.

⁶ Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

⁷ Values may not add to total due to rounding.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

SUPPLY LINE 38-362 PHASE 2A HYDROTEST PROJECT

Project Description

The Supply Line 38-362 Phase 2A Hydrotest Project will hydrotest approximately 7.3 miles of [REDACTED] pipe in Kern County. The Project begins [REDACTED] of the [REDACTED] freeway northbound rest stop near [REDACTED] to the intersection of [REDACTED] and [REDACTED]. The Project includes the replacement of 13 taps and three pipeline features in order to facilitate the hydrotest.

Alternatives Considered

Supply Line 38-362 is the only source of supply to multiple distribution taps and is critical for system operational needs. Abandonment of the line is not feasible since it would create a substantial loss in capacity and would result in an inability to meet the needs of customers in the area. To derate the pipeline, the resulting system capacity decrease would result in an inability to meet customer demand.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC estimate includes direct costs associated with project management, engineering and design, environmental permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

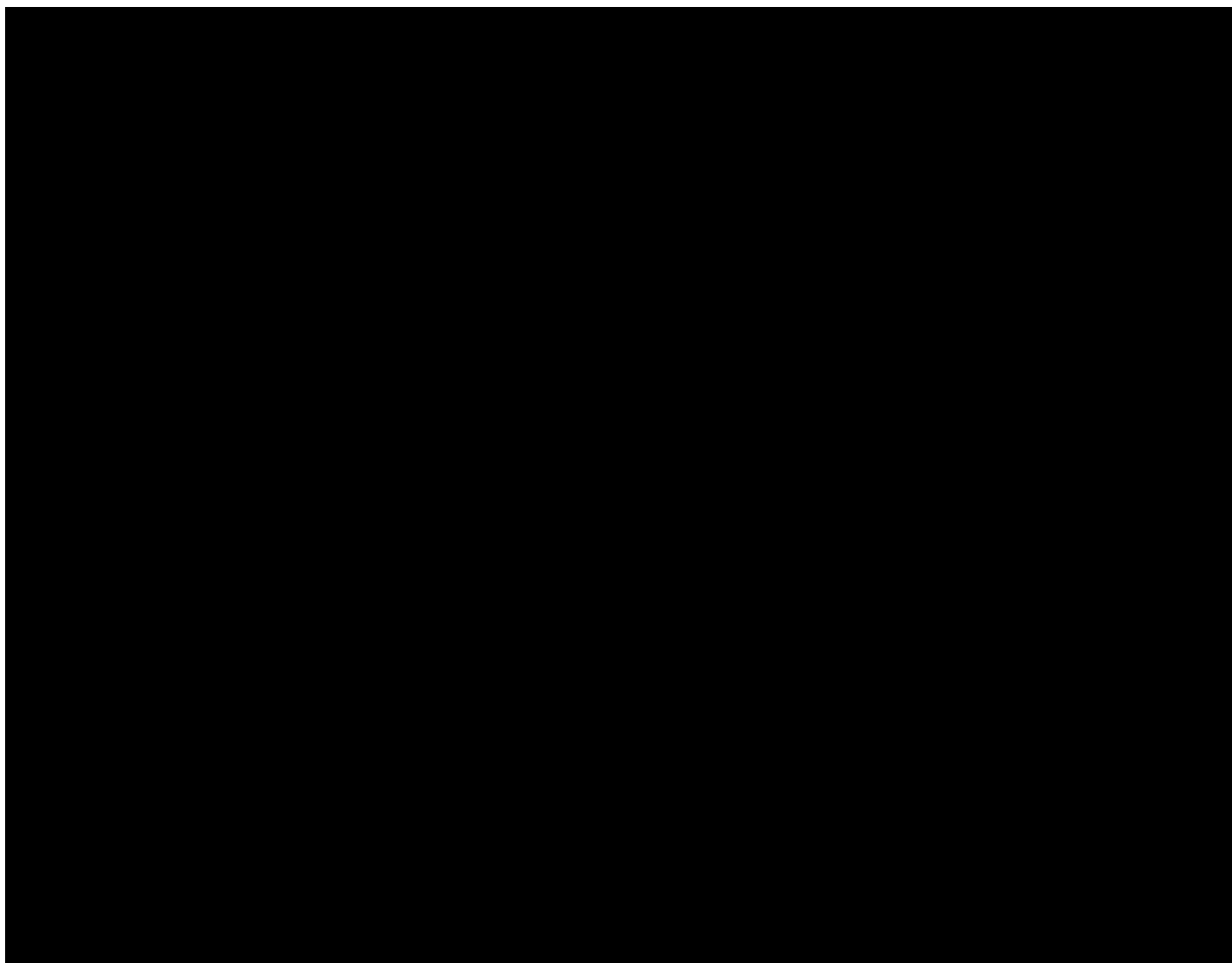
Schedule

The schedule was developed based on the five-stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that typically 50% of the project costs are expended during the construction phase. The construction schedule is assumed to be 50 days.

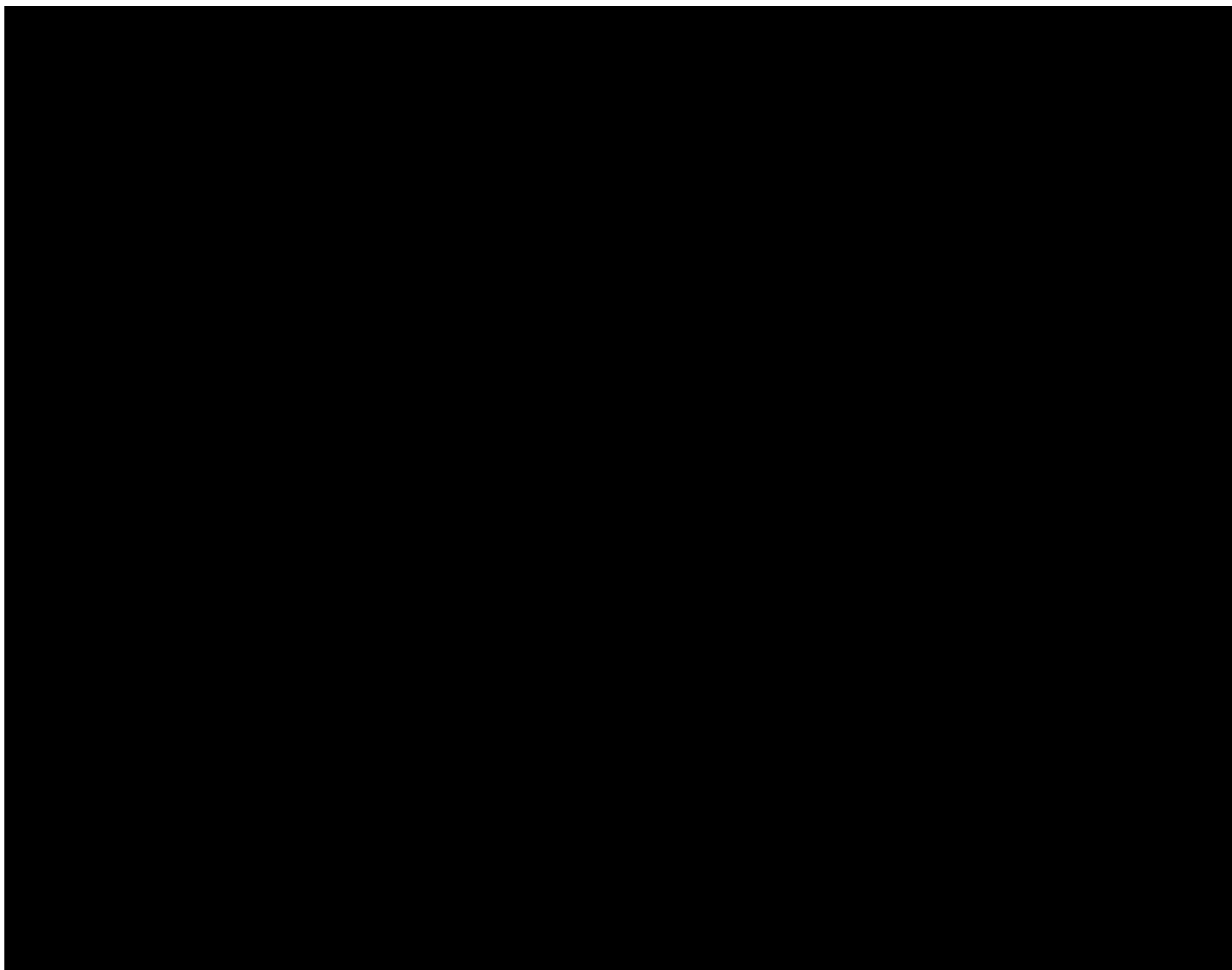
Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 38-362 PHASE 2A HYDROTEST PROJECT

Figure 1: Overview Map for Supply Line 38-362 Phase 2A Hydrotest Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 38-362 PHASE 2A HYDROTEST PROJECT

Figure 2: Satellite Map for Supply Line 38-362 Phase 2A Hydrotest Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 38-362 PHASE 2A HYDROTEST PROJECT

Table 4: Project Mileage

PHASE	MILEAGE
PHASE 2A	2.707
PHASE 2B	0.000
INCIDENTAL	4.602
TOTAL MILEAGE	7.309

The direct costs for each area are summarized below.

Table 5: Material

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$82,051	\$111,934	\$374	\$281	\$194,640
TOTAL DIRECT COSTS	\$0	\$82,051	\$111,934	\$374	\$281	\$194,640

Assumptions

Materials for this project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- One [REDACTED] ball valve.
- One [REDACTED] ball valve.
- One [REDACTED] ball valve.

Table 6: Construction

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$1,597	\$7,922	\$16,080	\$6,987,501	\$58,409	\$7,071,509
TOTAL DIRECT COSTS	\$1,597	\$7,922	\$16,080	\$6,987,501	\$58,409	\$7,071,509

Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization.
- Work has been scheduled using a 10-hour per day, five-day work week.
- All materials will be received at the laydown yard.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

SUPPLY LINE 38-362 PHASE 2A HYDROTEST PROJECT

- A total of two test heads will be fabricated and pretested.
- Mechanical excavation will be authorized up to within two feet of the existing pipeline. Hand excavation will be required within the two feet zone.
- All excavations will be backfilled with zero sack slurry or sand padding to one foot above pipeline. Remainder of backfill will be performed using native soil.
- Isolation of thirteen existing taps.
- Three pressure control fittings (PCFs) will be installed to utilize CNG/LNG setups to impacted customers.
- The pipeline will be tested in one test segment.
- Isolation and final tie-ins for a 24-hour continuous duration.
- Line taps will be fabricated and then reconnected after line is brought back into service.
- Hydrotest water will be hauled off and disposed of by others.
- Non-Destructive Examination/X-Ray of welds.
- Construction Management and Inspection Services during project execution.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Two office trailers at the laydown yard for construction and inspection personnel.
 - Site facility costs cover a three-month duration.
 - Crushed rock for the laydown yards and water tank pad stabilization.
 - 100 feet of temporary fill piping will be installed from the water tanks to the first test head.
 - 1,200 feet of temporary fencing to delineate the laydown yard and any open excavations.
- **Site Preparation**
 - Two laydown yards.
 - Two days to clear and grub the yard and one day to prepare Baker tank pads.
- **Site Management / Best Management Practices (BMPs)**
 - BMP materials for all spoil piles, laydown yards, and work sites.
 - 6,400 feet of silt fencing.
- **Material Handling**
 - One load of material will be unloaded at laydown yard and transported as needed.
- **Traffic Control**
 - Traffic control for tap isolation.
- **Utility Locates**
 - A utility locate crew will be utilized for three days to locate existing pipeline.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

SUPPLY LINE 38-362 PHASE 2A HYDROTEST PROJECT

- **Isolate Existing Pipeline**
 - Thirteen taps will be isolated prior to hydrotesting.
 - One 24-hour day for isolation of the pipeline.
 - Five days to isolate taps.
 - Seven taps will be supported with CNG.
 - Four taps will be supported with LNG.
- **Hydrotest / Pressure Test Pipeline**
 - One hydrotest will be performed.
 - Seven Baker Tanks will be installed.
 - Test heads will be installed below grade. Costs for vertical offset installation of test heads to an above-ground orientation has not been included.
- **Tie-In Pipeline**
 - Two tie-ins will be performed in one 24-hour day.
 - 100% of tie-in welds will be x-rayed.
- **Site Restoration**
 - All work site locations will be restored to original condition.
 - 250,000 square Feet (SF) of hydroseeding.
- **Site Demobilization**
 - All site facilities will be demobilized.
 - One load of excess piping will be hauled to SoCalGas designated yard.
 - Crew and equipment will be demobilized.
- **Field Overhead**
 - One Full-Time Superintendent.
 - One Full-Time Cost Controller.
 - One Full-Time Timekeeper.
 - One Full-Time Safety Supervisor.
 - One Part-Time Scheduler.
 - One water truck and driver are included for the duration of the project.
 - Two site security guards for all non-working hours.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 38-362 PHASE 2A HYDROTEST PROJECT

Table 7: Environmental Survey/Permitting/Monitoring/Abatement

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$14,703	\$81,251	\$143,127	\$335,734	\$238,675	\$813,490
TOTAL DIRECT COSTS	\$14,703	\$81,251	\$143,127	\$335,734	\$238,675	\$813,490

Assumptions

The major components in this category include:

- Environmental Services (permitting support, surveys, and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.
- Permit Fees.

The high-level assumptions and specific level of effort to provide environmental support for this project are described in more detail below.

- **Environmental Document Preparation**
 - Protocol Survey Reports.
 - Rare Plant Survey Report.
 - Preconstruction Clearance.
 - Environmental Clearance.
 - Storm Water Pollution and Prevention Plan (SWPPP) and Notice of Intent (NOI).
 - Worker Environmental Awareness Procedure (WEAP) document.
- **Preconstruction Surveys**
 - Preconstruction wildlife and nesting bird survey reports.
 - Rare plant survey and topsoil flagging.
- **Construction Monitoring**
 - One full-time monitor for duration of project.
- **Project Closeout activities**
 - Restoration support, permit reporting and closeout.
- **Abatement**
 - 14 days for abatement of ACMs.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 38-362 PHASE 2A HYDROTEST PROJECT

- **Water Treatment and Hazardous Materials**
 - Hydrostatic test water estimated at 106,000 gallons.
 - Disposal up to 100 miles roundtrip plus disposal fee.
 - One day for hydrotest standby support.
 - Waste sampling and profiling anticipated to support disposal of wastes generated during construction.
 - Hazardous and non-hazardous waste transport and disposal anticipated for various wastes (e.g., lead paint waste, pigs used to dry the pipeline post hydrotest, asbestos containing material, etc.).
- **Permit Fees**
 - San Joaquin Valley Air Pollution Control District (SJVAPCD) Dust Control Plan notification (no fee).
 - California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) exempt.
 - The project will be eligible for coverage under the SoCalGas programmatic San Joaquin Valley Habitat Conservation Plan (SJVHCP) (currently in development) any required take authorization will be covered under this habitat conservation plan.
 - SWPPP fee (fees are set by the agency and are subject to change).
 - Permitting fees related to encroachment permit and traffic control plan costs.

Table 8: Land & Right-of-Way Acquisition

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$1,720	\$34,609	\$89,070	\$0	\$0	\$125,400
TOTAL DIRECT COSTS	\$1,720	\$34,609	\$89,070	\$0	\$0	\$125,400

Assumptions

In generating for the total estimated cost for Supply Line 38-362 Phase 2A Hydrotest Project the following items were considered:

- **Labor**
 - One contract land agent.
- **Land Acquisition**
 - Appraisal Reports.
 - Title Reports.
- **Temporary Right of Entry**
 - Workspace.
 - Access road.
 - Laydown yard.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 38-362 PHASE 2A HYDROTEST PROJECT

Table 9: Company Labor

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$521	\$113,684	\$112,815	\$216,619	\$131,811	\$575,451
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$521	\$113,684	\$112,815	\$216,619	\$131,811	\$575,451

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 10: Other Costs

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$73,716	\$464,757	\$328,064	\$146,427	\$118,728	\$1,131,692
TOTAL DIRECT COSTS	\$73,716	\$464,757	\$328,064	\$146,427	\$118,728	\$1,131,692

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Surveying and As-builts.
- Project Support Services.

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SUPPLY LINE 38-539 PHASE 2A REPLACEMENT PROJECT

Table 1: Total Direct Project Cost – All Capital

TOTAL PROJECT COSTS - CAPITAL	Stage 1^{1,2}	Stage 2³	Stage 3⁴	Stage 4⁵	Stage 5⁶	Total⁷
DIRECT LABOR	\$136,237	\$81,655	\$64,421	\$433,716	\$60,624	\$776,654
DIRECT NON-LABOR	\$43,324	\$983,674	\$6,697,145	\$45,606,091	\$720,337	\$54,050,572
TOTAL COSTS - CAPITAL	\$179,561	\$1,065,330	\$6,761,566	\$46,039,807	\$780,962	\$54,827,226

Project Description

The Supply Line 38-539 Phase 2A Project will replace [REDACTED] and [REDACTED] pipe with approximately 12.6 miles of [REDACTED] pipe. The project starts at the intersection of [REDACTED] and [REDACTED] and ends south of the [REDACTED] of [REDACTED] and [REDACTED] in Tulare County. The replacement will be installed along the route via open trench. Approximately twenty horizontal directional drills (HDDs) and associated entry points and exit points will be conducted to cross existing roads, irrigation canals, streams, and rivers to minimize traffic and mitigate environmental impacts.

Alternatives Considered

Supply Line 38-539 is a primary pipeline for the Visalia District and is critical for system operational needs. Abandoning this pipeline would create a substantial loss in capacity and would result in an inability to meet the needs of customers in the area. Because of this, abandonment is not a viable option. Derating the pipeline would negatively impact the capacity of the system as well and is not a viable option. Hydrotesting the line would require shutting in the section for approximately one month and would require supplying CNG to the 16 tap laterals and customer taps. More than half of the existing pipeline contains a spiral weld long seam and a hydrotest is not recommended.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC estimate includes direct costs associated with project management, engineering and design, environmental permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

¹ Project Initiation.

² Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

³ Preliminary Design.

⁴ Detailed Design.

⁵ Construction.

⁶ Closeout.

⁷ Values may not add to total due to rounding.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 38-539 PHASE 2A REPLACEMENT PROJECT

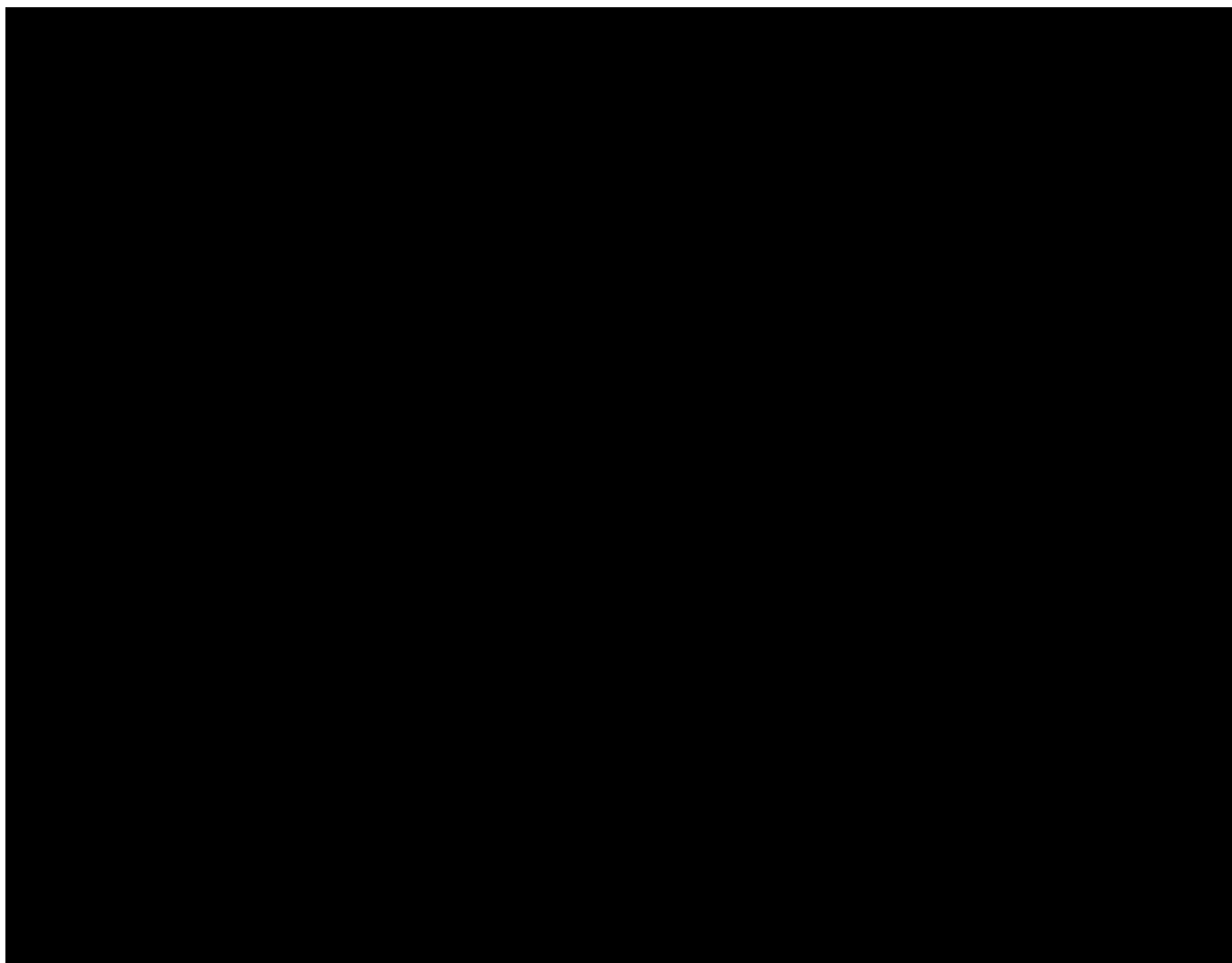
Schedule

The schedule was developed based on the five-stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that the majority of the project costs are expended during the construction phase. The construction schedule is assumed to be 144 days.

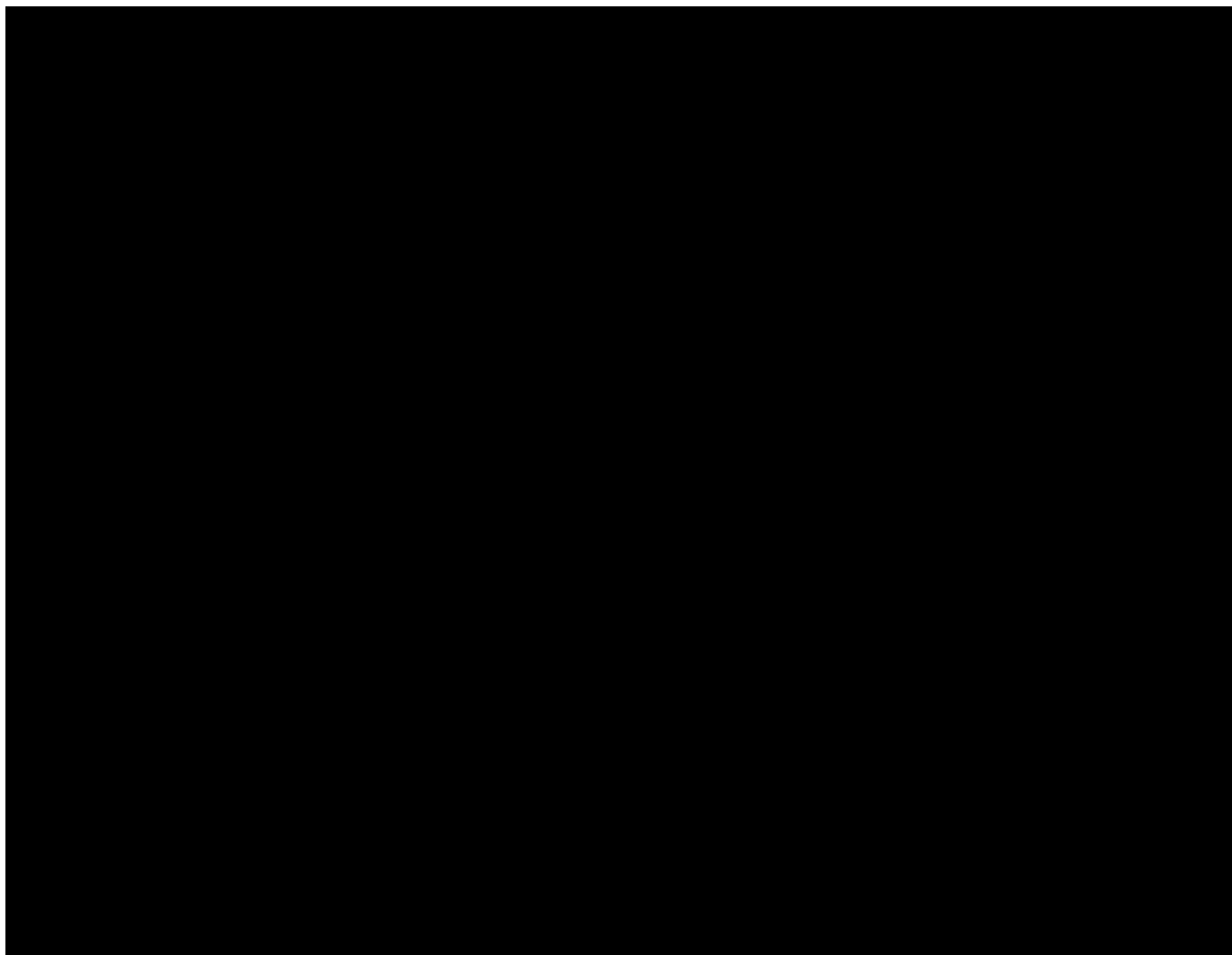
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SUPPLY LINE 38-539 PHASE 2A REPLACEMENT PROJECT

Figure 1: Overview Map for Supply Line 38-539 Phase 2A Replacement Project



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SUPPLY LINE 38-539 PHASE 2A REPLACEMENT PROJECT

Figure 2: Satellite Map for Supply Line 38-539 Phase 2A Replacement Project



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SUPPLY LINE 38-539 PHASE 2A REPLACEMENT PROJECT

Table 2: Project Mileage

PHASE	MILEAGE
PHASE 2A	12.209
INCIDENTAL	0.292
COORDINATED	0.120
REPLACEMENT OFFSET	0.276
TOTAL MILEAGE	12.898

The direct costs for each area are summarized below.

Table 3: Material

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$76,260	\$5,544,304	\$136,950	\$0	\$5,757,514
TOTAL DIRECT COSTS	\$0	\$76,260	\$5,544,304	\$136,950	\$0	\$5,757,514

Assumptions

Materials for this project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 12.6 miles of [REDACTED] pipe.
- Four [REDACTED] ball valves.
- One [REDACTED] ball valve.

Table 4: Construction

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$0	\$34,437	\$44,220,930	\$135,333	\$44,390,701
TOTAL DIRECT COSTS	\$0	\$0	\$34,437	\$44,220,930	\$135,333	\$44,390,701

General Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization have been included.
- Work has been scheduled using a 10-hour, five-day work week.

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SUPPLY LINE 38-539 PHASE 2A REPLACEMENT PROJECT

- Environmental protection fencing for all workspaces.
- Construction will be completed assuming a single roadway lane.
- All piping will be shaded with zero sack slurry. Remainder of trench zone will utilize native soil. Excess spoils will be hauled off and disposed.
- Contaminated soil has not been anticipated.
- Tie-ins will be performed during a 24-hour continuous shift.
- New pipeline will be hydrotested in one section.
- Restoration of grade along right of way (ROW) will be performed at the end of the project.
- Construction management and Inspection services are included.
- Non-Destructive Examination (NDE) and X-Ray of welds have been included.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Two office trailers will be placed at the laydown yards.
 - Site facility costs cover a seven-month duration.
 - Temporary fencing for all laydown yards and test break locations.
 - Track out plates at street access points.
- **Site Management / Best Management Practices (BMPs)**
 - Fiber rolls, sandbags, reinforced poly sheeting, and silt fencing will be procured and installed for BMP measures.
- **Material Handling**
 - 85 loads of material will be unloaded at laydown yard and transported as needed.
- **Traffic Control**
 - East bound lane will be closed to traffic during pipeline installation and restoration activities.
 - Traffic control devices will be set up and removed on a daily basis.
- **Utility Locates**
 - Utility locate crews for 30 days to locate substructures and existing utilities.
- **Pipeline Excavation / Fabrication / Installation**
 - Installation of sixteen new tap connections.
 - Excavation, layout, weld, string, coating of pipeline, backfill and base pave new pipeline.
 - Installation of approximately 5000 feet of pipeline via HDD and self-propelled bore methods, per contractor recommendation.
 - Fabrication of two test heads by the contractor.

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SUPPLY LINE 38-539 PHASE 2A REPLACEMENT PROJECT

- **Isolate Existing Pipeline**
 - Pipeline will be isolated and blown down in conjunction with tie-in activities.
 - Pipeline will not be separately isolated or brought down until new pipeline has been installed and tested.

- **Pipeline Installation**
 - Pipeline will be isolated and blown down in conjunction with tie-in activities.
 - Assumed 2,000 LF of traffic control boundaries to work within for pipeline construction crews.
 - A total of sixteen (16) new tap connections will be installed.
 - A total of 5,110 LF of pipeline will be installed via HDD and self-propelled bore methods.

- **Hydrotest / Pressure Test Pipeline**
 - Contractor will assist with the preparatory work prior to the setup of fifteen water tanks.
 - Hard piping will be installed from the test head to the water tanks.
 - Two test heads will be fabricated by the contractor.
 - The pipeline will be tested in one individual segment.

- **Tie-In Pipeline**
 - Pipeline will be tied in during a 24-hour continuous shift.
 - 16 taps will be tied over following completion of new pipeline.

- **Retire / Abandon Existing Pipeline**
 - One pipe span removal has been included.
 - All existing piping will have steel plates installed and will be abandoned using nitrogen.

- **Site Restoration**
 - Base paving of trench width will be performed to a thickness of 8-inches.
 - The grind and cap will account for one travel lane.
 - All paved roads will receive new striping where disturbed.

- **Site Demobilization**
 - Removal of all office trailers.
 - Laydown yards will be restored to original condition at the end of the project.
 - Two loads of excess piping will be hauled to a SoCalGas designated yard.
 - Crew and equipment will be demobilized.

- **Field Overhead**
 - Full-Time Project Manager.
 - Full-Time Project Engineer.
 - Two Full-Time Superintendents.
 - Two Full-Time Safety Personnel.
 - Two Full-Time Timekeepers.

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SUPPLY LINE 38-539 PHASE 2A REPLACEMENT PROJECT

- One Part-Time Scheduler.
- Three site security personnel for non-working hours.
- Daily street sweeping for a duration of four hours per day.

Table 5: Environmental Survey/Permitting/Monitoring/Abatement

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$8,415	\$156,925	\$470,142	\$1,045,453	\$343,115	\$2,024,049
TOTAL DIRECT COSTS	\$8,415	\$156,925	\$470,142	\$1,045,453	\$343,115	\$2,024,049

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.
- Permit Fees.

The high-level assumptions and specific level of effort to provide environmental support for this project are described in more detail below.

- **Environmental Document Production**
 - Worker Environmental Awareness Procedure (WEAP).
 - Storm Water and Prevention Plan (SWPPP) and Notice of Intent (NOI).
 - Protocol Survey Reports.
 - Cultural Report.
 - Preconstruction Clearance.
 - Environmental Clearance.
- **Preconstruction Surveys**
 - Preconstruction wildlife and Swainson's hawk survey reports.
 - Habitat assessment of northern project alignment to determine if small mammal trapping is necessary. If recommended, preparation of trapping proposal and submittal to appropriate agencies along with incurred labor for trapping and preparation of trapping report.
- **Construction Monitoring**
 - One full-time environmental monitor for 33 weeks.
 - One full-time biological monitor for 33 weeks.
 - One full-time cultural monitor for 15 weeks.

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SUPPLY LINE 38-539 PHASE 2A REPLACEMENT PROJECT

- Monthly SWPPP inspections.

- **Project Closeout Activities**
 - Oversight of reseeding/planting for restoration of stream channels.
 - Site restoration support, permit reporting, and closeout.

- **Abatement**
 - 34 days for abatement of ACMs.

- **Water Treatment and Hazardous Materials**
 - Hydrotest water, estimated at 280,000 gallons, to be acquired at the laydown yard from a nearby hydrant.
 - Water treatment is not anticipated.
 - Beneficial re-use of water to take place at staging yards for dust abatement.
 - Hazardous and non-hazardous waste transport and disposal anticipated for various wastes.

- **Permit Fees**
 - Tulare County permit.
 - San Joaquin Valley Air Pollution Control District (SJVAPCD) Dust Control Plan.
 - California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) exempt.
 - California Department of Fish and Wildlife (CDFW) Section 1600 for span removal and notice only for horizontal directional drilling.
 - Central Valley Regional Water Quality Control Board (RWQCB) Section 401 only for potential frac out during horizontal directional drilling.
 - SWPPP fee based on 30 acres of disturbance.

Table 6: Land & Right-of-Way Acquisition

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$56,655	\$168,951	\$0	\$0	\$225,607
TOTAL DIRECT COSTS	\$0	\$56,655	\$168,951	\$0	\$0	\$225,607

Assumptions

In generating for the total estimated cost for Supply Line 38-539 Phase 2A Replacement Project the following items were considered:

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SUPPLY LINE 38-539 PHASE 2A REPLACEMENT PROJECT

- **Labor**
 - One contract land agent and project land agent for land procurement.
- **Temporary Right of Entry**
 - Three Laydown yards are assumed for the project.
 - Five Workspaces are assumed for the project.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry permits.

Table 7: Company Labor

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$136,237	\$81,655	\$64,421	\$433,716	\$60,624	\$776,654
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$136,237	\$81,655	\$64,421	\$433,716	\$60,624	\$776,654

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

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SUPPLY LINE 38-539 PHASE 2A REPLACEMENT PROJECT

Table 8: Other Costs

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$34,909	\$693,834	\$479,311	\$202,758	\$241,890	\$1,652,701
TOTAL DIRECT COSTS	\$34,909	\$693,834	\$479,311	\$202,758	\$241,890	\$1,652,701

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Project Support Services.
- Surveying and As-builts.

Disallowance

In D.14-06-007, the Commission approved implementation of SoCalGas and SDG&E's PSEP, and disallowed recovery of specified costs associated with pressure testing or replacing pipeline segments installed after July 1, 1961. This decision was later modified by D.15-12-020 to include pipe installed from January 1, 1956 to July 1, 1961. The Supply Line 38-539 Phase 2A Project includes 0.25 feet/0.00005 miles of Category 4 pipe installed after January 1, 1956, that does not have test records to demonstrate compliance with the then-applicable industry or regulatory strength testing and record keeping standards. This resulted in an anticipated cost disallowance of \$60. The final value of the Supply Line 38-539 Phase 2A Project cost disallowance will be adjusted once the project is placed in service.

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SUPPLY LINE 38-952 PHASE 2A HYDROTEST AND REPLACEMENT PROJECT

Table 1: Total Direct O&M Cost

PROJECT COSTS – O&M	Stage 1 ¹	Stage 2 ²	Stage 3 ³	Stage 4 ⁴	Stage 5 ⁵	Total
DIRECT LABOR	\$0	\$31,694	\$31,694	\$95,411	\$36,470	\$195,270
DIRECT NON-LABOR	\$0	\$155,851	\$238,259	\$2,216,691	\$126,811	\$2,737,612
TOTAL DIRECT O&M COSTS	\$0	\$187,545	\$269,954	\$2,312,102	\$163,281	\$2,932,882

Table 2: Total Direct Capital Cost

PROJECT COSTS – CAPITAL	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$6,168	\$140,385	\$130,105	\$332,486	\$148,563	\$757,707
DIRECT NON-LABOR	\$74,688	\$884,063	\$3,655,003	\$15,023,931	\$586,224	\$20,223,911
TOTAL DIRECT CAPITAL COSTS	\$80,856	\$1,024,448	\$3,785,109	\$15,356,418	\$734,788	\$20,981,618

Table 3: Total Direct Project Cost

TOTAL PROJECT COSTS	Stage 1 ⁶	Stage 2	Stage 3	Stage 4	Stage 5	Total ⁷
DIRECT LABOR	\$6,168	\$172,079	\$161,800	\$427,898	\$185,034	\$952,978
DIRECT NON-LABOR	\$74,688	\$1,039,914	\$3,893,263	\$17,240,622	\$713,035	\$22,961,522
TOTAL DIRECT COSTS	\$80,856	\$1,211,993	\$4,055,062	\$17,668,520	\$898,069	\$23,914,500

Project Description

The Supply Line 38-952 Phase 2A Hydrotest and Replacement Project consists of hydrotesting approximately 3.4 miles, replace approximately 2.4 miles of [REDACTED] pipe, and abandoning approximately 1.5 miles of [REDACTED] pipeline. The Project is located in Kern County, beginning approximately three miles [REDACTED] of the [REDACTED] of [REDACTED] and [REDACTED] and ends approximately one mile [REDACTED] of [REDACTED]. The replacement segment will be rerouted from the existing pipeline alignment to avoid an oil field, orchards, private

¹ Project Initiation.

² Preliminary Design.

³ Detailed Design.

⁴ Construction.

⁵ Closeout.

⁶ Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

⁷ Values may not add to total due to rounding.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 38-952 PHASE 2A HYDROTEST AND REPLACEMENT PROJECT

properties and roads where practical, by installing it along public roadways thus enhancing the safety of the pipeline. The abandonment includes the removal exposed pipe, removal of two spans, and the slurry fill pipeline crossing the I-5, per Caltrans standards. The Project will be completed in one mobilization and one demobilization.

Alternatives Considered

Abandonment of Supply Line 38-952 is not feasible since there is no alternate feed for the customers on the pipeline. Derating the pipeline would reduce the capacity of the system resulting in an inability to meet customer demand.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC estimate includes direct costs associated with project management, engineering and design, environmental, permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

Schedule

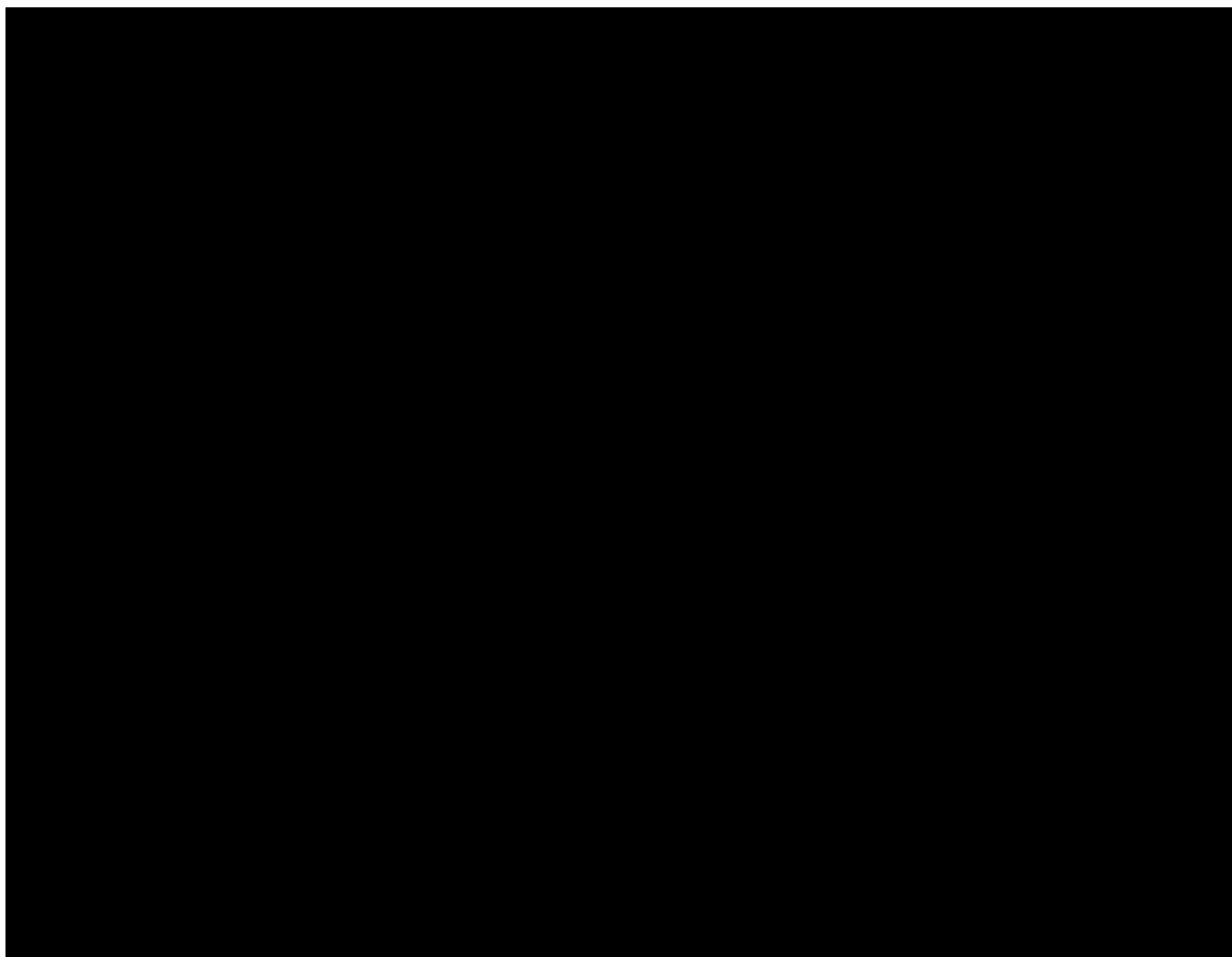
The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that typically 50% of the project costs are expended during the construction phase. The construction schedule is assumed to be 83 days.

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SUPPLY LINE 38-952 PHASE 2A HYDROTEST AND REPLACEMENT PROJECT

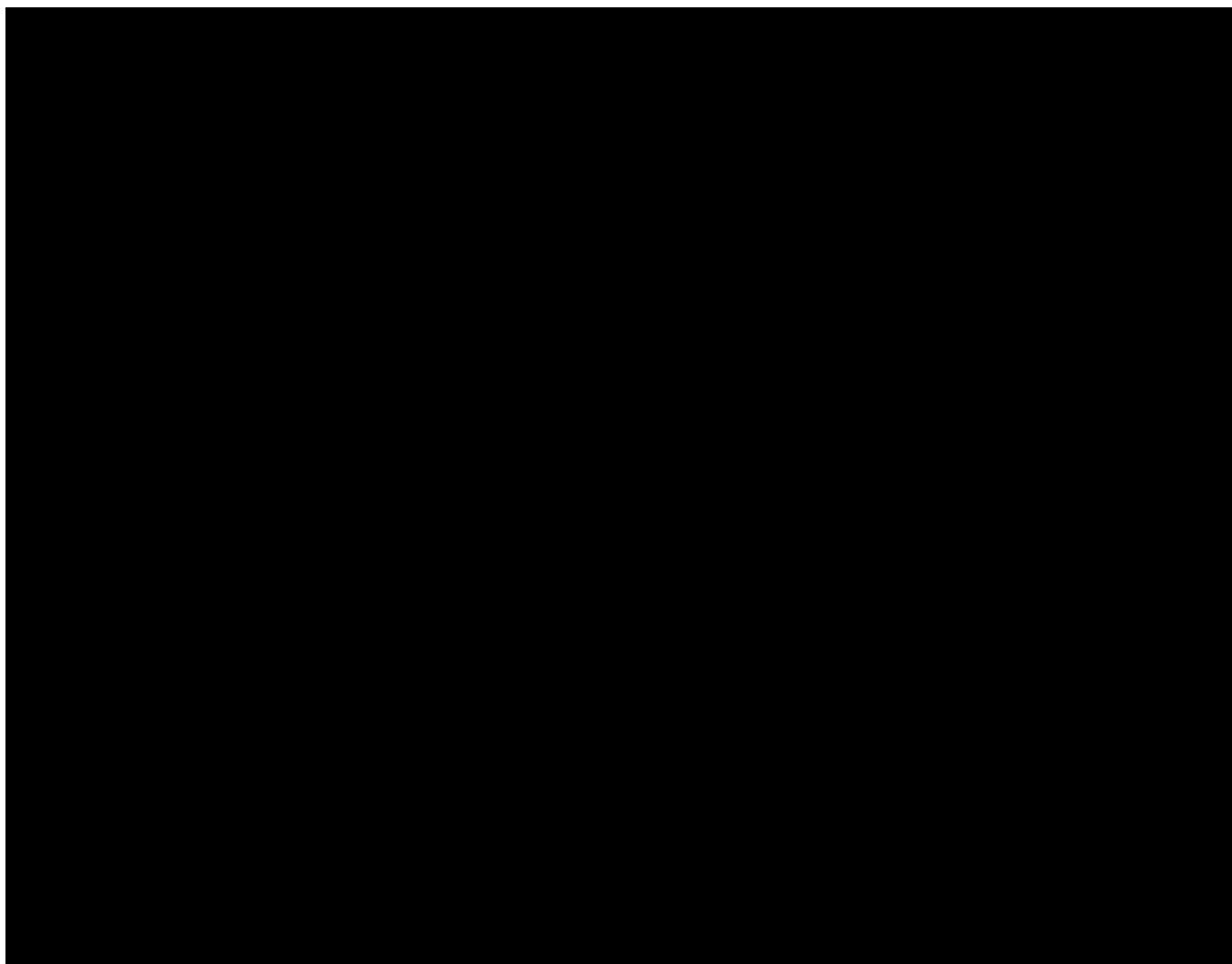
Figure 1: Overview Map for Supply Line 38-952 Phase 2A Hydrotest and Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

SUPPLY LINE 38-952 PHASE 2A HYDROTEST AND REPLACEMENT PROJECT

Figure 2: Satellite Map for Supply Line 38-952 Phase 2A Hydrotest and Replacement Project



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SUPPLY LINE 38-952 PHASE 2A HYDROTEST AND REPLACEMENT PROJECT

Table 4: Project Mileage

PHASE	MILEAGE
PHASE 2A	8.288
ACCELERATED	0.118
INCIDENTAL	0.023
REPLACEMENT OFFSET	0.796
TOTAL MILEAGE	9.226

The direct costs for each area are summarized below.

Table 5: Material

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$114,079	\$2,548,085	\$0	\$0	\$2,662,164
TOTAL DIRECT COSTS	\$0	\$114,079	\$2,548,085	\$0	\$0	\$2,662,164

Assumptions

Materials for this Project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principle cost-driving materials necessary for this project include:

- 12,823 feet of [REDACTED] pipe.
- Three [REDACTED] ball valves.
- One [REDACTED] valve casing.

Table 6: Construction

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$1,420	\$13,681	\$31,587	\$16,131,315	\$111,218	\$16,289,220
TOTAL DIRECT COSTS	\$1,420	\$13,681	\$31,587	\$16,131,315	\$111,218	\$16,289,220

General Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization.
- Work has been scheduled using a 10-hour per day, five-day work week.

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SUPPLY LINE 38-952 PHASE 2A HYDROTEST AND REPLACEMENT PROJECT

- Environmental protection fencing is included for all workspaces including along the new replacement installation.
- Two laydown yards.
- All excavations will be backfilled with zero sack slurry or sand padding to one foot above pipeline. Remainder of backfill will utilize native soil.
- Contaminated soil has been assumed for the new installation through a oilfield and will be hauled off site.
- Two construction crews will be utilized for a portion of the Project.
- Tie-ins are performed during a 24-hour continuous shift.
- The existing and new pipeline will be hydrotested in two sections.
- Construction Management and Inspection Services is included.
- Non-Destructive Examination and X-Ray of Welds is included.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Two office trailers for management and inspection personnel at one laydown yard for the Project.
 - Site facility for a three month duration.
 - 6,140 linear feet (LF) of Temporary fencing for laydown yards and test breaks.
- **Site Preparation**
 - Installation of temporary silt fencing to secure open excavations.
 - One day of Arborist support is included.
 - 100 tons of crushed rock will be spread across the two laydown yards.
 - 20 tons of mixed debris will be disposed of from clearing the ROW.
- **Site Management / Best Management Practices (BMPs)**
 - Fiber rolls, straw wattles, sand bags, reinforced poly sheeting, and silt fencing will be procured and installed for BMPs.
 - BMP materials for spoil piles, laydown yards, and work sites.
- **Material Handling**
 - Seven loads of material will be unloaded at laydown yard and transported as needed.
- **Utility Locates**
 - Utility locate crew to identify substructures along the project route.
- **Mainline Valve**
 - Fabricate and install four mainline valve assemblies; three [REDACTED] MLV and one [REDACTED] MLV.
 - Includes four MLV supports.
- **Isolate Existing Pipeline**
 - Three days of support for Pressure Control Fitting (PCF) installation.

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SUPPLY LINE 38-952 PHASE 2A HYDROTEST AND REPLACEMENT PROJECT

- Two days of Presure Control Fitting (PCF) tapping support.
- One 10 hour shift for cut and cap of pipeline.
- Two taps will be isolated prior to hydrotesting which will require CNG support.
- One nitrogen truck is included.
- **Pipeline Excavation / Fabrication / Installation**
 - Excavate approximately 390 Cubic Yards (CY) for test break and replacement sections.
 - Fabricate two Test heads and eight isolation caps.
 - Fabricate eight Tie-In Pieces.
 - New pipeline installation of approximately 2.9 miles; 2.4 miles of [REDACTED] pipe, 52 feet of [REDACTED], 0.213 miles of [REDACTED], and 0.464 miles of [REDACTED] pipe.
- **Hydrotest / Pressure Test Pipeline**
 - Hard piping will be installed from the test head to the water source.
 - Spill response trailer is included for duration of hydrotest.
 - The pipeline will be hydrotested in three individual segments.
 - Two hydrotests and one nitrogen test.
 - Four days to set up frac tanks, install hard piping to frac tank manifold to test head, and to fill the pipeline.
- **Tie-In Pipeline**
 - The existing pipeline will be tied in during a 24-hour continuous shift.
- **Retire / Abandon Existing Pipeline**
 - Two pipe spans totaling approximately 600 LF will be removed.
 - Approximately 300 feet of pipe span under the freeway will be slurry filled per Caltrans standards.
 - All other piping sections estimated at approximately 1.5 miles will be abandoned using nitrogen.
- **Site Restoration**
 - All laydown yards disturbed areas will be restored to their pre-construction condition.
- **Site Demobilization**
 - Three shifts are included for excess piping to be hauled to SoCalGas designated yard.
 - All crews and equipment will be demobilized.
 - Eight hours of street sweeping has been included for final cleanup.
- **Field Overhead**
 - One Full-Time Project Manager.
 - One Full-Time Cost Controller.
 - One Full-Time Superintendent.
 - One Full-Time Timekeeper.
 - Two Full-Time Safety Personnel.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

SUPPLY LINE 38-952 PHASE 2A HYDROTEST AND REPLACEMENT PROJECT

Table 7: Environmental Survey/Permitting/Monitoring/Abatement

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$3,550	\$153,329	\$431,794	\$844,482	\$412,278	\$1,845,433
TOTAL DIRECT COSTS	\$3,550	\$153,329	\$431,794	\$844,482	\$412,278	\$1,845,433

Assumptions

In calculating the estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.
- Permit Fees.

The high-level assumptions and specific level of effort to provide environmental support for this Project are described in more detail below.

- **Environmental Document Production**
 - Environmental Consultants for preconstruction assessments, construction monitoring, and environmental closeout support.
 - Worker Environmental Awareness Procedure (WEAP) document.
 - Storm Water Pollution and Prevention Plan (SWPPP) and Notice of Intent (NOI).
 - Preconstruction Clearance.
 - Environmental Clearance.
 - Rare Plant Survey Report.
 - Cultural Report.
- **Preconstruction Surveys**
 - Preconstruction wildlife and nesting bird survey reports.
 - Rare plant survey and topsoil flagging.
- **Construction Monitoring**
 - One full-time monitor for duration of project.
- **Project Closeout activities**
 - Restoration support, permit reporting and closeout.
- **Abatement**
 - 14 days for abatement of ACMs.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

SUPPLY LINE 38-952 PHASE 2A HYDROTEST AND REPLACEMENT PROJECT

- **Water Treatment and Hazardous Materials**

- Hydrotest water, estimated at 850,000 gallons, from hydrant for hydrotesting of existing pipeline.
- 12 days of water delivery to Project site is assumed to be within 100 miles to 2,500 miles roundtrip plus disposal fee.
- Hydrotest standby support for three days.
- Approximately 3,800 tons of contaminated soil requiring up to 100 miles round trip for transport and disposal.
- Groundwater is not anticipated for this project.
- Waste sampling and profiling anticipated to support disposal of wastes generated during construction.
- Hazardous and non-hazardous waste transport and disposal anticipated for various wastes.

- **Permit Fees**

- Permitting fees related to encroachment permit and traffic control plans for Ventura County, city of Ventura and city of Los Angeles.

Table 8: Land & Right-of-Way Acquisition

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$4,544	\$136,487	\$376,807	\$0	\$0	\$517,838
TOTAL DIRECT COSTS	\$4,544	\$136,487	\$376,807	\$0	\$0	\$517,838

Assumptions

In generating the total estimated cost for Supply Line 38-952 Phase 2A Hydrotest Project the following items were considered:

- **Labor**

- Contract Land Agent.
- Administrative assistant and document control.

- **Acquisition Fees**

- Appraisal Reports.
- Title Reports.

- **Temporary Right of Entry (TRE)**

- Two laydown yards.
- Workspace.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

SUPPLY LINE 38-952 PHASE 2A HYDROTEST AND REPLACEMENT PROJECT

Table 9: Company Labor

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$6,168	\$172,079	\$161,800	\$427,898	\$185,034	\$952,978
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$6,168	\$172,079	\$161,800	\$427,898	\$185,034	\$952,978

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Project Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 10: Other Costs

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$65,174	\$622,337	\$504,990	\$264,825	\$189,539	\$1,646,866
TOTAL DIRECT COSTS	\$65,174	\$622,337	\$504,990	\$264,825	\$189,539	\$1,646,866

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Surveying and As-builts.
- Project Support Services.

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SUPPLY LINE 38-952 PHASE 2A HYDROTEST AND REPLACEMENT PROJECT

Disallowance

In D.14-06-007, the Commission approved implementation of SoCalGas and SDG&E's PSEP, and disallowed recovery of specified costs associated with pressure testing or replacing pipeline segments installed after July 1, 1961. This decision was later modified by D.15-12-020 to include pipe installed from January 1, 1956 to July 1, 1961. The Supply Line 38-952 Phase 2A Hydrotest And Replacement Project includes 52 feet/0.01 miles of Category 4 pipe installed in 1965 that does not have test records to demonstrate compliance with the then-applicable industry or regulatory strength testing and record keeping standards. This resulted in an anticipated cost disallowance of \$5,656. The final value of the Supply Line 38-952 Phase 2A Hydrotest And Replacement Project cost disallowance will be adjusted once the project is placed in service.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

Table 1: Total Direct Project Cost – All Capital

PROJECT COSTS - CAPITAL	Stage 1 ^{1,2}	Stage 2 ³	Stage 3 ⁴	Stage 4 ⁵	Stage 5 ⁶	Total ⁷
DIRECT LABOR	\$965,529	\$717,101	\$851,716	\$1,627,921	\$899,915	\$5,062,181
DIRECT NON-LABOR	\$7,787,391	\$7,786,146	\$20,911,742	73,036,871	\$2,698,683	\$112,220,833
TOTAL COSTS - CAPITAL	\$8,752,920	\$8,503,247	\$21,763,457	\$74,664,792	\$3,598,598	\$117,283,014

Note: Costs shown are cumulative for the three project phases described below.

Project Description

Supply Line 44-306 and Supply Line 44-307 is a 70 mile pipeline between Morro Bay and Kettleman City in Central California.⁸ The Supply Line 44-306 and Supply Line 44-307 Retrofit Projects will be executed as separate independent projects that consist of the replacement of approximately 4.6 miles of [REDACTED] pipeline with seven miles of [REDACTED] diameter pipe in multiple segments along the pipeline. Replacements of some segments will require an offset from the existing alignment in order to provide adequate space for construction and to improve safety when accessing the pipeline for routine maintenance. These Projects will be completed in multiple phases, focusing on each pipeline individually. The Supply Line 44-306 Retrofit Project will replace approximately 0.7 miles of [REDACTED] pipeline and the Supply Line 44-307 Retrofit Project will replace approximately 3.9 miles of [REDACTED] pipeline. The Supply Line 44-1008 Derate and Abandonment Project will derate approximately 21 miles of existing [REDACTED] pipeline and abandon approximately 30 miles of existing [REDACTED] pipeline.

The Supply Line 44-306 Retrofit Project will replace 106 pipeline features, replace and automate three mainline valves (MLVs), replace two existing pipeline spans using horizontal directional drill (HDD) installation, replace five rectifier stations, and replace one customer tap.

The Supply Line 44-307 Retrofit Project will replace the Estrella Pressure Limiting Station, replace five segments of pipeline using HDD installation and 14 segments via open cut trench installation, replace 37 pipeline features, replace six customer taps, install and automate three MLVs, replace three rectifier stations, and replace one receiver.

The Supply Line 44-1008 Derate and Abandonment Project will derate approximately 21 miles of existing [REDACTED] pipeline from [REDACTED], install one new regulator station near the connection of Supply Line 44-1008 and Supply Line 36-9-21, and abandon approximately 30 miles of existing [REDACTED] pipeline from [REDACTED].

¹ Project Initiation.

² Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

³ Preliminary Design.

⁴ Detailed Design.

⁵ Construction.

⁶ Closeout.

⁷ Values may not add to total due to rounding.

⁸ Demarcation of Supply Line 44-306 and Supply Line 44-307 is at Estrella Limiting Station near Paso Robles.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

Alternatives Considered

Supply Line 44-1008 is a 50 mile pipeline that was scheduled for replacement during Phase 1B. As stated in testimony, on April 30, 2021, SoCalGas finalized the purchase of Line 306 from PG&E in lieu of replacing Supply Line 44-1008. SoCalGas has previously stated that PG&E's Line 306 (now called Supply Line 44-306 and Supply Line 44-307) could be used to provide service to customers at a lower cost and with fewer environmental impacts compared to the replacement of Supply Line 44-1008.

Since the replacement of Supply Line 44-1008 will no longer be required due to SoCalGas' purchase and Supply Line 44-306 and Supply Line 44-307 Retrofit Projects, SoCalGas has also included in these Projects the abandonment and derating of Supply Line 44-1008.

Supply Line 44-306 and Supply Line 44-307 will be the primary feed for the area and is critical in supporting customers in the region. Abandoning Supply Line 44-1008 without purchasing and retrofitting Supply Line 44-306 and Supply Line 44-307 would result in a substantial loss in capacity to Kings, Kern and San Luis Obispo Counties and an inability to meet the needs of customers in the area. Derating Supply Line 44-1008 to less than [REDACTED] SMYS would reduce the capacity of the system resulting in an inability to meet customer demand and also is not an option.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC estimate includes direct costs associated with project management, engineering and design, environmental permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

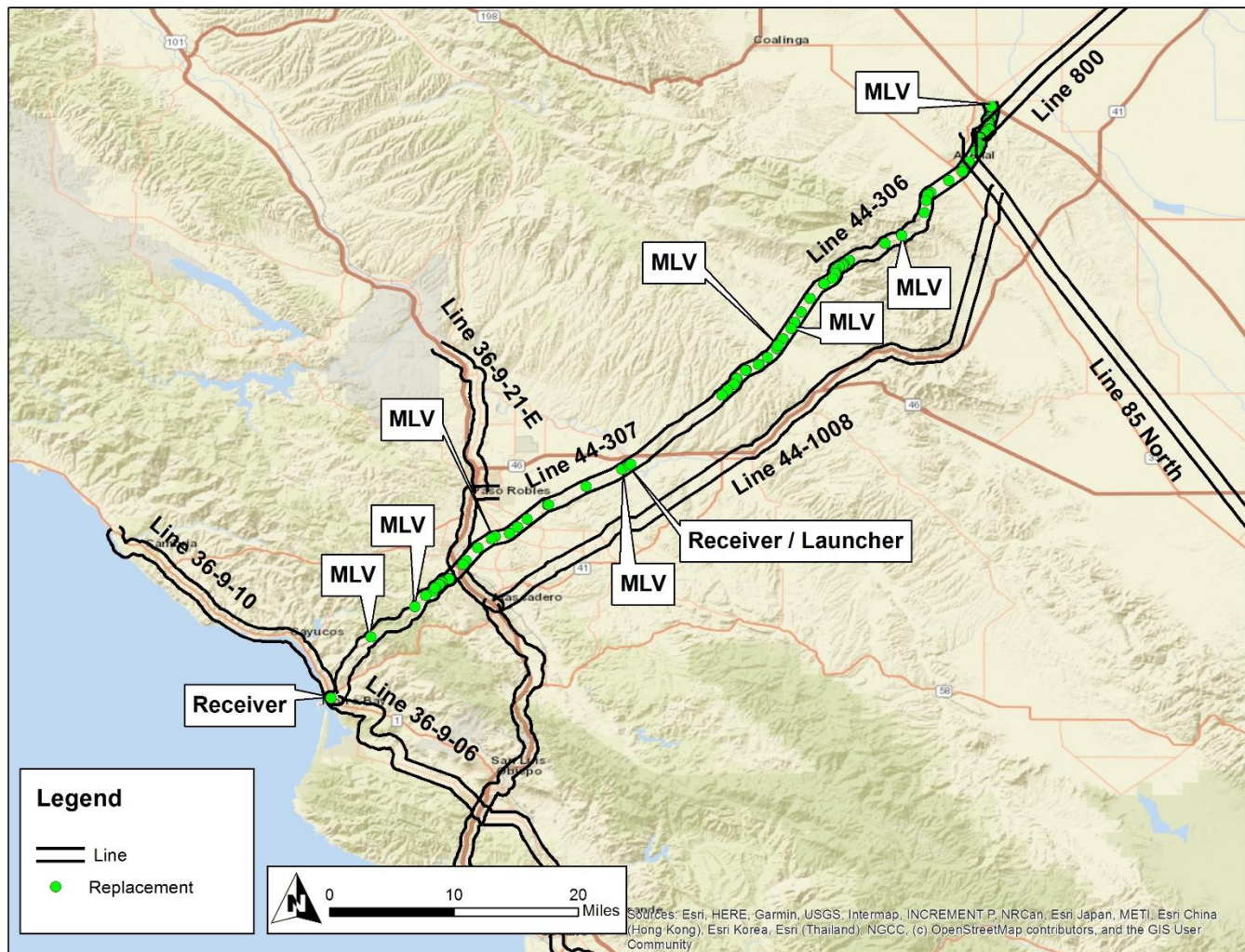
Schedule

The schedule was developed based on the five stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that the majority of the project costs are expended during the construction phase. The construction schedule is assumed to be 106 days for the Supply Line 44-306 Retrofit Project and 92 days for the Supply Line 44-307 Retrofit Project.

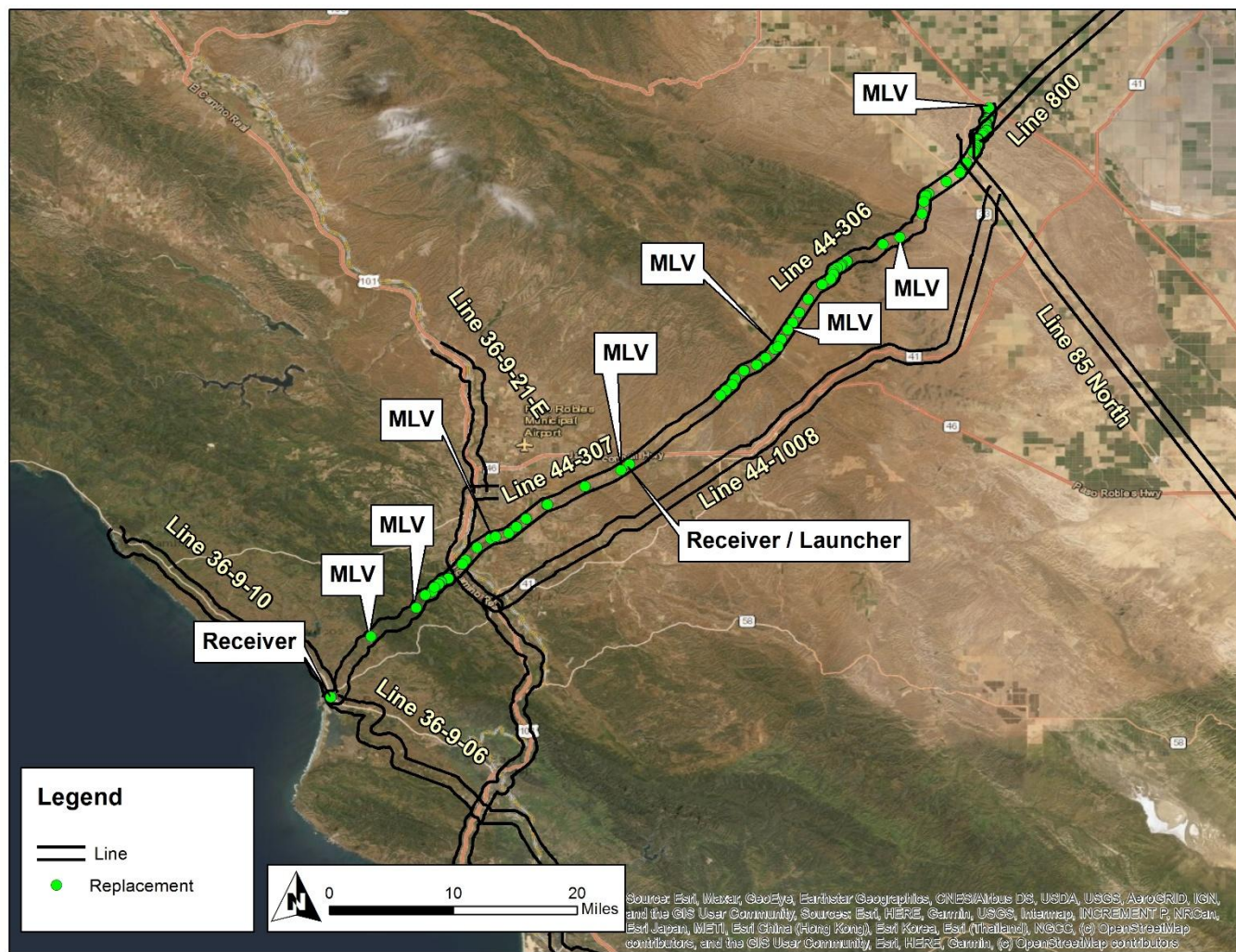
Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

Figure 1: Overview Map for Supply Line 44-306 and Supply Line 44-307 Retrofit Projects



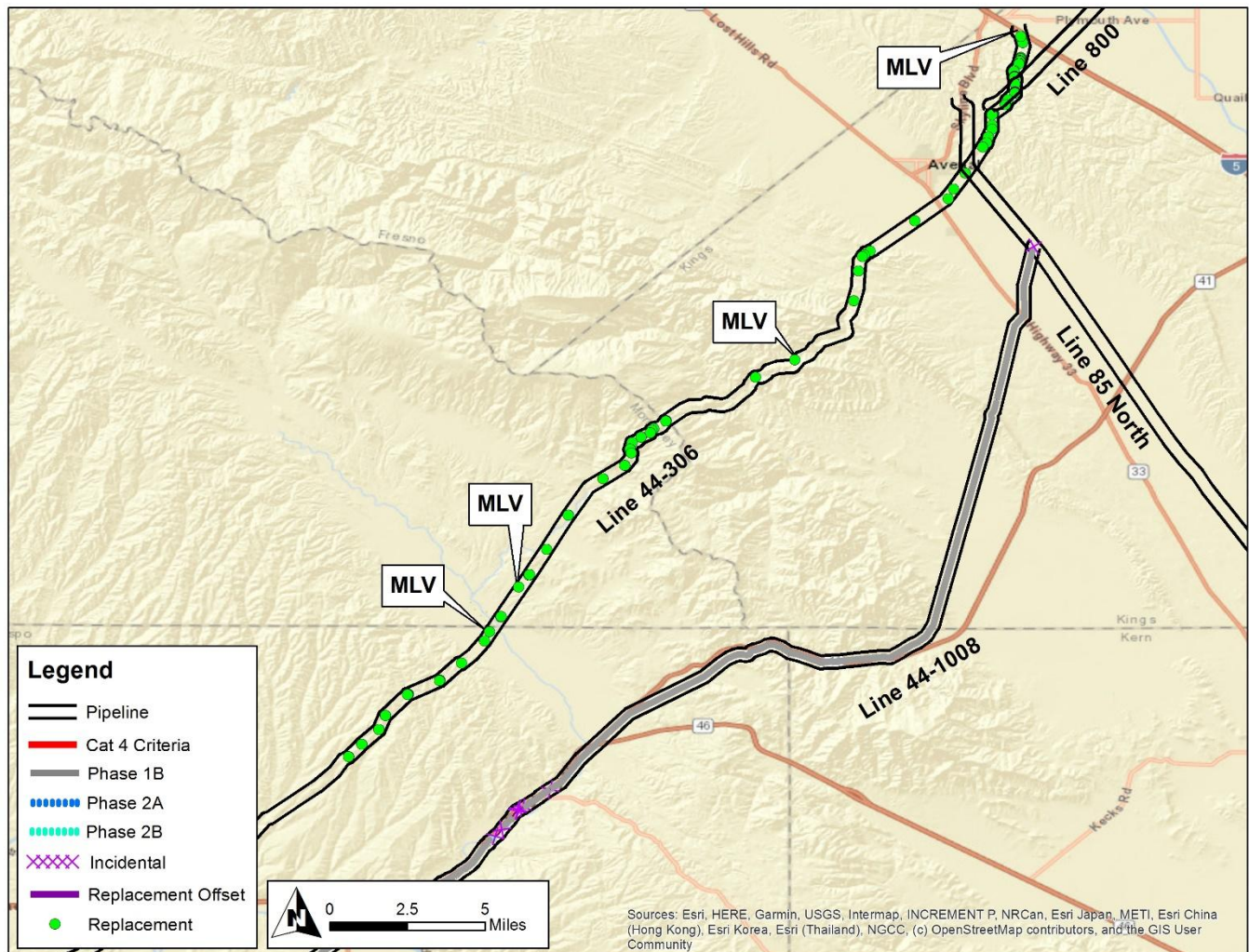
Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

Figure 2: Satellite Map for Supply Line 44-306 and Supply Line 44-307 Retrofit Projects



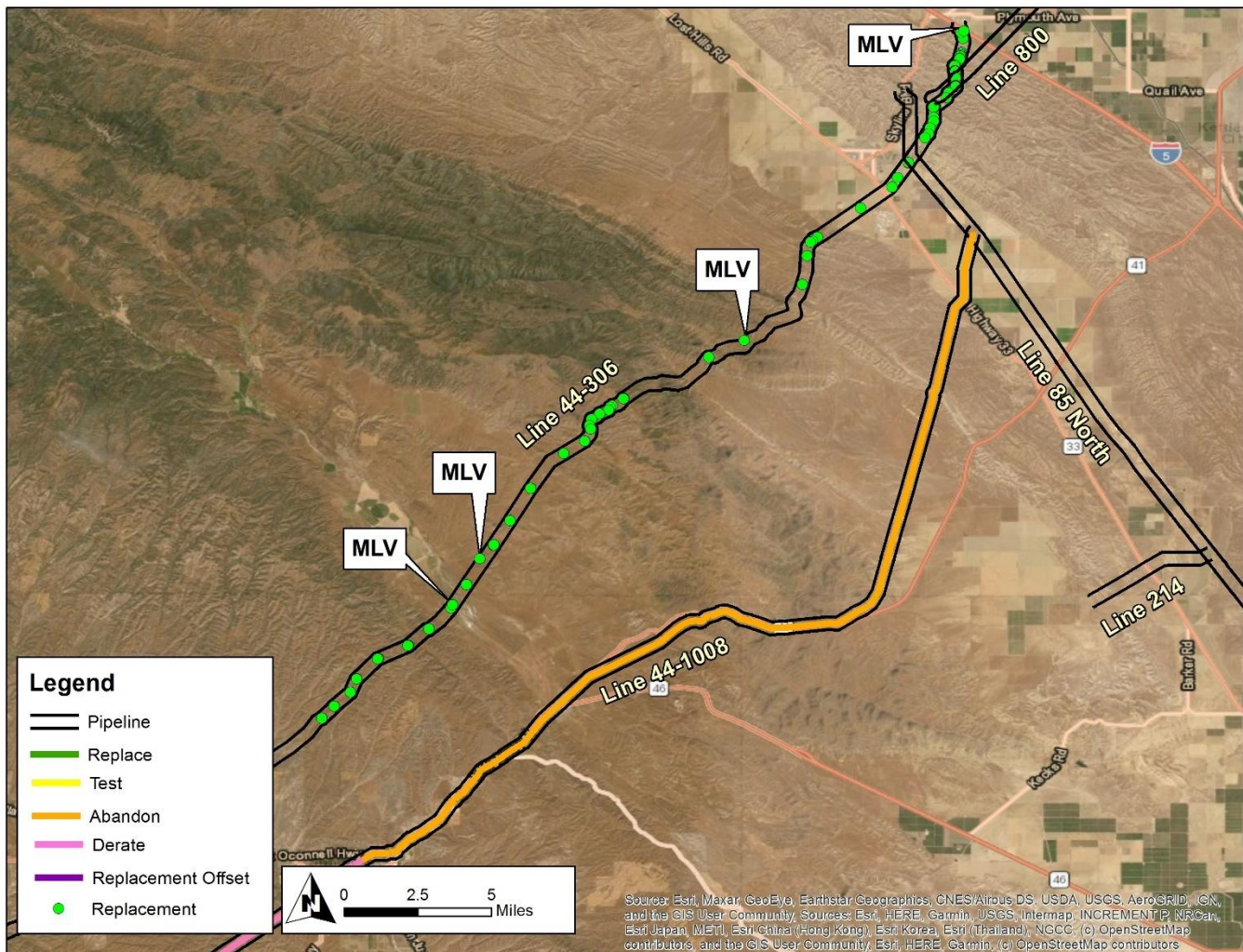
Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

Figure 3: Overview Map for Supply Line 44-306 Retrofit Project



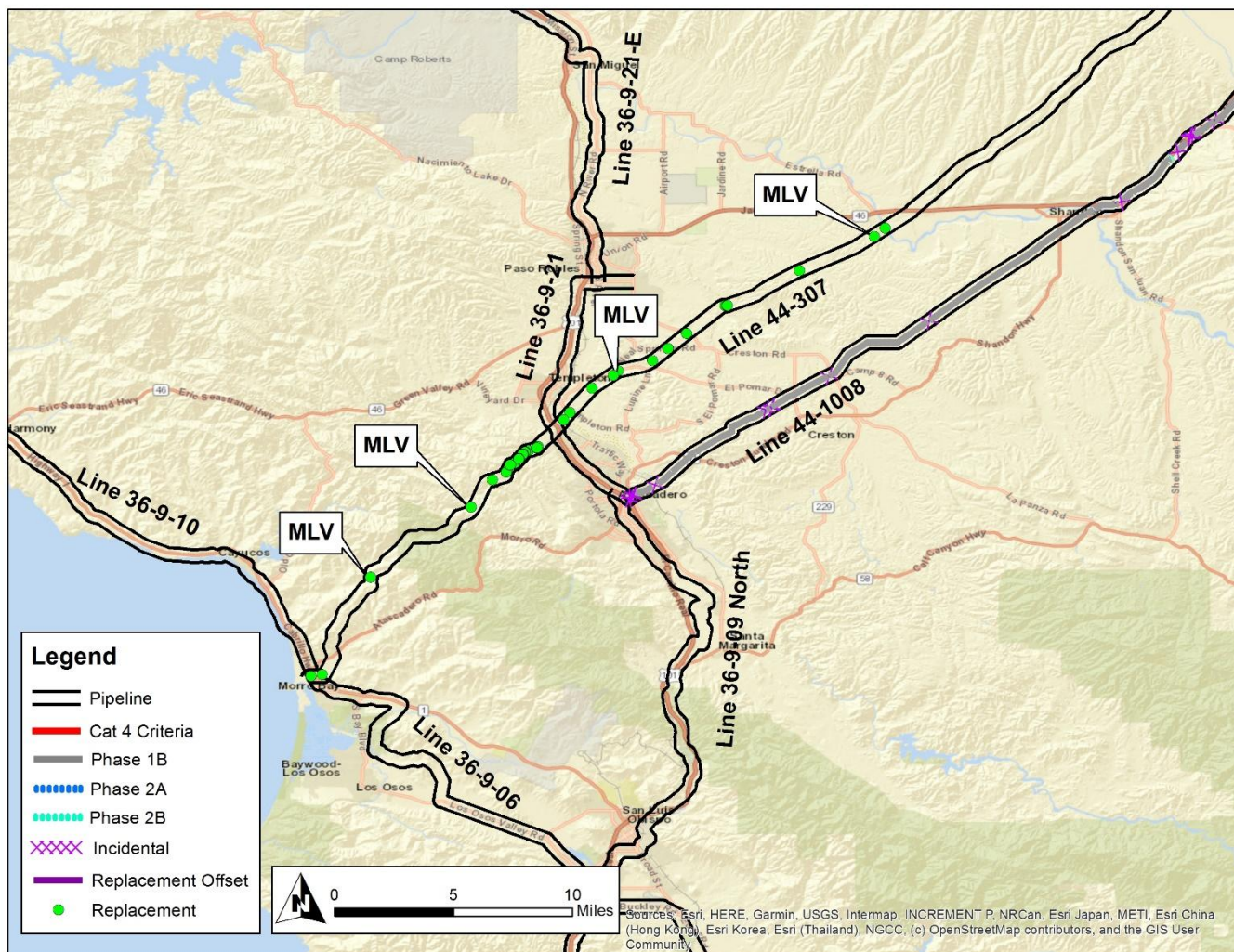
Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

Figure 4: Satellite Map Supply Line 44-306 Retrofit Project



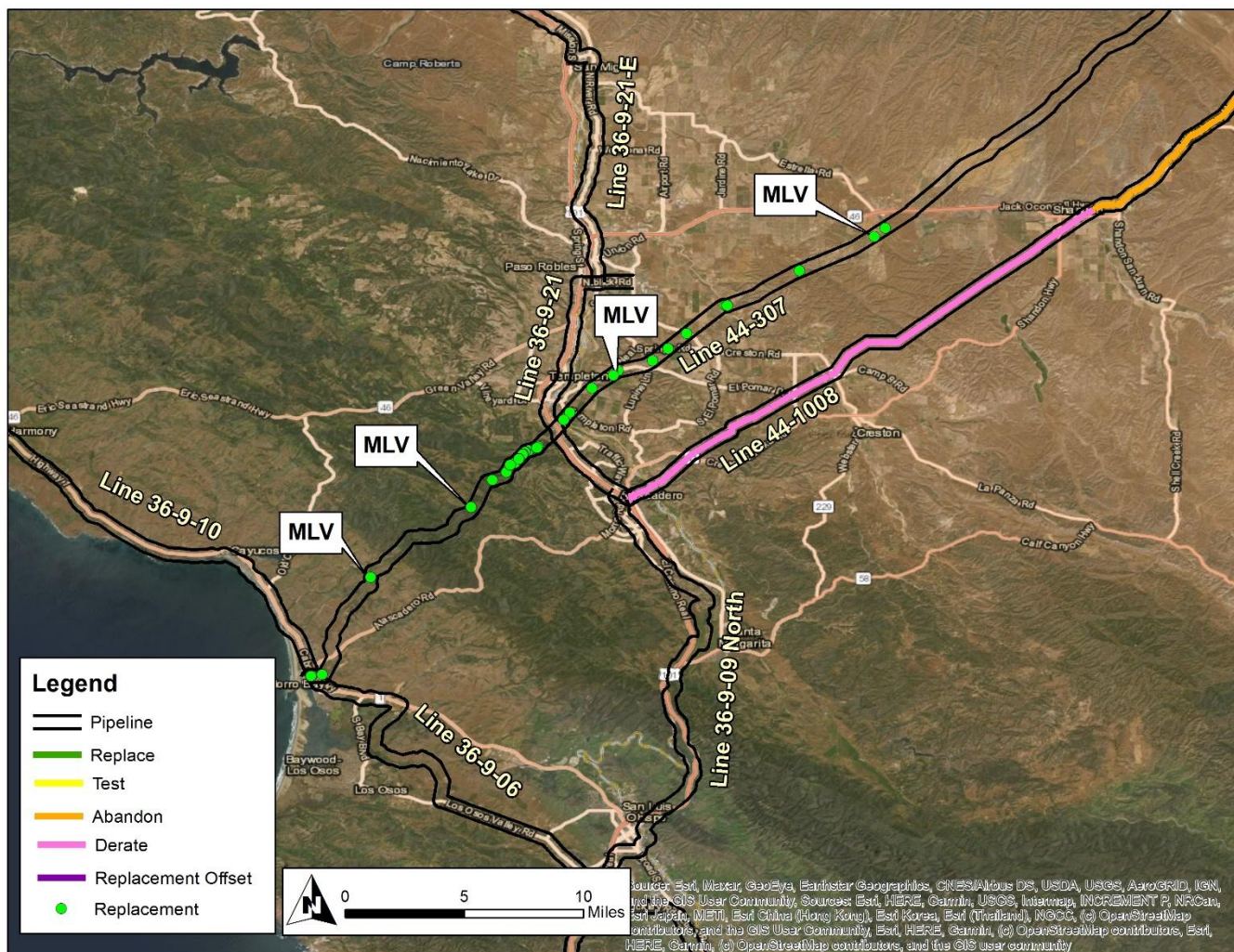
Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

Figure 5: Overview Map for Supply Line 44-307 Retrofit Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

Figure 6: Satellite Map for Supply Line 44-307 Retrofit Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

Table 2: Total Project Mileage for Supply Line 44-306 and Supply Line 44-307 Retrofit Projects

PHASE	MILEAGE
COORDINATED ⁹	0.000
PHASE 2A	0.000
INCIDENTAL	0.222
ACCELERATED	0.531
REPLACEMENT OFFSET	0.203
TOTAL MILEAGE	1.025

Table 3: Project Mileage for Supply Line 44-1008 Derate and Abandonment

PHASE	MILEAGE
PHASE 1B	47.020
PHASE 2A	0.000
INCIDENTAL	4.530
ACCELERATED	0.104
TOTAL MILEAGE	51.654

The direct costs for each area are summarized below.

Table 4: Material

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$26,055	\$2,902,815	\$11,568,251	\$0	\$0	\$14,497,120
TOTAL DIRECT COSTS	\$26,055	\$2,902,815	\$11,568,251	\$0	\$0	\$14,497,120

Assumptions

Materials for these projects will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start dates. The principle cost-driving materials necessary for these projects include:

Supply Line 44-306

- 0.8 miles of [REDACTED] pipe.
- 526 feet of [REDACTED] pipe.
- 106 [REDACTED] elbows.
- 13 [REDACTED] ball valves.
- Six [REDACTED] ball valves.

⁹ Lacks documentation of a post-construction strength test in a Class 3 or 4 HCA.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

- Five [REDACTED] ball valves.
- Four [REDACTED] stopple fittings.
- Two linebreak control cabinets.
- Two SCADA control cabinets.

Supply Line 44-307

- 2.9 miles of [REDACTED] pipe.
- 49 [REDACTED] elbow fittings.
- Eight [REDACTED] ball valves.
- Ten [REDACTED] ball valves.
- Eight [REDACTED] ball valves.
- 12 [REDACTED] ball valves.
- Two linebreak control cabinets.
- Two SCADA control cabinets.

Table 5: Construction

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$1,501,680	\$	\$175,689	\$62,256,475	\$878,446	\$64,812,290
TOTAL DIRECT COSTS	\$1,501,680	\$0	\$175,689	\$62,256,475	\$878,446	\$64,812,290

General Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made for each Project:

Supply Line 44-306

- 0.65 miles of [REDACTED] pipe will be replaced.
- One mobilization and one demobilization.
- Total construction schedule assumed at 106 days.
- Contractor work has been scheduled using a 10-hour per day, six-day work week calendar.
- Five laydown yards will require clearing and grading followed by laying of crushed aggregate.
- Hand excavation assumed for all required excavation within the stations. Hand excavation assumed within 2-foot of pipeline.
- All excavations will be backfilled with washed bedding sand and filled with native for the rest. All work in stations to be backfilled with zero-sack Slurry.

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SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

- Two new Automated MLV Stations will be installed.
- Line will be taken down in three isolations.
- 10 hour shifts to complete post completion hydrotests.
- 12 hour shifts for one hot tie-in and 12 cold tie-ins for the mainline pipe.
- Support for pipeline isolation and tie-ins.
- Hydrotest water will be treated and discharged to land and used for dust control environmental.
- 22.5 miles of access roads for grading and preparation.

Supply Line 44-307

- 3.93 miles of [REDACTED] pipe will be replaced.
- 2.021 miles of pipe will be replaced using HDD methods at five different locations.
- One mobilization and one demobilization.
- Total construction schedule assumed at 92 days.
- Contractor work has been scheduled using a 10-hour per day, 6-day work week calendar.
- Five laydown yards will require clearing and grading followed by laying of crushed aggregate.
- Hand excavation assumed for all required excavation within the stations. Hand excavation assumed within 2-foot of pipeline.
- All excavations will be backfilled with washed bedding sand and filled with native for the rest. All work in stations to be backfilled with zero-sack slurry.
- Retrofitting at the Stations.
- Installation of one launcher and receiver at the Estrella Station.
- Installation of one receiver at Morro Bay.
- Three shifts for support during station commissioning.
- Installation of three new Automated MLV Stations.
- 5.8 miles of access roads for grading and preparation.
- 12 cold tie-ins considered with 12-hour work shift.

Additional Construction Information

• **Site Mobilization / Site Facilities**

Supply Line 44-306

- One mobilization and demobilization.
- Two office trailers will be placed at the laydown yard.
- Site facility costs cover a 5-month duration.

Supply Line 44-307

- One mobilization and demobilization.
- One office trailer will be placed at the laydown yard.
- Site facility costs cover a 4-month duration.

• **Site Preparation**

Supply Line 44-306 and Supply Line 44-307

- Installation of temporary fencing for laydown yards.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

- Clearing, grading, and spread of crushed rock for five laydown yards.

- **Site Management / Best Management Practices (BMPs)**

Supply Line 44-306 and Supply Line 44-307

- Fiber rolls, hay bales, sandbags, reinforced poly sheets, silt fence, wooden stakes, nylon rope are included for BMP measures.

- **Material Handling**

Supply Line 44-306 and Supply Line 44-307

- Approximately 30 loads of material will be unloaded at the laydown yard for Supply Line 44-306 and Supply Line 44-307 Retrofit Projects.
- wood pipe dunnage and pallets included for pipe transportation.

- **Traffic Control**

Supply Line 44-306

- No traffic control anticipated.

Supply Line 44-307

- Two person traffic control crew for 30 days of support.

- **Utility Locates**

- 130 potholes for existing pipelines locates across both Supply Line 44-306 and Supply Line 44-307 retrofit projects.

- **Pipeline Excavation / Fabrication / Installation**

Supply Line 44-306

- One isolation fitting.
- Fittings Greater than 60 LF
 - A total of approximately 2,800 LF of pipe will be excavated for replacement and mechanically excavated up to two feet of existing pipe, the rest will be hand dug.
 - Includes 11 site move arounds.
 - 58 days for fabrication and installation of elbow replacement spools.
 - Test heads and caps installed on each site for a total of 11 sites.
 - Backfill of excavations will be backfilled with sand bedding and native.
- Fittings Less than 60 LF
 - A total of 33 fittings will be replaced.
 - 33 bell holes will be excavated for replacement and mechanically excavated up to two feet of existing pipe, the rest will be hand dug.
 - Work to be performed by composite crew.
 - 198 days for fabrication and installation of elbow replacement spools. To be done with four crews.
 - 32 shifts for testing fabrication, all fittings to be welded together with long pups and tested as one spool. Fittings will be cut, transported, and installed to sites that have completed excavations.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

- Backfill of excavations will be backfilled with sand bedding and native.

Supply Line 44-307

- One isolation fitting.
- Fittings Greater than 60 LF
 - A total of approximately 2,400 LF of pipe will be excavated for replacement and mechanically excavated up to two feet of existing pipe, the rest will be hand dug.
 - 14 site move arounds.
 - 45 days included for fabrication and installation of elbow replacement spools.
 - Test heads and caps installed on each site for a total of 11 sites.
 - Backfill of excavations will be backfilled with sand bedding and native.
- Fittings Less than 60 LF
 - A total of 8 Fittings will be replaced.
 - Eight bell holes will be excavated for replacement and mechanically excavated up to two feet of existing pipe, the rest will be hand dug.
 - Work to be performed by composite crew.
 - 40 days included for fabrication and installation of elbow replacement spools. To be done with four crews.
 - 19 shifts for testing fabrication, assumes all fittings to be welded together with long pups and tested as one spool. Fittings will be cut, transported, and installed to sites that have completed excavations.

• **Mainline Valve**

Supply Line 44-306

- Installation of two MLVs.
 - 11 shifts have been included for excavating new lay, existing pipe, sense lines, electrical conduits, and foundations.
 - Six days for abatement support.
 - Six days for demo of existing pipe.
 - 18 days for fabricating and installation of valve assemblies.
 - Two days for testing sense lines.
 - Ten days for coating all welds.
 - Concrete foundations and support for SCADA, inbreak, antenna, and concrete supports.
 - Seven days for site backfill and restoration.

Supply Line 44-307

- Installation of three MLVs.
 - 26 shifts have been included for excavating new lay, existing pipe, sense lines, electrical conduits, and foundations.
 - Three days for abatement support.
 - Three days for demo of existing pipe.
 - 15 days for fabricating and installation of valve assemblies.
 - Five days for testing sense lines.
 - 18 days for coating all welds.
 - Concrete foundations and support for SCADA, inbreak, antenna, and concrete supports.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

- Six days for site backfill and restoration.

- **Trenchless Technology**

Supply Line 44-306

- Install approximately 3,300 LF of 20-inch steel pipe via HDD method.
- 12 shifts to setup launching and receiving pits.
- Ten shifts for stringing and blocking pipe.
- 14 shifts to weld and coat HDD string.
- Ten shifts to test HDD String.
- Four shifts for backfilling and restoring site.
- Two shifts for pull support.

Supply Line 44-307

- Install approximately 10,500 Linear feet (LF) of 20-inch steel pipe via HDD method.
- 30 shifts to setup launching and receiving pits.
- Seven shifts for stringing and blocking pipe.
- 46 shifts to weld and coat HDD string.
- Ten shifts included to test HDD string.
- Ten shifts for backfilling and restoring site.
- Six shifts for pull support.

- **Isolate Existing Pipeline**

Supply Line 44-306 and Supply Line 44-307

- Support for three separate isolations.
- Support for nitrogen purging.
- Support for 15 shifts pipeline isolation.
- Support for three shifts during cut and cap.

- **Hydrotest / Pressure Test Pipeline**

Supply Line 44-306

- Install 28 Test Heads and Caps.
- Three shifts to fabricate and install hard fill piping for all tests.
- Total of 15 hydrotests over 45 shifts each to fill, test, dewater and dry.

Supply Line 44-307

- Install 31 Test Heads and Caps.
- Five shifts to fabricate and install hard fill piping for all tests.
- Total of 13 hydrotests over 28 shifts each to fill, test, dewater and dry.

- **Tie-In Pipeline**

Supply Line 44-306

- One hot tie-in and 12 cold tie-ins included at 12 hour shifts for each.

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SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

- Ten Shifts for removing test heads and fill piping.
- 31 shifts for supporting the soap testing of the new installation.

Supply Line 44-307

- Two hot tie-ins and ten cold tie-ins included at 12 hour shifts for each.
- Seven shifts for removing test heads and fill piping.
- 24 shifts for supporting the soap testing of the new installation.

• **Retire / Abandon Existing Pipeline**

Supply Line 44-1008

- Derate approximately 21 miles of existing [REDACTED] pipeline from Shandon to Atascadero.
- One new regulator station will be installed near the connection between Supply Line 44-1008 and Supply Line 36-9-21 to maintain customer service.
- Abandon approximately 30 miles of existing [REDACTED] pipeline between Avenal and Shandon.

Supply Line 44-306

- Seven Shifts for demolition of pipe at the MLV Stations.
- 51 Shifts for demolition of pipe at elbow Replacements.
- Two Shifts for abandonment of pipe at HDDs.
- Nine Shifts for abandonment of pipe at the MLV.

Supply Line 44-307

- Nine Shifts for abandoning piping at Estrella and Morro Bay Stations.
- 15 Shifts for demolition of pipe at the MLV Stations.
- 29 Shifts for demolition of pipe at elbow replacements.
- Ten Shifts for abandonment of pipe at HDDs.
- 15 Shifts for abandonment for span removals.

• **Site Restoration**

Supply Line 44-306

- Seven Acres of light topsoil restoration over six Shifts.
- Hydroseeding restoration.
- 13 Shifts for site cleanup.

Supply Line 44-307

- Ten Acres of light topsoil restoration over six shifts.
- Hydroseeding restoration.
- 13 shifts for site cleanup.

• **Site Demobilization**

Supply Line 44-306

- Four loads of excess materials will be transported to nearest SoCalGas facility.
- Eight shifts for ILI work and validation digs.

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SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

Supply Line 44-307

- Four loads of excess materials will be transported to nearest SoCalGas facility.
- Eight shifts for ILI work and validation digs.

• **Field Overhead**

Supply Line 44-306 and Supply Line 44-307

- One full-time Project Manager.
- Two full-time Superintendents.
- One full-time Cost Controller.
- One full-time Timekeeper.
- Two full-time Safety Personnel.
- One full-time Project Engineer.
- Site Security support.

Table 6: Environmental Survey/Permitting/Monitoring/Abatement

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$697,134	\$1,978,886	\$5,936,657	\$9,203,518	\$0	\$17,816,195
TOTAL DIRECT COSTS	\$697,134	\$1,978,886	\$5,936,657	\$9,203,518	\$0	\$17,816,195

Assumptions

In calculating the total estimated environmental cost, the following items were considered for both projects:

- Environmental Services (preconstruction planning and assessments, permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.
- Permit Fees.

The high-level assumptions and specific level of effort to provide environmental support for these projects are described in more detail below.

• **Abatement**

- 72 days for abatement of ACMs.

• **Construction Monitoring**

- Four monitors are included six days a week for approximately 55 weeks across both Supply Line 44-306 and Supply Line 44-307 Retrofit Projects.

• **Water Treatment and Hazardous Materials**

- Hydrotest water will be reused for onsite dust control and disposal for each Project.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

- **Project Closeout Activities**
Restoration support, permit reporting, and closeout for each Project.
- **Permit Fees**
 - Permitting fees related to encroachment permit and traffic control plan costs for each Project.
 - Permitting fees for three counties/municipalities and Caltrans for each Project.

Table 7: Land & Right-of-Way Acquisition

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$335,487	\$256,796	\$1,084,817	\$0	\$0	\$1,677,099
TOTAL DIRECT COSTS	\$335,487	\$256,796	\$1,084,817	\$0	\$0	\$1,677,099

Assumptions

In generating for the total estimated cost for Supply Line 44-306 and Supply Line 44-307 Retrofit Projects the following items were considered:

- **Labor**
 - One contract land agent to support land acquisition.
- **Temporary Right of Entry**
 - 28 TREs for laydown yards and worksites.
 - Two easements for pipeline offsets.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry.

Table 8: Company Labor

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$965,529	\$717,101	\$851,716	\$1,627,921	\$899,915	\$5,062,181
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$965,529	\$717,101	\$851,716	\$1,627,921	\$899,915	\$5,062,181

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-306 AND SUPPLY LINE 44-307 RETROFIT PROJECTS

categories:

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 9: Other Costs

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$5,227,035	\$2,647,650	\$2,146,328	\$1,576,878	\$1,820,237	\$13,418,129
TOTAL DIRECT COSTS	5,227,035	\$2,647,650	\$2,146,328	\$1,576,878	\$1,820,237	\$13,418,129

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support the projects' planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Project Support Services.
- Surveying and As-builts.

Disallowance

In D.14-06-007, the Commission approved implementation of SoCalGas and SDG&E's PSEP, and disallowed recovery of specified costs associated with pressure testing or replacing pipeline segments installed after July 1, 1961. This decision was later modified by D.15-12-020 to include pipe installed from January 1, 1956 to July 1, 1961. The Supply Line 44-306 and Supply Line 307 Retrofit Projects include 37.7 feet/0.007 miles of Category 4 pipe installed in 1965 that does not have test records to demonstrate compliance with the then-applicable industry or regulatory strength testing and record keeping standards. This resulted in an anticipated cost disallowance of \$9,104. The final value of the Supply Line 44-306 and Supply Line 307 Retrofit Projects cost disallowance will be adjusted once the projects are placed in service.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-729 PHASE 2A REPLACEMENT PROJECT

Table 1: Total Direct Project Cost – All Capital

PROJECT COSTS – CAPITAL	Stage 1^{1,2}	Stage 2³	Stage 3⁴	Stage 4⁵	Stage 5⁶	Total⁷
DIRECT LABOR	\$103,992	\$82,246	\$82,246	\$155,568	\$95,329	\$519,381
DIRECT NON-LABOR	\$768,638	\$112,347	\$211,177	\$1,981,392	\$150,566	\$3,224,120
TOTAL COSTS - CAPITAL	\$872,630	\$194,592	\$293,422	\$2,136,960	\$245,895	\$3,743,501

Project Description

The Supply Line 44-729 Phase 2A Replacement Project will replace approximately 45 feet of [REDACTED] and [REDACTED] pipe located at the Paloma Regulator Station near [REDACTED] and [REDACTED] intersection, within Kern County. The 45 feet consists of Supply Line 44-729 and Supply Line 44-729 BP1 pipe. The Project will replace 20 feet of pipe on Line 203 for constructability purposes. Supply Line 44-729 is an inlet pipe of the Paloma Regulator Station that is tied into an [REDACTED] Supply Line 38-143. This project will replace Supply Line 44-729 and Supply Line 44-729 BP1 with a [REDACTED] tap and a dual run Regulator Station.

Alternatives Considered

In order to maintain system capacity to customers, Supply Line 44-729 cannot be abandoned. In order to de-rate this section of pipeline, a new limiting station would need to be installed at the connection of Line 203 and Supply Line 44-729. Segments of less than 1,000 feet are identified for replacement under the approved PSEP Decision Tree because, for short segments of pipe, the logistical costs associated with pressure testing (for example, permitting, construction, water handling, and service disruptions for a non-looped system) can approach or exceed the cost of replacement. In such circumstances, replacement affords a more cost-effective approach to achieving compliance with D.11-06-017 while providing equal safety enhancement benefits.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC estimate includes direct costs associated with project management, engineering and design, environmental permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

¹ Project Initiation.

² Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

³ Preliminary Design.

⁴ Detailed Design.

⁵ Construction.

⁶ Closeout.

⁷ Values may not add to total due to rounding.

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SUPPLY LINE 44-729 PHASE 2A REPLACEMENT PROJECT

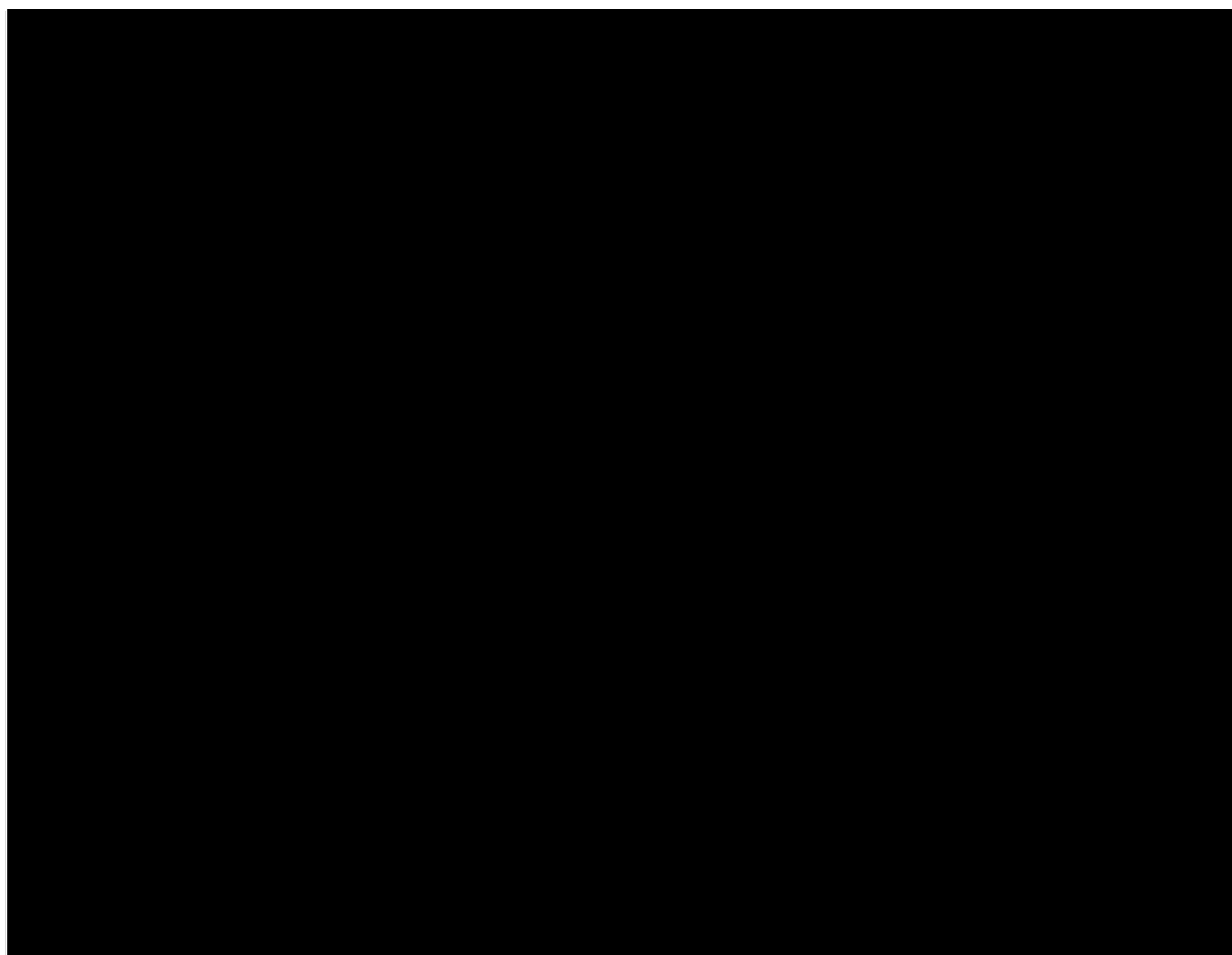
Schedule

The schedule was developed based on the five-stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that typically 50% of the project costs are expended during the construction phase. The construction schedule is assumed to be 49 days.

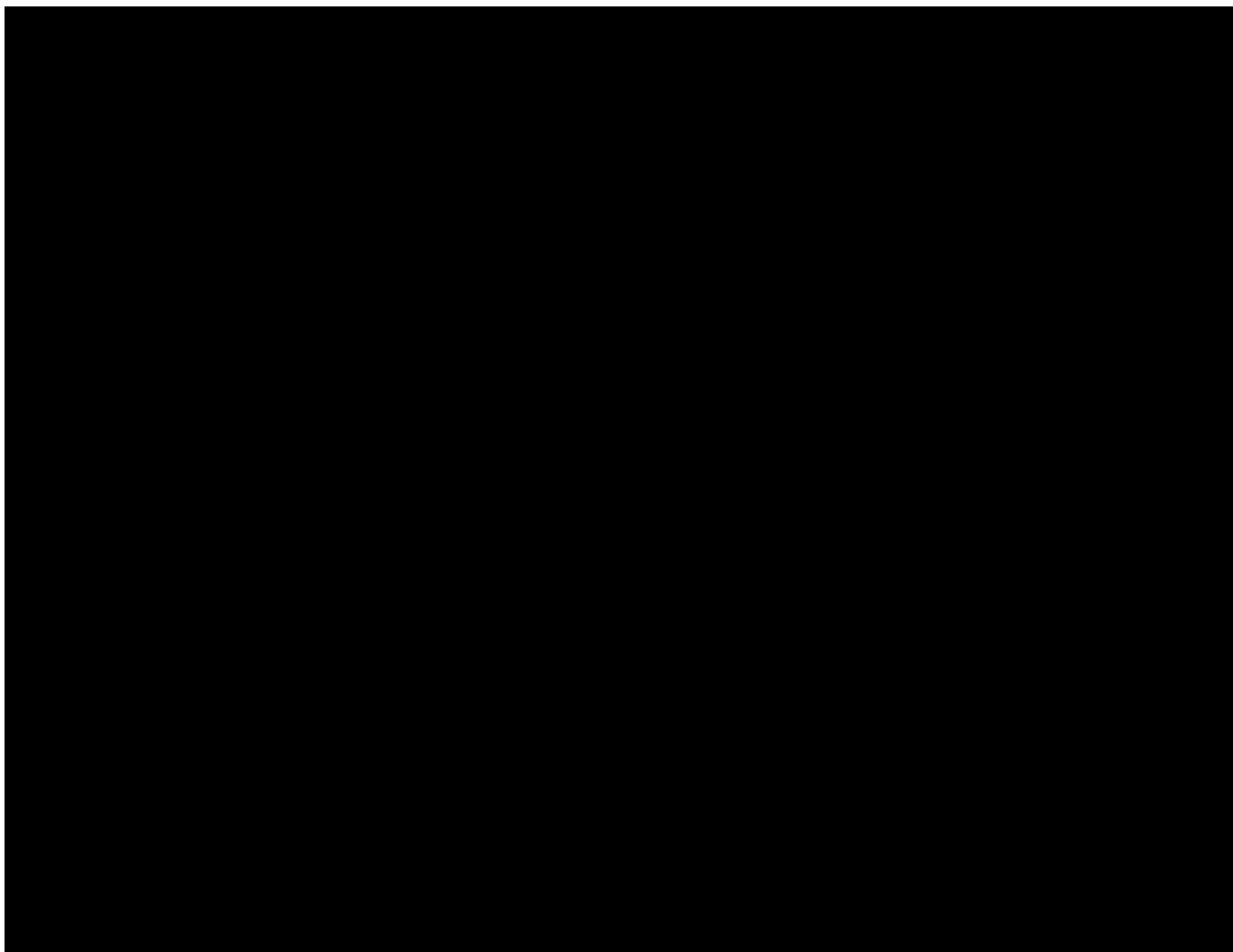
Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-729 PHASE 2A REPLACEMENT PROJECT

Figure 1: Overview Map for Supply Line 44-729 Phase 2A Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-729 PHASE 2A REPLACEMENT PROJECT

Figure 2: Satellite Map for Supply Line 44-729 Phase 2A Replacement Project



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SUPPLY LINE 44-729 PHASE 2A REPLACEMENT PROJECT

Table 2: Project Mileage

PHASE	MILEAGE
PHASE 2A	0.005
PHASE 2B	0.000
INCIDENTAL	0.000
TOTAL MILEAGE	0.005

The direct costs for each area are summarized below.

Table 3: Material

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$49,942	\$138,332	\$0	\$0	\$188,274
TOTAL DIRECT COSTS	\$0	\$49,942	\$138,332	\$0	\$0	\$188,274

Assumptions

Materials for this Project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected, and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 65 feet of [REDACTED] and [REDACTED] pipe.
- Eight [REDACTED] and [REDACTED] ball valves
- One [REDACTED] Pressure Control Fitting (PCF) for isolation.

Table 4: Construction

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$10,776	\$0	\$6,420	\$1,901,109	\$32,101	\$1,950,406
TOTAL DIRECT COSTS	\$10,776	\$0	\$6,420	\$1,901,109	\$32,101	\$1,950,406

General Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization.
- Work has been scheduled for 10-hours per day, five-day work week.
- Electrical contractor included for all instrumentation tubing, tubing supports, sense lines, wire pulls, terminations, continuity checks, input and output testing for all devices and transmitters, and instrument line

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

SUPPLY LINE 44-729 PHASE 2A REPLACEMENT PROJECT

soap test.

- There will be one laydown yard.
- All excavations will be backfilled with zero sack slurry or sand padding to one foot above pipeline. Remainder of backfill will utilize native soil.
- Three existing gas lines will be potholed prior to beginning excavation.
- Tie-ins will be performed during a 24-hour continuous shift.
- Construction Management and Inspection Services.
- Non-Destructive Examination (NDE) and X-Ray of welds have been included.
- Restoration of worksite will be performed at the end of the project.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - Two office trailers for contractors and SoCalGas personnel.
 - Site facility costs cover a two-month duration.
 - Temporary fencing for laydown yard.
- **Site Management / Best Management Practices (BMPs)**
 - Fiber rolls, sandbags, poly sheeting, and silt fencing will be procured and installed for BMPs.
- **Material Handling**
 - One load of material will be unloaded at laydown yard and transported as needed.
- **Traffic Control**
 - Traffic control has been included for this project. For (25) days for permanent K-rail enclosure.
 - K-rail will be set up to protect the stopple installed in the dirt road.
- **Isolate Existing Pipeline**
 - Pipeline will be isolated with one  Pressure Control Fitting (PCF).
- **Pipeline Excavation / Fabrication / Installation**
 - One Fabrication Crew and one excavation crew utilized.
 - All excavation within the pipe zone will be performed by hand.
 - Excavation will be backfilled with all zero sack slurry.
 - The forming, reinforcing and pouring of equipment pads using concrete has been included.
- **Hydrotest / Pressure Test Pipeline**
 - All piping will be hydrotested in one test.
 - One regulator station to be nitrogen tested separately.
- **Tie-In Pipeline**
 - The existing pipeline will be tied in during a 24-hour continuous shift.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-729 PHASE 2A REPLACEMENT PROJECT

- Two existing taps will be tied-over following the gas up of the new main.
- **Site Restoration**
 - Includes a clean-up crew to return the site to existing condition.
 - Regulator station site to be restored to original condition.
 - Laydown yards will be restored to original condition at the end of the project.
- **Site Demobilization**
 - Removal of office trailers and breakdown of laydown yard in the estimate.
 - One load of excess piping will be hauled to a designated yard.
 - Crew and equipment will be demobilized.
- **Field Overhead**
 - One full-time Superintendent.
 - One full-time Project Manager.
 - One full-time Project Engineer.
 - One site security guard has been employed for all non-working hours and holidays.

Table 5: Environmental Survey/Permitting/Monitoring/Abatement

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$48,748	\$4,525	\$13,576	\$23,173	\$0	\$90,023
TOTAL DIRECT COSTS	\$48,748	\$4,525	\$13,576	\$23,173	\$0	\$90,023

Assumptions

In calculating the estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys, and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).

The high-level assumptions and specific level of effort to provide environmental support for this Project are described in more detail below.

- **Construction Monitoring**
 - One full-time environmental monitor for the first week of construction and three half days for the remaining construction duration period.
- **Project Closeout Activities**
 - Site restoration, permit reporting, and closeout.

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SUPPLY LINE 44-729 PHASE 2A REPLACEMENT PROJECT

- **Abatement**
 - Three days for abatement of ACMs.
- **Water Treatment and Hazardous Materials**
 - Hydrostatic test water is included.
 - Hydrotest Water Disposal will be reused for onsite dust control, no treatment required.

Table 6: Land & Right of Way Acquisition

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$66,333	\$3,480	\$10,440	\$0	\$0	\$80,253
TOTAL DIRECT COSTS	\$66,333	\$3,480	\$10,440	\$0	\$0	\$80,253

Assumptions

In generating the cost estimate, the following items were considered:

- **Labor**
 - One contract land agent to obtain project land requirements.
- **Temporary Right of Entry**
 - One workspace and laydown yard.
- **Crops**
 - Costs for minor crop damage included.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry.

Table 7: Company Labor

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$103,992	\$82,246	\$82,246	\$155,568	\$95,329	\$519,381
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$103,992	\$82,246	\$82,246	\$155,568	\$95,329	\$519,381

Assumptions

SoCalGas Labor - Management, Engineering, and Non-Union Labor

SoCalGas Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

SUPPLY LINE 44-729 PHASE 2A REPLACEMENT PROJECT

- Project Management.
- Project Field Management.
- Project Engineers.
- Construction Management.
- Environmental Services.
- Other Departments.

SoCalGas Field Labor – Distribution, Transmission, Pipeline Integrity, and Other Field Departments

SoCalGas Union Labor costs were developed with the guidance of SoCalGas Construction Management and whose costs are duration dependent and activity specific.

Table 8: Other Costs

PROJECT COST	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$642,782	\$54,399	\$42,408	\$57,110	\$118,466	\$915,164
TOTAL DIRECT COSTS	\$642,782	\$54,399	\$42,408	\$57,110	\$118,466	\$915,164

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Surveying and As-builts.
- Project Support Services.

Disallowance

In D.14-06-007, the Commission approved implementation of SoCalGas and SDG&E's PSEP, and disallowed recovery of specified costs associated with pressure testing or replacing pipeline segments installed after July 1, 1961. This decision was later modified by D.15-12-020 to include pipe installed from January 1, 1956 to July 1, 1961. The Supply Line 44-729 Phase 2A Replacement Project includes 22.08 feet/0.004 miles of Category 4 pipe installed after January 1, 1956, that does not have test records to demonstrate compliance with the then-applicable industry or regulatory strength testing and record keeping standards. This resulted in an anticipated cost disallowance of \$5,332. The final value of the Supply Line 44-729 Phase 2A Replacement Project cost disallowance will be adjusted once the project is placed in service.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-788 STATION REPLACEMENT PROJECT

Table 1: Total Direct Project Cost – All Capital

PROJECT COSTS – CAPITAL	Stage 1^{1,2}	Stage 2³	Stage 3⁴	Stage 4⁵	Stage 5⁶	Total⁷
DIRECT LABOR	\$99,146	\$97,943	\$97,943	\$194,530	\$110,708	\$600,270
DIRECT NON-LABOR	\$632,173	\$416,781	\$383,259	\$2,628,723	\$256,639	\$4,317,574
TOTAL COSTS - CAPITAL	\$731,319	\$514,724	\$481,202	\$2,823,253	\$367,347	\$4,917,844

Project Description

The Supply Line 44-788 Station Replacement Project will replace approximately 80 feet of various pipe sizes ranging from [REDACTED] to [REDACTED] in and associated fittings in Diamond Bar, within Los Angeles County. Associated fittings include check valves, gas valves, reducers, regulators, and elbows. A [REDACTED] inlet fire control valve will be installed on Supply Line 44-788, 25 feet from the regulator station along with a filter for regulator runs.

Alternatives Considered

Segments of less than 1,000 feet are identified for replacement because, for short segments of pipe, the logistical costs associated with pressure testing (for example, permitting, construction, water handling, and service disruptions for a non-looped system) can approach or exceed the cost of replacement. In such circumstances, replacement affords a more cost-effective approach to achieving compliance while providing equal safety enhancement benefits. Moreover, installation of the new segment can usually be performed while the existing service is maintained to customers, thereby avoiding service disruptions that may otherwise occur during pressure testing.

Forecast Methodology

SoCalGas developed a Total Installed Cost (TIC) estimate to implement the above scope of work. The TIC estimate includes direct costs associated with project management, engineering and design, environmental permitting, land acquisition, material and equipment procurement, and construction. The estimate was prepared in accordance with AACE Class 3 estimating practices and utilizes a combination of quantity-based, unit-cost, and factored estimating techniques.

¹ Project Initiation.

² Actual costs incurred associated with planning and engineering design work are included in the project cost estimates.

³ Preliminary Design.

⁴ Detailed Design.

⁵ Construction.

⁶ Closeout.

⁷ Values may not add to total due to rounding.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-788 STATION REPLACEMENT PROJECT

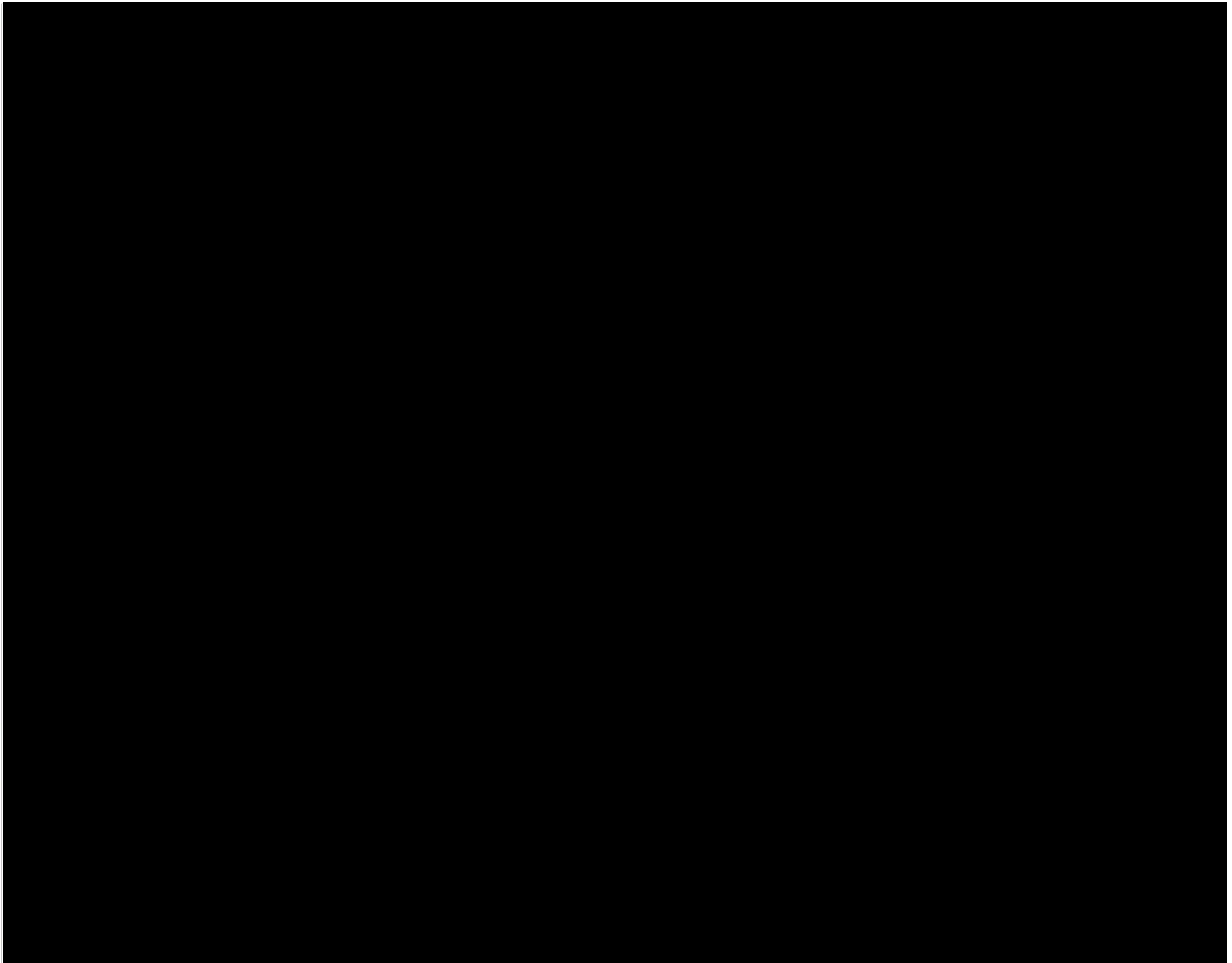
Schedule

The schedule was developed based on the five-stage project life cycle as defined by PSEP. The key project deliverables were identified and incorporated into a work breakdown structure. This work breakdown structure was then sequenced, and predecessor and successor tasks were linked to each task. Finally, durations were added to each task to provide a total project duration.

The preliminary Stage 4 Construction Schedule received additional planning and stakeholder input considering that the majority of the project costs are expended during the construction phase. The construction schedule is assumed to be 83 days.

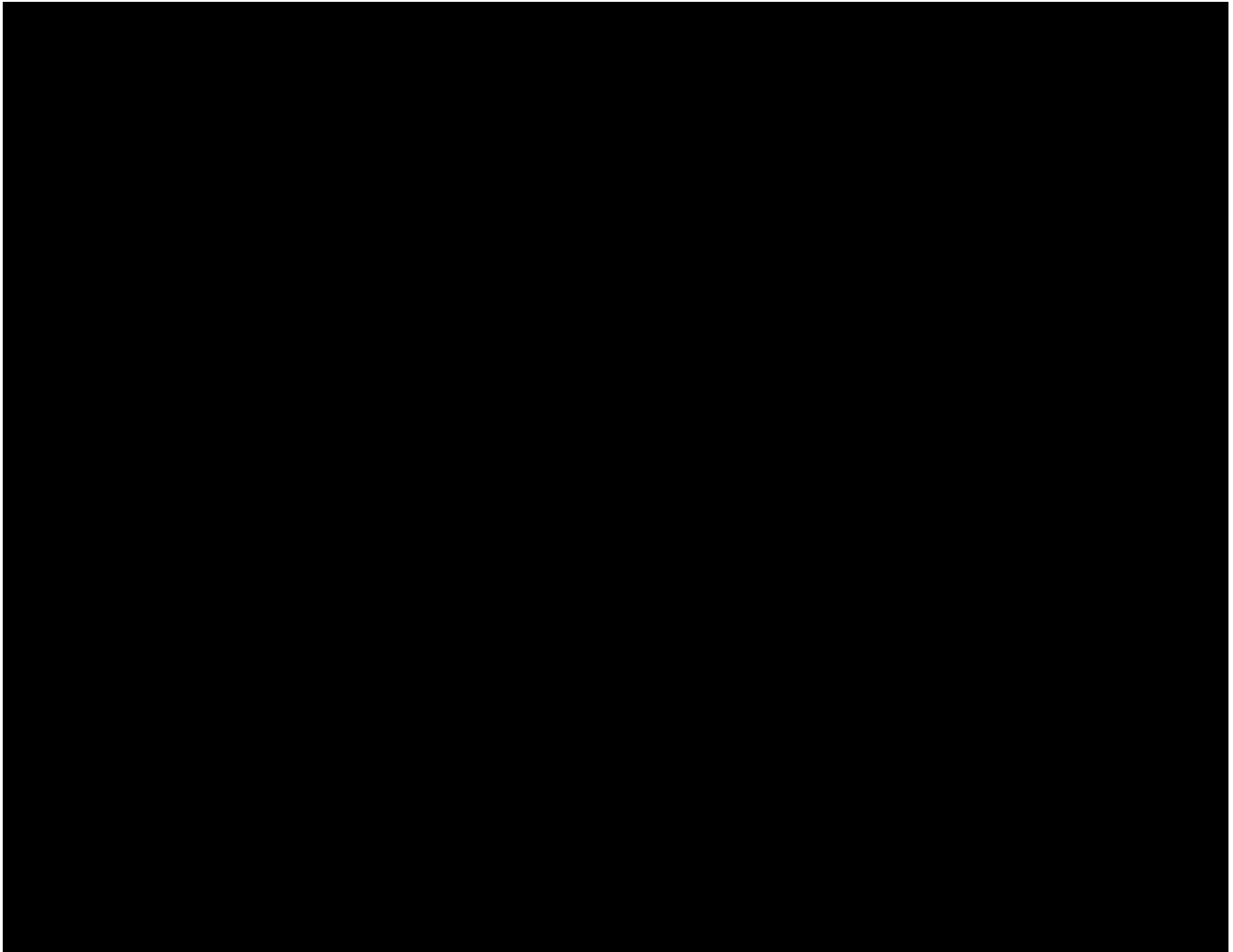
Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-788 STATION REPLACEMENT PROJECT

Figure 1: Overview Map for Supply Line 44-788 Station Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-788 STATION REPLACEMENT PROJECT

Figure 2: Satellite Map for Supply Line 44-788 Replacement Project



Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-788 STATION REPLACEMENT PROJECT

Table 2: Project Mileage

PHASE	MILEAGE
PHASE 2A	0.017
INCIDENTAL	0.025
REPLACEMENT OFFSET	0.009
TOTAL MILEAGE	0.051

The direct costs for each area are summarized below.

Table 3: Material

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$268,882	\$205,156	\$0	\$0	\$474,038
TOTAL DIRECT COSTS	\$0	\$268,882	\$205,156	\$0	\$0	\$474,038

Assumptions

Materials for this project will not be purchased until final internal authorization has been granted to purchase long lead time material. This will allow for material to be procured, inspected and delivered to coincide with the anticipated construction start date. The principal cost-driving materials necessary for this project include:

- 117 feet of [REDACTED] pipe.
- Five [REDACTED] ball valves.
- One [REDACTED] check valve.

Table 4: Construction

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$13,847	\$0	\$7,558	\$2,445,009	\$37,790	\$2,504,203
TOTAL DIRECT COSTS	\$13,847	\$0	\$7,558	\$2,445,009	\$37,790	\$2,504,203

Assumptions

In the development of the construction estimate, the following assumptions and clarifications have been made:

- One mobilization and one demobilization
- Work has been scheduled using an eight-hours per day, five-day work week.
- Access to work site shall be continuous once project commences.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-788 STATION REPLACEMENT PROJECT

- There will be one laydown yard with temporary fencing.
- All piping will have washed bedding sand and shaded with 0-sack. Excess spoils will be hauled off and disposed.
- Approximately 120 feet of [REDACTED] pipe will be installed.
- Tie ins will be performed during one 24-hour shift.
- The new pipeline will be hydrotested in one continuous section.
- Construction Management and Inspection Services.
- Non-Destructive Examination and X-Ray of welds are included.
- Isolation will be conducted using existing valves.

Additional Construction Information

- **Site Mobilization / Site Facilities**
 - One mobilization and one demobilization.
 - A total of one office trailer will be placed at the laydown yard.
 - Site facility costs cover a 3.5-month duration.
 - Crushed rock has been included for the laydown yard.
- **Site Management / Best Management Practices (BMPs)**
 - Fiber rolls, strawbales, sandbags, reinforced poly sheeting, and sock drains will be procured and installed for BMP measures.
 - One rumble plate for BMP construction materials.
 - General BMP materials have been included for laydown yard.
- **Material Handling**
 - Two loads of SoCalGas furnished material will be unloaded by the contractor at the laydown yard.
- **Traffic Control**
 - 35 days scheduled for traffic control with two-man crew.
- **Utility Locates**
 - Two potholes for existing pipeline and utility locates which include vacuum truck and disposal of 10 cubic yard (CY) of sludge.
- **Isolate Existing Pipeline**
 - One shift to facilitate isolation related to cut and cap.
 - Purging and isolation will occur during a continuous 24-hour shift.
- **Pipeline Excavation / Fabrication / Installation**
 - Asphalt sawcut of 50 linear feet (LF) is included.
 - Two Steel Road and traffic plates included.
 - 1,350 SF concrete removal and disposal.

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SUPPLY LINE 44-788 STATION REPLACEMENT PROJECT

- Assume 14 shifts to machine excavate 258 CYs.
- Assume two shifts to hand excavate 10 CYs
- 100% hand excavation within the station.
- Welding and fabrication for replacement pipeline.
- Welding and fabrication of reg station and filter separator assemblies.
- Sense lines and test cap fabrication are included for the welding crew.
- Assume haul and disposal includes 90 tons.
- Fabrication of test heads, caps, and replacement pipe
- **Hydrotest Pipeline**
 - Test caps, and blinds will be installed on each end of the test.
 - Fill the line, prep for test, and let water stabilize with ground temperature.
 - 12 hours to hydrotest the line.
 - The pipeline will be tested in one (1) segment with 600 gallons of water.
- **Tie-In Pipeline**
 - One 24-hour shift to complete tie-ins.
- **Site Restoration**
 - All work site locations will be restored to original condition.
 - Includes 250 square feet (SF) of asphalt restoration placement and installation of steel platform.
 - Concrete restoration work includes installation for the sidewalk, curb and gutter.
 - Installation of fence panels, sub supports for new steel platforms for filters and concrete pipe supports.
- **Site Demobilization**
 - All site facilities will be demobilized.
 - Two loads of excess piping will be hauled to SoCalGas designated yard.
 - All crew and equipment will be demobilized.
- **Field Overhead**
 - Full-Time Project Manager.
 - Full-Time Superintendent.
 - Full-Time Cost Controller.
 - Part-Time Safety Person.
 - One site security personnel for non-working hours.
 - Four hours of street sweeping services included for workdays.
 - One forklift, one 500-gallon water truck, and one low bed truck.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-788 STATION REPLACEMENT PROJECT

Table 5: Environmental Survey/Permitting/Monitoring/Abatement

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$67,897	\$17,815	\$53,445	\$66,403	\$0	\$205,560
TOTAL DIRECT COSTS	\$67,897	\$17,815	\$53,445	\$66,403	\$0	\$205,560

Assumptions

In calculating the total estimated environmental cost, the following items were considered:

- Environmental Services (permitting support, surveys and monitoring).
- Non-hazardous waste containment/disposal.
- Abatement of Asbestos Containing Material (ACM).
- Water Treatment and Hazardous Materials.
- Permit Fees.

- **Abatement**
 - One day for abatement for this project.

- **Water Treatment and Hazardous Materials**
 - Hydrotest water will be reused for onsite dust control.
 - Water treatment included for hydrotest.
 - Hazardous and non-hazardous waste transport and disposal anticipated for various wastes.

- **Permit Fees**
 - Permitting fees related to encroachment and traffic control plans.

Table 6: Land & Right-of-Way Acquisition

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$0	\$6,642	\$19,926	\$0	\$0	\$26,568
TOTAL DIRECT COSTS	\$0	\$6,642	\$19,926	\$0	\$0	\$26,568

Assumptions

In generating for the total estimated cost for Supply Line 44-788 Station Replacement Project the following items were considered:

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-788 STATION REPLACEMENT PROJECT

- **Labor**
 - One part time permit coordinator.
- **Temporary Right of Entry**
 - Two workspaces included for the duration of the project.

Factors such as location, zoning, current market price and square footage are considered to determine a final estimated value specific to easements and temporary rights of entry permits.

Table 7: Company Labor

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$99,146	\$97,943	\$97,943	\$194,530	\$110,708	\$600,270
DIRECT NON-LABOR	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DIRECT COSTS	\$99,146	\$97,943	\$97,943	\$194,530	\$110,708	\$600,270

Assumptions

SCG Labor – Management, Engineering, and Non-Labor

SCG Non-Union Labor is estimated based upon activity level of effort and is divided into the following categories:

- Project Management
- Project Field Management
- Project Engineers.
- Construction Management.
- Environmental Services.

SCG Labor – Union Labor

SCG Union Labor costs were developed with the guidance of SCG Construction Management and whose costs are duration dependent and activity specific.

Table 8: Other Costs

Project Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Total
DIRECT LABOR	\$0	\$0	\$0	\$0	\$0	\$0
DIRECT NON-LABOR	\$550,429	\$123,441	\$97,174	\$117,311	\$218,849	\$1,107,204
TOTAL DIRECT COSTS	\$550,429	\$123,441	\$97,174	\$117,311	\$218,849	\$1,107,204

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06
SUPPLY LINE 44-788 STATION REPLACEMENT PROJECT

Assumptions

Other costs assume use of contracted services for certain Engineering, Survey, Project Management, and Design activities. These costs are included to account for the anticipated professional services required to support project planning, design development, execution, and closeout. The major components in this category include:

- Engineering and Design Services.
- Project Management Services.
- Project Support Services.
- Surveying and As-builts.
- Project Support Services.

Disallowance

In D.14-06-007, the Commission approved implementation of SoCalGas and SDG&E's PSEP, and disallowed recovery of specified costs associated with pressure testing or replacing pipeline segments installed after July 1, 1961. This decision was later modified by D.15-12-020 to include pipe installed from January 1, 1956 to July 1, 1961. The Supply Line 44-788 Station Replacement Project includes 4 feet/0.001 miles of Category 4 pipe installed after January 1, 1956, that does not have test records to demonstrate compliance with the then-applicable industry or regulatory strength testing and record keeping standards. This resulted in an anticipated cost disallowance of \$966. The final value of the Supply Line 44-788 Station Replacement Project cost disallowance will be adjusted once the project is placed in service.

Pipeline Safety Enhancement Plan Workpaper Supporting Exhibit SCG-06

PSEP ALLOWANCE FOR HYDROTEST FAILURES

Table 1: Allowance for Pipeline Failures

PROJECT COSTS – CAPITAL	2024
DIRECT LABOR	\$9,374
DIRECT NON-LABOR	\$459,319
TOTAL DIRECT COSTS	\$468,692

Assumptions

During the hydrotesting of pipelines, there is always a potential for test failures to occur. Therefore, an allowance was added to cover the costs associated with PSEP hydrotest failures for each year in the GRC cycle. These costs may include but are not limited to locating the affected segment, replacing the pipe, associated cleanup, environmental mitigation, and monitoring, and retesting of the pipeline section. The basis for the failure estimate includes historical analysis of the hydrotest failure cost per mile tested from 2021-2025.

The calculation is shown below:

$$\text{Hydrotest Failure Cost Per Mile Tested} = \frac{\text{Sum of Historical Hydrotest Failure Associated Costs}}{\text{Total Miles Hydrotested 2021 – 2025}}$$

The costs associated with PSEP hydrotest failures for the upcoming GRC cycle were then forecasted by taking the hydrotest failure cost per mile tested multiplied by the Projected Mileage of PSEP test projects to be completed during the GRC cycle based on the current project forecast:

$$\begin{aligned} \text{Projected Hydrotest Failure Cost} \\ &= \text{Historical Hydrotest Failure Cost Per Mile Tested} \\ &\quad * \text{Projected Mileage of Test Projects} \end{aligned}$$

The total Hydrotest allowance was then normalized over the GRC cycle for an annual forecasted cost and allocated between labor (2%) and non-labor (98%).

**BEFORE THE PUBLIC UTILITIES
COMMISSION OF THE STATE OF CALIFORNIA**

**DECLARATION OF DEVIN ZORNIZER
REGARDING CONFIDENTIALITY OF CERTAIN DATA
PURSUANT TO D.21-09-020**

I, Devin Zornizer, do declare as follows:

1. I am the Vice President of the Infrastructure Project Delivery organization for Southern California Gas Company (SoCalGas). I have reviewed the confidential information included within the SCG Exhibit SCG-06 Gas Major Projects Supplemental Workpaper Volumes I, II, III and V for the 2028 General Rate Case (GRC) proceeding (A.26-05-XXX). I am personally familiar with the facts in this Declaration and, if called upon to testify, I could and would testify to the following based upon my personal knowledge and/or information and 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 SCG Exhibit SCG-06 Gas Major Projects Supplemental Workpaper Volumes I, II, III and V is within scope of the data protected as confidential under applicable law.

3. In accordance with the narrative justification provided in Attachment 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 12th day of June, 2026, at Los Angeles, California.

E-SIGNED by Devin Zornizer
on 2026-06-12 07:26:07 PDT

Devin Zornizer
Infrastructure Project Delivery
SoCalGas

ATTACHMENT A

SCG Request for Confidentiality on the following information in the response to the 2028 General Rate Case Supplemental Workpaper Volumes I, II, III and V of Devin Zornizer, Exhibit SCG-06 (“Gas Major Projects”)

Location of Protected Information	Legal Citations	Narrative Justification
All grey highlighted Pipeline attributes (i.e., SMYS, MAOP, diameter, pressure, grade) in the following attachments: SCG-06-WP-S Supplemental Workpapers to Prepared Direct Testimony of Gas Major Projects – Volume I CONFIDENTIAL SCG-06-WP-S Supplemental Workpapers to Prepared Direct Testimony of Gas Major Projects – Volume II CONFIDENTIAL SCG-06-WP-S Supplemental Workpapers to Prepared Direct Testimony of Gas Major Projects – Volume III CONFIDENTIAL SCG-06-WP-S Supplemental Workpapers to Prepared Direct Testimony of Gas Major Projects – Volume V CONFIDENTIAL	California Public Records Act (CPRA) Exemption, Gov’t Code § 6254(ab) (“Critical infrastructure information, as defined in Section 131(3) of Title 6 of the United States Code, that is voluntarily submitted to the Office of Emergency Services for use by that office”); CPRA Exemption, Gov’t Code § 6254(k) (“Records, the disclosure of which is exempted or prohibited pursuant to federal or state law”): • 6 U.S.C. §§ 131(3), 133(a)(1)(E); • 6 CFR §§ 29.2(b), 29.8 (defining CII and restricting its disclosure); • 18 CFR § 388.113(c); FERC Orders 630, 643, 649, 662, 683, and 702 (defining CEII); • Critical Energy Infrastructure Information, 68 Fed. Reg. 9862 (Dep’t of Energy Mar. 3, 2003) (final rule) (listing what gas information qualifies as CEII); • FERC’s Guidelines for Filing Critical Energy/Electric Infrastructure Information, February 21, 2017; available at: https://www.ferc.gov/sites/default/files/2020-04/CEII-Filing-guidelines.pdf • 18 C.F.R. § 157.14(a)(8-10); • 18 C.F.R. § 157.18(c); • 18 C.F.R. § 260.8 (FERC Form 567); • 49 CFR §§ 1520.5, 1520.9 (defining SSI and restricting its disclosure); • <i>Chowdhury v. Nw. Airlines Corp.</i>, 226 F.R.D. 608 (N.D. Cal. 2004); • PHMSA Guidelines, Federal Register Vol. 81, No. 120, June 22, 2016, pg 40764; • CPRA Exemption, Gov’t Code § 6254(ab) (Critical Infrastructure Information)	These engineering design values of a proposed or existing critical infrastructure could potentially be used to determine the criticality of a gas facility and identify vulnerabilities of the gas delivery network. The value can be used to identify the volume of gas present in an area and ascertain the relative potential consequences of intentional acts against the gas transportation and distribution network.
All grey highlighted Vendor information. (Contracts, Vendor bid and pricing information including rates and invoices, customer and vendor proprietary information). in the following attachments:	California Public Records Act (“CPRA”) Gov’t Code § 6254(k) (“Records the disclosure of which is exempted or prohibited pursuant to federal or state law”) • D.11-01-36, 2011 WL 660568 (2011) (confidential prices and contract terms specifically negotiated with a program vendor is proprietary and commercially sensitive and should remain confidential).	Based on input received by the vendor, and based on SoCalGas position, the produced documents are proprietary and represent and contain information that is proprietary, commercially sensitive, trade secrets, and content not intended for public disclosure. Vendor contracting efforts involve communications and work product which is intended only for access by

SCG-06-WP-S Supplemental Workpapers to Prepared Direct Testimony of Gas Major Projects – Volume V CONFIDENTIAL		designated parties. Public disclosure would pose potential negative impacts and/or harm to the vendors, and/or inhibit SoCalGas/SDG&E’s efforts to reduce costs for customers by obtaining competitive pricing from vendors.
All grey highlighted Pipeline Locational Information (i.e., GPS coordinates, pipeline location) in the following attachments: SCG-06-WP-S Supplemental Workpapers to Prepared Direct Testimony of Gas Major Projects – Volume I CONFIDENTIAL SCG-06-WP-S Supplemental Workpapers to Prepared Direct Testimony of Gas Major Projects – Volume II CONFIDENTIAL SCG-06-WP-S Supplemental Workpapers to Prepared Direct Testimony of Gas Major Projects – Volume V CONFIDENTIAL	CPRA Exemption, Gov’t Code § 7927.705 (“Records, the disclosure of which is exempted or prohibited pursuant to federal or state law”) • 18 CFR § 388.113(c) (defining CEII) • FERC Order Nos. 630, 643, 649, 662, 683, and 702 (defining CEII) • FAST Act - Critical Electric Infrastructure Security, Pub. L. 114-94, amended December 4, 2015 (protecting electric infrastructure) • FERC Order 833 (including amendments to the CEII regulations, required by The FAST Act) • Critical Energy Infrastructure Information, 68 Fed. Reg. 9857, 9862 (Dep’t of Energy Mar. 3, 2003) (final rule) (listing what gas information qualifies as CEII) • FERC’s Guidelines for Filing Critical Energy/Electric Infrastructure Information, (Feb. 21, 2017), <i>available at</i> https://www.ferc.gov/sites/default/files/2020-04/CEII-Filing-guidelines.pdf ◦ Exhibits G, G-I, G-II of pipeline certificate applications. 18 CFR § 157.14 ◦ Exhibit V of abandonment applications. 18 CFR § 157.18 ◦ FERC Form 567. 18 CFR § 260.8 • CPUC Res. L-436, at 8 (stating CPUC will “refrain from making available to the public detailed maps and schematic diagrams showing the location of specific utility regulator stations, valves, and similar facilities”) • Cal. Pub. Util. Code § 364(d) (“The commission may, consistent with other provisions of law, withhold from the public information generated or obtained pursuant to this section that it deems would pose a security threat to the public if disclosed.”) CPRA Exemption, Gov’t Code § 7922.000 (Balancing Test)	GPS coordinates and pipeline location are identified as confidential because the data would provide sufficient information to be used by a third party to excavate or access above ground facilities without notifying the utility through the local Underground Service Alert (USA) or could be used to identify locations for illegal tapping or other acts that could impact the safety of residents.