Application No: A.04-08-018
Exhibit No.:
Witnesses: David M. Bisi
May Lew

In the Matter of the Application of Southern California Gas Company to Establish Regulatory Authority Over the Access for Natural Gas Provided by California Gas Producers	)	A.04-08-018 (Filed August 16, 2004)

PREPARED DIRECT TESTIMONY OF

SOUTHERN CALIFORNIA GAS COMPANY (U 904 G)

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

April 17, 2009

PREPARED DIRECT TESTIMONY OF
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I. INTRODUCTION

In Decision ("D.") 07-08-029, the Commission ordered different intervals for monitoring gas quality for gas delivered by California producers directly into Southern California Gas Company's ("SoCalGas'") distribution systems versus gas delivered into SoCalGas' transmission pipelines. The Commission acknowledged that the flame lifting and flame out problem is a safety problem for the SoCalGas system and to end use customers who receive non-compliant gas.[1] The Commission stated, "[t]o prevent this problem from occurring, stricter controls over the quality of the gas stream entering the SoCalGas distribution system is required."[2] In SoCalGas' Petition for Modification of D.07-08-029, SoCalGas argued that the same harm could occur if non-compliant gas enters a transmission line that delivers into a distribution line, which then serves an end use customer, without dilution via pipeline blending.[3] In D.09-01-009, the Commission stated, "We remain concerned, however, that if the situation described by SoCalGas does materialize, whether end use customers and SoCalGas' system will experience safety-related problems."[4] To that end, the Commission has allowed for additional evidence to be taken on:

(1) whether California-produced gas can enter into SoCalGas' transmission line and be delivered into the distribution line without the opportunity for blending or mixing with other gas supplies, and

(2) for non-hydrogen sulfide constituents, what kind of monitoring interval should apply if the California-produced gas can enter into SoCalGas' transmission line and be delivered into the distribution line without any opportunity for blending or mixing with other gas supplies.[5]

[1] *See* D.07-08-029 (*in mimeo*), p. 35.
[2] Id.
[3] *See* D.09-01-009 (*in mimeo*), p. 8-9.
[4] Id. at 11.
[5] Id. at 2, 12, and 15 (Ordering Paragraph 2).

The purpose of this testimony is to provide evidence that gas supply that is delivered into transmission lines by California producers can and has, in fact, reached distribution delivery points unblended and undiluted, which justifies maintaining the stricter monitoring and enforcement protocol that is currently in place.[6]

Witness David Bisi's testimony provides schematics depicting the flow of gas through a transmission line to various distribution points as well as to end use customers that receive gas from that transmission line for two currently-operational gas delivery systems. Witness May Lew's testimony provides gas composition data for gas that has entered those two gas delivery systems. This evidence will show that California producer gas entering into SoCalGas' transmission lines can and has reached distribution end points (and as a result, end use customers) unblended and undiluted. In addition, witness Lew addresses the appropriate monitoring interval that the Commission should adopt for California producer gas.

II. GAS DELIVERY SYSTEMS SERVING SOCALGAS CUSTOMERS [WITNESS: D. BISI]

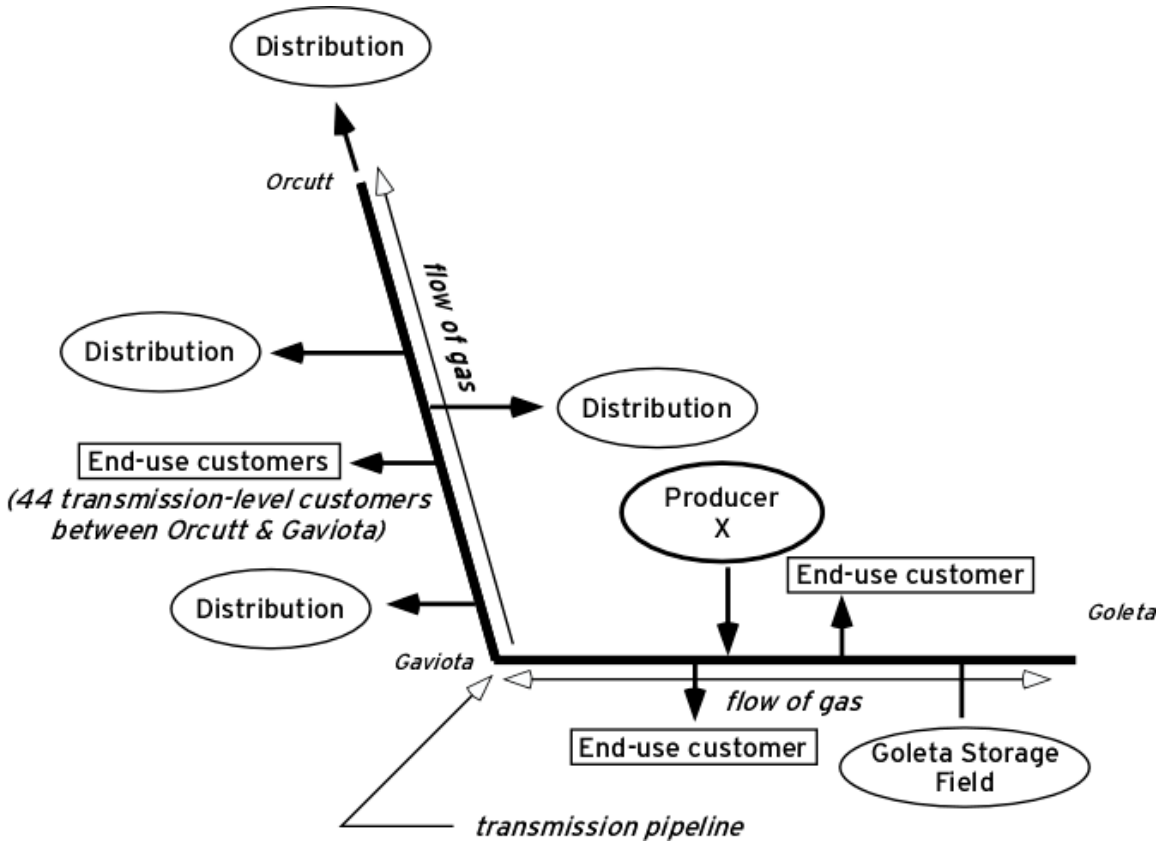
A. North Coastal Transmission System

Figure 1 is a representation of SoCalGas' North Coastal transmission system. This segment shows the transmission system pipelines from Orcutt to Goleta. Under a low demand condition, our hydraulic model of the system shows that supply delivered into the transmission system by an actual California producer (Producer X) at their facility is redelivered unblended to all end use customer and distribution taps between Orcutt and Goleta, and to the distribution system at the terminus of the transmission system in Orcutt. This impacts approximately 152,500 end use customers on the transmission and distribution system. Witness Lew will show that recorded gas quality data from the transmission system confirms these hydraulic models' results, and not just under low demand conditions.

[6] *See* Id. at 14 (Conclusion of Law 3).

FIGURE 1

North Coastal Transmission System



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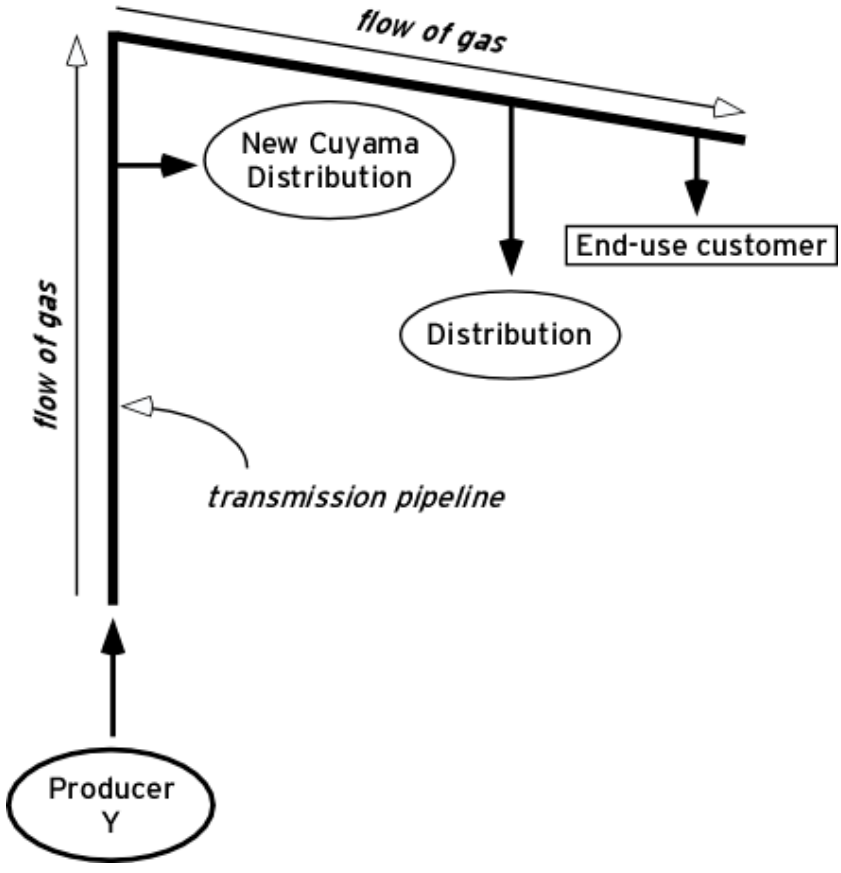
B. New Cuyama Transmission System

Figure 2 is a representation of SoCalGas' New Cuyama transmission system serving the community of New Cuyama. Another actual California producer (Producer Y) delivers supply directly into the transmission system, which in turn supplies the distribution system serving New Cuyama. Under a low demand condition, the supplies delivered by Producer Y are delivered directly to end use customers in New Cuyama without the benefit of blending with other pipeline supplies. This impacts approximately 250 end use customers on the transmission and distribution systems. Recorded gas quality data provided by witness Lew will confirm that this situation occurs under demand conditions not limited to low demand conditions.

FIGURE 2

New Cuyama Transmission System



III. GAS COMPOSITION READINGS FOR THE REPRESENTED TRANSMISSION SYSTEMS SHOW PRODUCER GAS IS REDELIVERED TO CUSTOMER UNDILUTED [WITNESS: M. LEW]

The purpose of my testimony is (1) to show that California producer gas received into a transmission system can and has been redelivered to distribution systems and end use customers without being blended with other pipeline supplies; and (2) to describe the proper monitoring protocol for non-hydrogen sulfide constituents which should apply to California produced gas entering SoCalGas transmission lines given the potential and actual redelivering into a distribution lines without the guaranteed opportunity for blending or mixing with other gas supplies. The Commission adopted stricter controls over the quality of California producer gas stream entering SoCalGas' distribution system, for non-hydrogen sulfide constituents, to prevent the dangers of flame lifting and flame out for the SoCalGas system and to end use customers.[7] That same danger can exist where California producer gas which is non-compliant enters SoCalGas' transmission system and can reach distribution lines and end use customers without pipeline blending dilution.

A. California Producer Gas Delivered into SoCalGas' Transmission Lines Can and Is Redelivered to Customers Undiluted

1. Data in general

Composition of gas from a transmission producer was compared to that of supply samples taken from downstream test locations, either at distribution stations, end use customer sites, or billing/sampling locations known to represent distribution system supplies sources. Our readings showed that the gas compositions at the transmission producer locations and at the downstream sample points were basically identical. These readings demonstrate there was no dilution via pipeline blending of the producer supply from the point where it entered the transmission system to the point where it was redelivered to end use customers directly and to end use customers via distribution systems.

[7] *See* D.07-08-029, p. 35.

Test locations (which are represented in Figures 1 and 2) were evaluated via monthly comparison data. Monthly composite samples were used at producer and distribution/test locations.

2. North Coastal Transmission System

a. *Goleta distribution point*

Monthly data from the same test system shows that gas entering SoCalGas' transmission system reaches distribution points unblended. Table 1 lists the monthly composite values from Producer X and a distribution sample point in Goleta for 2008. High heating value and ethane content comparison to show that gas delivered from SoCalGas' transmission system without dilution into distribution systems.

TABLE 1

Comparison of Monthly Composite Values of Transmission Producer X and Monthly Composites at Distribution Sample Location (Goleta)

	High Heating Value (btu/cf)			**Ethane** (mol %)		
Month	Prod. X	Sample	Δ	Prod. X	Sample	Δ
Jan-08	1101	1100	*1*	5.53	5.48	*0.05*
Feb-08	1111	1110	*1*	5.86	5.87	*0.01*
Mar-08	1114	1115	*-1*	5.82	5.86	*0.04*
Apr-08	1110	1109	*1*	5.77	5.82	*0.05*
May-08	1101	1103	*-2*	5.42	5.54	*-0.01*
Jun-08	1112	1103	*9*	5.93	5.69	*-0.04*
Jul-08	1102	1102	*0*	5.43	5.49	*-0.05*
Aug-08	1106	1107	*-1*	5.71	5.77	*-0.12*
Sep-08	1109	1110	*-1*	5.66	5.68	*0.24*
Oct-08	1089	1094	*-5*	4.76	4.77	*-0.06*
Nov-08	1121	1123	*-2*	5.79	5.84	*-0.06*
Dec-08	1117	1116	*1*	5.77	5.78	*-0.02*
Average			***0.1***			***-0.01***

Based on the data in Table 1, the high heating value and ethane concentration difference (represented by Δ) between Producer X and the Goleta sample point averaged 0.1 btu/cf, and 0.01% ethane. This data shows that the gas from Producer X reached customers south of the delivery point with very little blending/dilution from other supplies. This correlation is depicted graphically in Figure 3 (high heating value) and Figure 4 (ethane).

FIGURE 3

Comparison of Monthly Composite High Heating Value of Transmission Producer X to Distribution Sample Location (Goleta)

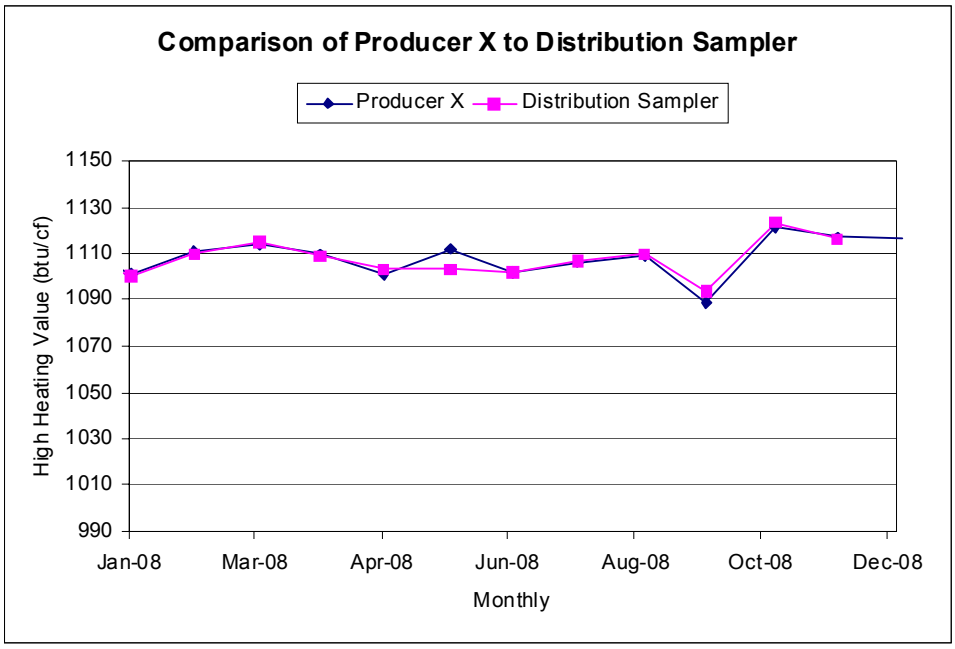
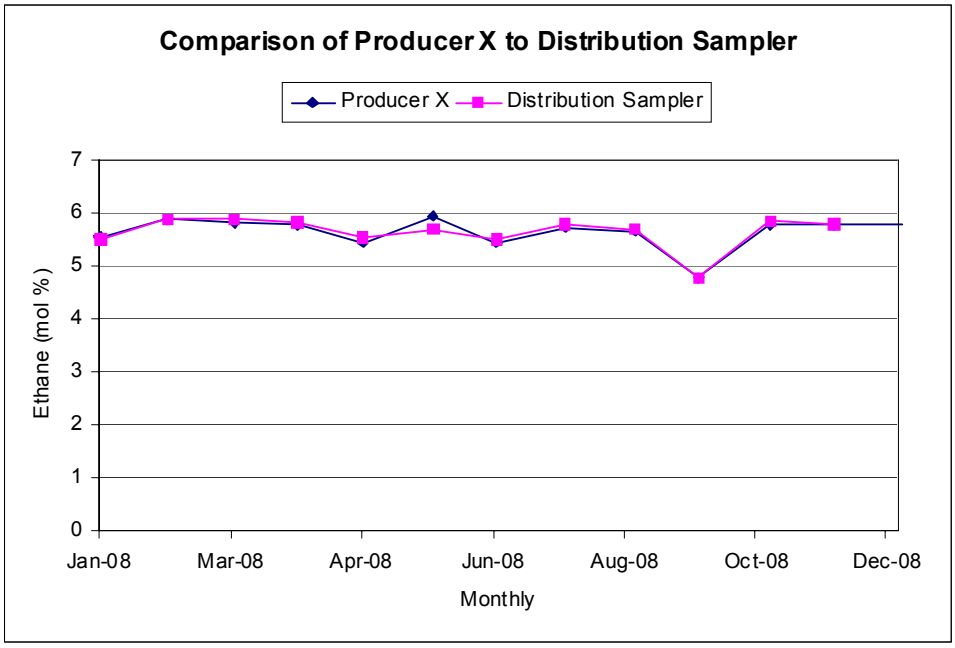


FIGURE 4

Comparison of Monthly Composite Ethane Concentration of Transmission Producer X to Distribution Sample Location (Goleta)



b. *Orcutt sample point*

Table 2 lists the monthly composite values from Producer X and a sample point in Orcutt for 2008. High heating value and ethane content comparison to show that gas delivered from SoCalGas' transmission system can be redelivered without dilution into distribution systems given the distribution and end-use customer points between the two measured locations.

TABLE 2

Comparison of Monthly Composite at Transmission Producer X and Monthly Averages at Sample Location (Orcutt)

	High Heating Value (btu/cf)			**Ethane** (mol %)		
Month	Prod. X	Sample	Δ	Prod. X	Sample	Δ
Jan-08	1101	1101	*0*	5.53	5.53	*0.00*
Feb-08	1111	1110	*1*	5.86	5.84	*0.02*
Mar-08	1114	1114	*0*	5.82	5.83	*-0.01*
Apr-08	1110	1110	*0*	5.77	5.72	*0.05*
May-08	1101	1101	*0*	5.42	5.47	*-0.05*
Jun-08	1112	1108	*4*	5.93	5.41	*0.52*
Jul-08	1102	1101	*1*	5.43	5.43	*0.00*
Aug-08	1106	1107	*-1*	5.71	5.74	*-0.03*
Sep-08	1109	1109	*0*	5.66	5.68	*-0.02*
Oct-08	1089	1088	*1*	4.76	4.60	*0.16*
Nov-08	1121	1122	*-1*	5.79	5.80	*-0.01*
Dec-08	1117	1114	*3*	5.77	5.69	*0.08*
Average	**1107.8**	**1107.2**	***0.6***	**5.62**	**5.56**	***0.06***

Based on the data in Table 2, the high heating value and ethane concentration difference (represented by Δ) between Producer X and the Orcutt sample point averaged 0.6 btu/cf, and 0.06% ethane. This data shows that the gas from Producer X reached customers north of the delivery point with very little blending dilution from other supplies. This correlation is depicted graphically in Figure 5 (high heating value) and Figure 6 (ethane).

FIGURE 5

Comparison of Monthly Composite High Heating Value of Transmission Producer X to Sample Location (Orcutt)

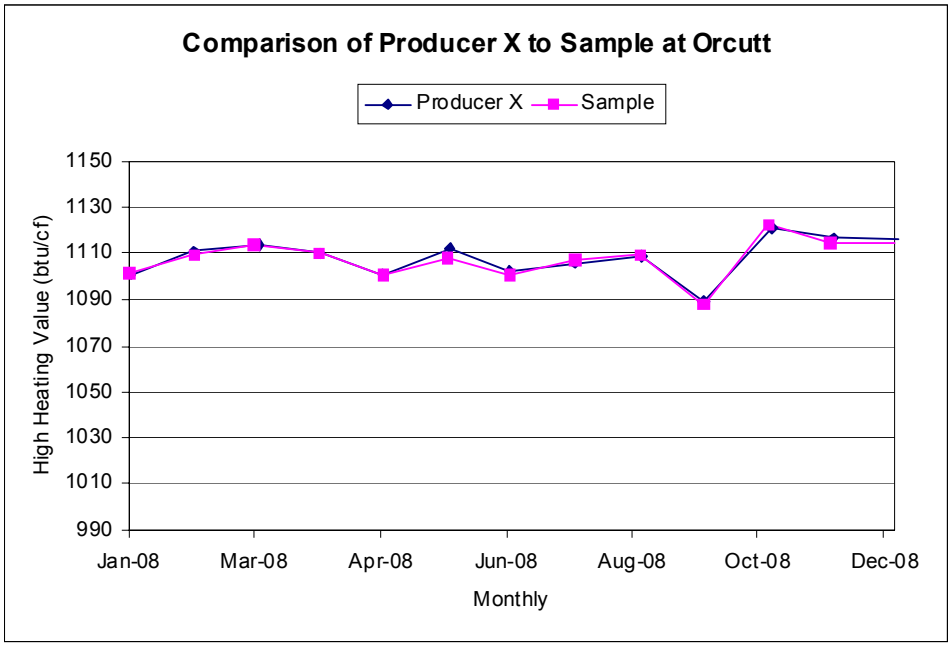
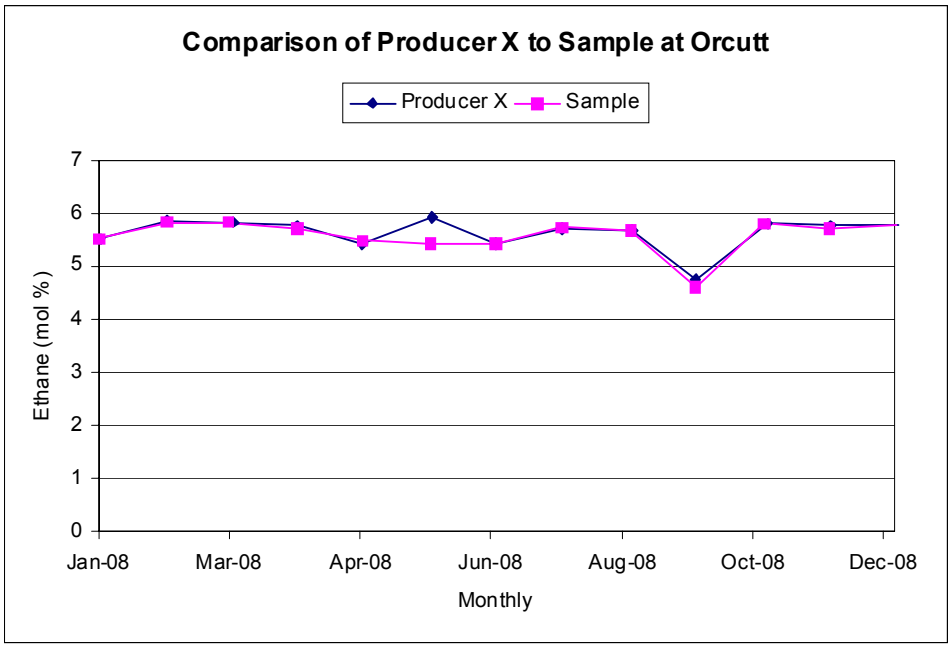


FIGURE 6

Comparison of Monthly Composite Ethane Concentration of Transmission Producer X to Sample Location (Orcutt)



3. New Cuyama Transmission System

Monthly comparison data that was compiled for another gas delivery system similarly shows a strong correlation in high heating value and ethane concentration between California producer gas delivered into a transmission system and gas that was tested at a New Cuyama distribution point. The distribution test site at New Cuyama has its composite sample bottle set and removed at mid-month intervals for measurement/billing purposes. The producer sample bottles are set and removed at the beginning of each month.

Table 3 shows the monthly composite value comparisons for high heating value and ethane (without the January data point averaged in).[8]

TABLE 3

Comparison of Monthly Composite Values of Transmission Producer Y and Monthly Composites at Distribution Sample Location (New Cuyama)

	High Heating Value (btu/cf)			**Ethane** (mol %)		
Month	Prod. Y	Sample	Δ	Prod. Y	Sample	Δ
Jan-08	1126.8	1093.6				
Feb-08	1126.1	1128.5	*-2.4*	8.73	8.90	*-0.17*
Mar-08	1132.4	1131.4	*1.0*	9.15	9.09	*0.06*
Apr-08	1132.8	1134.0	*-1.2*	9.10	9.14	*-0.04*
May-08	1133.6	1133.7	*-0.1*	9.01	8.97	*0.04*
Jun-08	1128.7	1129.0	*-0.3*	8.68	8.65	*0.03*
Jul-08	1129.3	1130.7	*-1.4*	8.53	8.49	*0.04*
Aug-08	1134.9	1127.4	*7.5*	8.65	8.52	*0.13*
Sep-08	1123.4	1124.8	*-1.4*	8.41	8.38	*0.03*
Oct-08	1128.3	1129.8	*-1.5*	8.39	8.40	*-0.01*
Nov-08	1132.4	1134.1	*-1.7*	8.80	8.88	*-0.08*
Dec-08	1134.1	1136.9	*-2.8*	8.99	9.09	*-0.10*
Average			***-0.4***			***0.01***

As Table 3 shows, the 2008 annual average high heating value and ethane concentration differences (represented by Δ) for the tested distribution point were respectively within 0.4 btu/cf and 0.01% of the average for Producer Y, demonstrating

[8] In January 2008, Producer Y produced lower than average daily volumes (and sometimes zero daily volumes) (shown by the brown line in Figure 7). When the producer is not delivering, the gas to New Cuyama comes from Maricopa which has a lower heating value of 1044 btu/cf (2008 average).

that the California producer gas entering SoCalGas' transmission system reached the distribution tap with little to no blending or dilution. The strong correlation between the test transmission and distribution system gas compositions is further depicted graphically in Figure 7 (high heating value) and Figure 8 (ethane) below.

FIGURE 7

Comparison of Monthly Composite High Heating Value of Transmission Producer Y to Distribution Sample Location (New Cuyama) with an Overlay of Total Monthly Volume from Producer Y

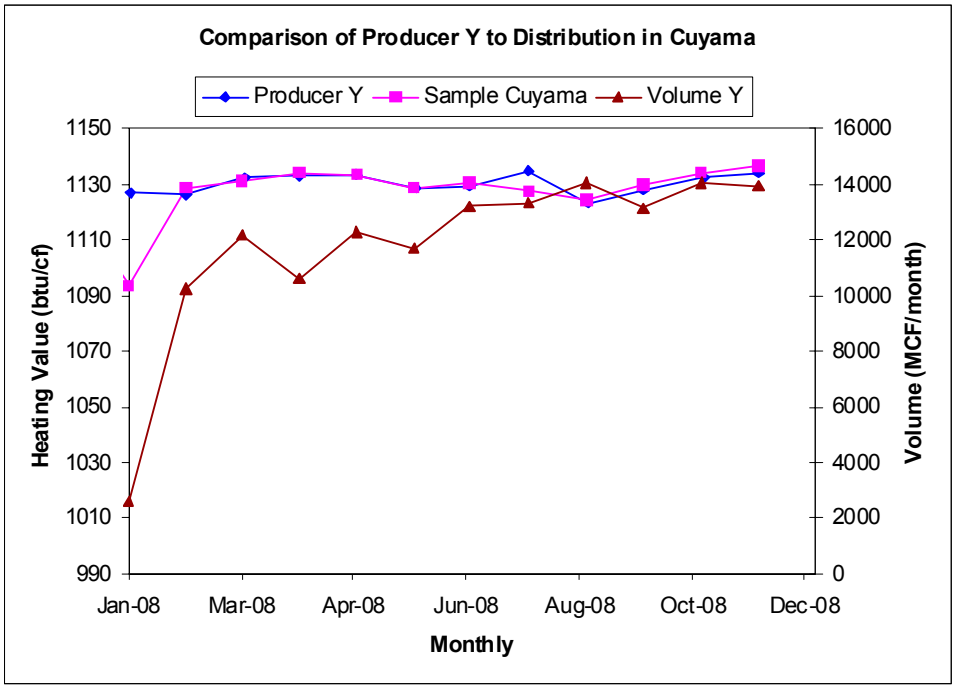


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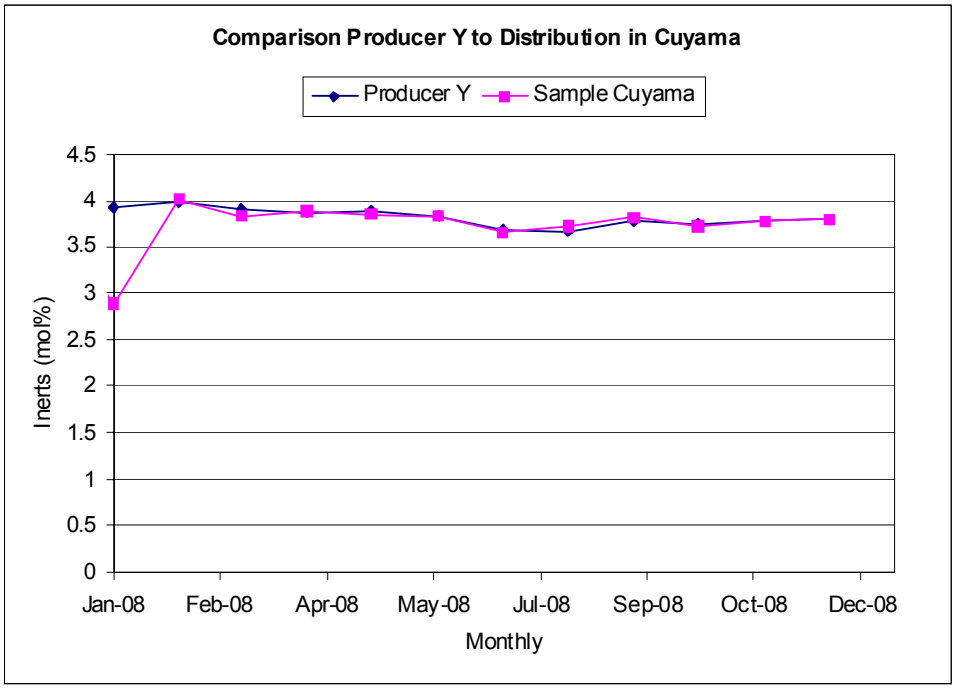
FIGURE 8

Comparison of Monthly Composite Ethane Concentration of Transmission Producer Y to Distribution Sample Location (New Cuyama)



B. The Current Gas Quality Monitoring and Enforcement Protocol Should be Continued

Based on evidence showing that California producers' gas transmission deliveries can and has, in fact, reached distribution delivery points undiluted by pipeline blending, SoCalGas maintains that the safest and most appropriate gas quality monitoring and enforcement protocol for California producers is the one that is *already in operation on a system-wide basis today*. The same safety concerns that led the Commission to adopt stricter monitoring standards for California producer gas delivered directly into distribution systems should also be the basis for continuing the existing SoCalGas monitoring and enforcement protocol for transmission receipts.

With the use of GCs, SoCalGas should be allowed, for customers' benefit and the continued long term customer acceptance of gas safety and reliability, to continue to effectively monitor and control the gas delivered directly into transmission systems to

deny access after the second consecutive GC limit alarm.[9] The GC limit alarm occurs when the high heating value, carbon dioxide ("CO2"), oxygen ("O2"), or total inerts (CO2, O2, and nitrogen) levels fall outside the contractual limits. Depending upon the GC analysis time, the second consecutive alarm takes approximately 6 to 24 minutes after receipt of gas not meeting contractual limits.

Furthermore, due to the deleterious system impacts of liquids (including water and hydrocarbon dew point), and trace contaminants, these constituents monitoring and enforcement protocols should also remain unchanged (i.e., immediate denial of access upon detected entry of non-compliant gas supply).

IV. CONCLUSION

SoCalGas' testimony factually demonstrates that California producer gas supplies can and have reached distribution points and end use customers undiluted via pipeline blending. Thus, the flame lifting and flame out problem is equally possible from gas supply delivered by California producers directly into SoCalGas' transmission lines. The evidence presented here provides the factual basis for the Commission to maintain a consistent, strict monitoring and enforcement protocol for both transmission and distribution lines.

This concludes SoCalGas' direct testimony.

[9] In addition, SoCalGas should be allowed to deny access after one GC alarm if the two consecutive alarm protocol is unsuccessful in preventing non-compliant gas receipts. This has been required to prevent repeat customer flame out stemming from at least one California producer's high inert deliveries despite the existence of GC monitoring and controlling.

STATEMENT OF QUALIFICATIONS – DAVID M. BISI

My name is David M. Bisi. I am employed by Southern California Gas Company (SoCalGas) as the Manager of the Gas Transmission Planning Department. My business address is 555 West Fifth Street, Los Angeles, California 90013-1011.

I received a Bachelor of Science degree in Mechanical Engineering from the University of California at Irvine in 1989. I have been employed by SoCalGas since 1989, and have held positions within the Engineering, Customer Services, and Gas Operations departments.

I have held my current position since April, 2002. My current responsibilities include the management of the Gas Transmission Planning Department responsible for the design and planning of SoCalGas' and San Diego Gas & Electric Company's ("SDG&E's") gas transmission and storage systems.

I have previously testified before the Commission.

STATEMENT OF QUALIFICATIONS – MAY LEW

My name is May Lew. I am employed by SoCalGas as a Principal Engineer at the Engineering Analysis Center. My business address is 8108 S. Rosemead Blvd., Pico Rivera, California 90660-5100.

My principal responsibilities include specifying gas quality standards and test methods. I possess a Bachelor of Science degree in Chemical Engineering from the University of California, San Diego. I have held a variety of engineering positions in SoCalGas since 1989.