

Appendix B

Workpapers Supporting R. Gonzalez Direct Testimony

Pipeline Safety Enhancement Plan Workpaper Supporting Testimony of Ronn Gonzalez,

Chapter II

LINE 1600 ALLOWANCE FOR PIPELINE FAILURE DURING HYDROTESTS

Executive Summary

Over the process of hydrotesting existing pipelines, one or more ruptures may occur. This workpaper describes the Line 1600 cost study assumptions considered to quantify the cost of a Hydrotest failure. These costs are not included in the 19 Line 1600 cost estimates because there is too much uncertainty in the likelihoods of occurrence, duration, consequences, and remediation measures. Attempting to quantify these costs could lead to significant underestimation or overestimation of actual costs.

The Line 1600 Hydrotest Projects are located in the County of San Diego north of the City of Escondido. The projects will hydrotest approximately 13 miles of existing 16-inch pipeline through mainly undeveloped and agricultural private land. Because of the immense number of conceivable situations, it was opted to select three locations based on a set of parameters that represented varying levels of effort required to respond to a failure. The hydrotest failure sections were chosen by the project management team and represent a large variability of geographical conditions along the pipeline alignment. Hydrotest failure anticipated durations were developed by the project management team based on these scenarios in order to analyze low, medium, and high level of effort cases. A brief summary of each case is provided below:

CASE 1 – LOW Level of Effort: Hydrotest failure occurs at Daley Ranch Section of Line 1600 and is easily accessible. The remediation activities consist of a 8 days response timeline.

CASE 2 – MEDIUM Level of Effort: Hydrotest failure occurs at Rice Canyon Section of Line 1600 and requires traffic control and highway demolition and repair. The remediation activities consist of a 14-day response timeline.

CASE 3 – HIGH Level of Effort: Hydrotest failure occurs at Couser Canyon North and requires traffic control, vegetation clearing, temporary stream crossings, and road repair. The remediation activities consist of a 20-day response timeline.

Estimate Methodology

Hydrostatic Failure expenditures were developed by utilizing a parametric approach based on the level of effort for each project. The estimate was built in accordance to the AACE International Recommended practice as Applied in Pipeline Transportation Infrastructure Projects. This estimate has been classified as an AACE Class 5 due to the many variances, project complexity, and level of effort during estimate development. The expected accuracy range is -20% to -50% on the low side, and +30% to +100% on the high side. A per day construction cost was extrapolated based on Class 3 TIC estimate documentation generated for the specific project in each scenario. Using the hydrotest failure anticipated durations for each scenario provided by the project management team in conjunction with the per day construction cost, a total cost for each level of effort case is calculated. In addition to construction costs, hydrotest failure estimates include supplementary internal resource support, contract labor support, and further gas purchase from alternate sources that is required during the project delay. These costs are also based on the specific hydrotest failure schedule provided by the project management team. Finally, the estimated cost assumes that the leak is found quickly and tracer gas is not necessary. A long delay in locating the leak will result in significantly increased cost.

Results

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To address this potential for pipeline failure during hydrotest, this estimate has been created. These allowance amounts are separate from the project specific cost estimates created. The basis for the failure estimate includes the cost to remediate the ruptured segment of 16 inch pipeline and the associated costs for cleanup.

The forecasted costs broken out by cost function are shown in the table below. Other Non-Labor Costs include the expense for daily gas purchase from alternate source during the hydrotest failure delay.

HYDROTEST FAILURE ESTIMATE SUMMARY		Low Level of Effort	Medium Level of Effort	High Level of Effort
		CASE 1: DALEY RANCH	CASE 2: RICE CANYON	CASE 3: COUSER CANYON
WBS	Cost Function	TOTAL COST	TOTAL COST	TOTAL COST
1	Construction Contractor	\$ 398,926.66	\$ 745,063.74	\$912,395.67
1E	Electrical Contractor	\$ -	\$ -	\$0.00
2M	SCG Labor - Mgmt. & Non Labor	\$ 54,720.00	\$ 95,760.00	\$136,800.00
2U	SCG Labor - Union T/H	\$ 12,000.00	\$ 24,000.00	\$34,000.00
2PA	SCG Labor - Outreach & Public Affairs	\$ 3,200.00	\$ 4,800.00	\$6,800.00
3	Material- Pipe & Fittings	\$ 2,084.80	\$ 2,084.80	\$2,084.80
4	Material-Valves	\$ -	\$ -	\$0.00
5	Material- Other	\$ -	\$ -	\$0.00
6D	Engineering / Design Services	\$ 3,000.00	\$ 8,000.00	\$12,000.00
6P	PM / Project Services	\$ 48,846.00	\$ 97,692.00	\$138,397.00
6CM	Construction Management	\$ 52,640.00	\$ 78,960.00	\$111,860.00
6S	Surveying / As-builts	\$ 6,000.00	\$ 12,000.00	\$17,000.00
6E	Environmental Services	\$ 83,208.00	\$ 166,416.00	\$235,756.00
6H	Pressure Test Certification Services	\$ 25,000.00	\$ 25,000.00	\$25,000.00
15W	Water Storage	\$ 47,914.00	\$ 71,871.00	\$95,828.00
6X	X-ray / NDE	\$ 20,268.00	\$ 40,536.00	\$57,426.00
6LS	Land Services	\$ 10,000.00	\$ 20,000.00	\$30,000.00
6C	CNG / LNG / Gas Capture	\$ 3,000.00	\$ 6,000.00	\$9,000.00
6M	Miscellaneous Services	\$ 10,000.00	\$ 10,000.00	\$10,000.00
6PA	Outreach & Public Affairs	\$ 800.00	\$ 4,000.00	\$8,000.00
7	Permits	\$ 3,000.00	\$ 3,000.00	\$9,000.00
8	Other Non-Labor Costs	\$ 600,000	\$ 1,050,000.00	\$1,500,000.00
Total Direct Estimated Cost (No Loaders)		\$ 1,384,607	\$ 2,465,184	\$ 3,351,347