

LEAK INVESTIGATION

Joey Lamond~City of Burlingame
Kent Pribil~ Kansas Corporation
Commission

Presenters

- ▣ Joey Lamond
 - City Superintendent with the City of Burlingame since March 2010
 - Worked in the natural gas industry for 20 years with various companies



Presenters

- Kent Pribil
 - Pipeline Industry 30 years
 - Pipeline Safety Inspector 10 years



Usage Discrepancy

KMGA Notification

Normal Usage: 1 MCF per hour

Power Plant Usage: around 8 MCF per hour

Abnormal Usage: 3 MCF per hour

Southern Star

Requested a meter check on readings and gas flow

Run 4	Min.	Temp.	Gravity	In. DP	Pressure	Ext.	CO2	N2	BTU	Mcf	Dth	Type
07/30/2012 09:00:00AM	60	82.5	0.583	0.000	167.6	100.600	0.41	2.192	1011.30	1.12	1.13	Computed
07/30/2012 10:00:00AM	60	83.9	0.583	0.000	167.7	98.600	0.41	2.192	1011.30	1.09	1.10	Computed
07/30/2012 11:00:00AM	60	87.1	0.583	0.000	167.6	86.000	0.41	2.192	1011.30	0.95	0.96	Computed
07/30/2012 12:00:00PM	60	88.3	0.583	0.000	167.7	93.400	0.41	2.192	1011.30	1.03	1.04	Computed
07/30/2012 01:00:00PM	60	90.1	0.583	0.000	167.7	82.000	0.41	2.192	1011.30	0.90	0.91	Computed
07/30/2012 02:00:00PM	60	92.9	0.583	0.000	167.6	72.800	0.41	2.192	1011.30	0.79	0.80	Computed
07/30/2012 03:00:00PM	60	93.5	0.583	0.000	167.5	77.600	0.41	2.192	1011.30	0.84	0.85	Computed
07/30/2012 04:00:00PM	60	89.3	0.583	0.000	166.3	528.000	0.41	2.192	1011.30	5.74	5.81	Computed
07/30/2012 05:00:00PM	60	83.6	0.583	0.000	166.3	753.000	0.41	2.192	1011.30	8.28	8.37	Computed
07/30/2012 06:00:00PM	60	82	0.583	0.000	166.2	773.800	0.41	2.192	1011.30	8.53	8.63	Computed
07/30/2012 07:00:00PM	60	80.7	0.583	0.000	166.4	761.600	0.41	2.192	1011.30	8.43	8.52	Computed
07/30/2012 08:00:00PM	60	79.3	0.583	0.000	166.6	750.400	0.41	2.192	1011.30	8.34	8.43	Computed
07/30/2012 09:00:00PM	60	79.6	0.583	0.000	168.0	306.600	0.41	2.192	1011.30	3.43	3.47	Computed

CSI068 Measurement Volume Ho

10/14/2012 8:33:31

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07/30/2012 10:00:00PM	60	80.9	0.583	0.000	168.5	93.800	0.41	2.192	1011.30	1.05	1.06	Computed
07/30/2012 11:00:00PM	60	80.4	0.583	0.000	168.6	77.200	0.41	2.192	1011.30	0.87	0.88	Computed
07/31/2012 12:00:00AM	60	80	0.583	0.000	168.7	73.400	0.41	2.192	1011.30	0.83	0.83	Computed
07/31/2012 01:00:00AM	60	79.5	0.583	0.000	168.8	66.200	0.41	2.192	1011.30	0.75	0.75	Computed
07/31/2012 02:00:00AM	60	78.6	0.583	0.000	168.8	58.000	0.41	2.192	1011.30	0.65	0.66	Computed
07/31/2012 03:00:00AM	60	77.9	0.583	0.000	168.5	60.000	0.41	2.192	1011.30	0.68	0.68	Computed
07/31/2012 04:00:00AM	60	77.6	0.583	0.000	168.6	64.000	0.41	2.192	1011.30	0.72	0.73	Computed
07/31/2012 05:00:00AM	60	77.3	0.583	0.000	168.0	80.000	0.41	2.192	1011.30	0.90	0.91	Computed
07/31/2012 06:00:00AM	60	76.7	0.583	0.000	167.6	101.000	0.41	2.192	1011.30	1.14	1.15	Computed
07/31/2012 07:00:00AM	60	77	0.583	0.000	167.7	99.200	0.41	2.192	1011.30	1.12	1.13	Computed
07/31/2012 08:00:00AM	60	78.6	0.583	0.000	167.8	80.600	0.41	2.192	1011.30	0.90	0.91	Computed

9205 Burlingame T.b. Run 4 07/30/2012

59.05

59.72 Total

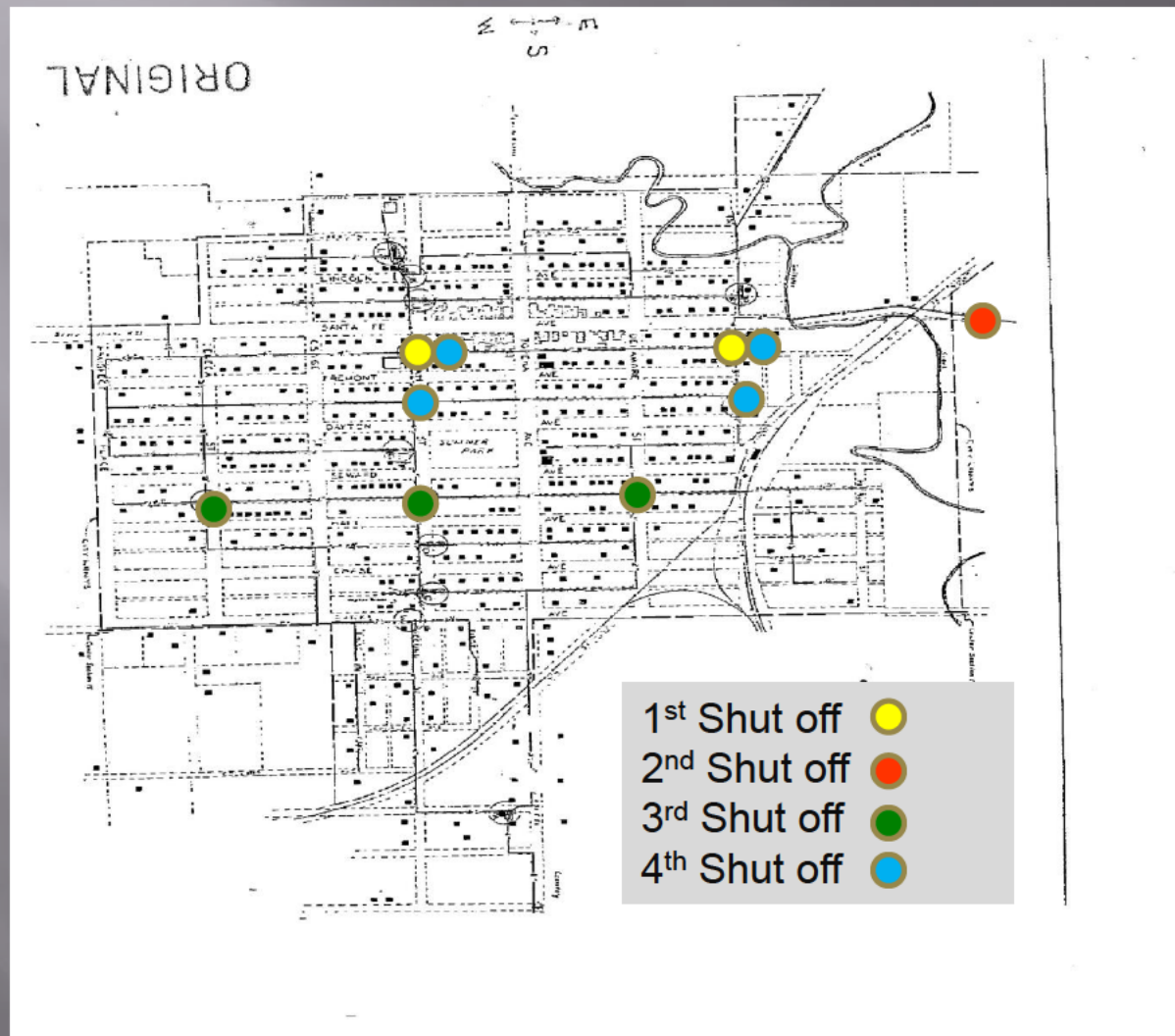
Run 4	Min.	Temp.	Gravity	In. DP	Pressure	Ext.	CO2	N2	BTU	Mcf	Dth	Type
07/31/2012 09:00:00AM	60	81.1	0.585	0.000	167.4	95.200	0.47	2.323	1011.50	1.06	1.07	Computed
07/31/2012 10:00:00AM	60	84.3	0.585	0.000	167.8	76.400	0.47	2.323	1011.50	0.85	0.86	Computed
07/31/2012 11:00:00AM	60	88.9	0.585	0.000	167.1	84.400	0.47	2.323	1011.50	0.92	0.93	Computed
07/31/2012 12:00:00PM	60	89.4	0.585	0.000	167.4	97.000	0.47	2.323	1011.50	1.06	1.07	Computed
07/31/2012 01:00:00PM	60	91.3	0.585	0.000	167.5	89.800	0.47	2.323	1011.50	0.98	0.99	Computed
07/31/2012 02:00:00PM	60	90.8	0.585	0.000	166.7	332.000	0.47	2.323	1011.50	3.61	3.65	Computed
07/31/2012 03:00:00PM	60	84.5	0.585	0.000	166.1	754.200	0.47	2.323	1011.50	8.27	8.36	Computed
07/31/2012 04:00:00PM	60	83.6	0.585	0.000	166.1	755.800	0.47	2.323	1011.50	8.30	8.40	Computed
07/31/2012 05:00:00PM	60	83.1	0.585	0.000	165.9	765.000	0.47	2.323	1011.50	8.40	8.50	Computed
07/31/2012 06:00:00PM	60	82.3	0.585	0.000	166.1	805.400	0.47	2.323	1011.50	8.87	8.97	Computed
07/31/2012 07:00:00PM	60	80.6	0.585	0.000	165.7	997.800	0.47	2.323	1011.50	11.00	11.12	Computed
07/31/2012 08:00:00PM	60	79.1	0.585	0.000	166.6	796.600	0.47	2.323	1011.50	8.86	8.96	Computed
07/31/2012 09:00:00PM	60	79.5	0.585	0.000	167.5	341.600	0.47	2.323	1011.50	3.82	3.86	Computed
07/31/2012 10:00:00PM	60	78.9	0.585	0.000	167.9	326.000	0.47	2.323	1011.50	3.65	3.70	Computed
07/31/2012 11:00:00PM	60	78.3	0.585	0.000	167.8	312.400	0.47	2.323	1011.50	3.50	3.54	Computed
08/01/2012 12:00:00AM	60	77.7	0.585	0.000	168.0	300.800	0.47	2.323	1011.50	3.38	3.42	Computed
08/01/2012 01:00:00AM	60	77.4	0.585	0.000	167.8	309.200	0.47	2.323	1011.50	3.47	3.51	Computed
08/01/2012 02:00:00AM	60	76.9	0.585	0.000	167.9	298.000	0.47	2.323	1011.50	3.35	3.39	Computed
08/01/2012 03:00:00AM	60	76.5	0.585	0.000	168.0	292.600	0.47	2.323	1011.50	3.30	3.34	Computed
08/01/2012 04:00:00AM	60	76.3	0.585	0.000	167.8	303.800	0.47	2.323	1011.50	3.42	3.46	Computed
08/01/2012 05:00:00AM	60	76.1	0.585	0.000	167.3	326.000	0.47	2.323	1011.50	3.66	3.70	Computed
08/01/2012 06:00:00AM	60	76	0.585	0.000	167.2	342.000	0.47	2.323	1011.50	3.84	3.88	Computed
08/01/2012 07:00:00AM	60	76.3	0.585	0.000	167.1	335.000	0.47	2.323	1011.50	3.76	3.80	Computed
08/01/2012 08:00:00AM	60	77.8	0.585	0.000	167.2	333.000	0.47	2.323	1011.50	3.72	3.77	Computed

Run 4	Min.	Temp.	Gravity	In. DP	Pressure	Ext.	CO2	N2	BTU	Mcf	Dth	Type
08/01/2012 09:00:00AM	60	78.4	0.587	0.000	167.1	339.200	0.42	2.612	1011.00	3.79	3.83	Computed
08/01/2012 10:00:00AM	60	78.6	0.587	0.000	167.0	327.800	0.42	2.612	1011.00	3.66	3.70	Computed
08/01/2012 11:00:00AM	60	78.1	0.587	0.000	167.1	325.600	0.42	2.612	1011.00	3.64	3.68	Computed
08/01/2012 12:00:00PM	60	78.5	0.587	0.000	167.2	322.200	0.42	2.612	1011.00	3.60	3.64	Computed
08/01/2012 01:00:00PM	60	80.7	0.587	0.000	166.7	327.200	0.42	2.612	1011.00	3.63	3.67	Computed
08/01/2012 02:00:00PM	60	83.5	0.587	0.000	166.8	328.600	0.42	2.612	1011.00	3.62	3.66	Computed
08/01/2012 03:00:00PM	60	86.5	0.587	0.000	166.5	336.000	0.42	2.612	1011.00	3.68	3.72	Computed
08/01/2012 04:00:00PM	60	86.7	0.587	0.000	166.2	511.600	0.42	2.612	1011.00	5.59	5.65	Computed
08/01/2012 05:00:00PM	60	81.7	0.587	0.000	165.4	981.000	0.42	2.612	1011.00	10.77	10.88	Computed
08/01/2012 06:00:00PM	60	80.5	0.587	0.000	165.4	1011.600	0.42	2.612	1011.00	11.13	11.25	Computed
08/01/2012 07:00:00PM	60	79.5	0.587	0.000	165.6	1001.800	0.42	2.612	1011.00	11.05	11.18	Computed
08/01/2012 08:00:00PM	60	78.2	0.587	0.000	166.4	749.800	0.42	2.612	1011.00	8.34	8.43	Computed
08/01/2012 09:00:00PM	60	78.9	0.587	0.000	167.2	348.400	0.42	2.612	1011.00	3.89	3.93	Computed
08/01/2012 10:00:00PM	60	78.9	0.587	0.000	167.4	325.000	0.42	2.612	1011.00	3.63	3.67	Computed
08/01/2012 11:00:00PM	60	78.8	0.587	0.000	167.6	311.000	0.42	2.612	1011.00	3.48	3.52	Computed
08/02/2012 12:00:00AM	60	78.8	0.587	0.000	167.5	307.800	0.42	2.612	1011.00	3.44	3.48	Computed
08/02/2012 01:00:00AM	60	78.3	0.587	0.000	167.7	296.400	0.42	2.612	1011.00	3.32	3.36	Computed
08/02/2012 02:00:00AM	60	77.9	0.587	0.000	167.7	294.000	0.42	2.612	1011.00	3.30	3.33	Computed
08/02/2012 03:00:00AM	60	77.6	0.587	0.000	167.5	297.600	0.42	2.612	1011.00	3.34	3.37	Computed
08/02/2012 04:00:00AM	60	77.7	0.587	0.000	167.7	294.800	0.42	2.612	1011.00	3.31	3.34	Computed
08/02/2012 05:00:00AM	60	77.7	0.587	0.000	167.3	324.600	0.42	2.612	1011.00	3.63	3.67	Computed
08/02/2012 06:00:00AM	60	76.4	0.587	0.000	167.2	337.600	0.42	2.612	1011.00	3.79	3.83	Computed
08/02/2012 07:00:00AM	60	76.3	0.587	0.000	167.2	338.800	0.42	2.612	1011.00	3.80	3.84	Computed
08/02/2012 08:00:00AM	60	76.6	0.587	0.000	167.5	330.400	0.42	2.612	1011.00	3.71	3.75	Computed

Leak Survey

- ▣ Started at Southern Star tie-in
- ▣ Surveyed seven miles, no findings
- ▣ Shut-off valves on transmission line
- ▣ Gas could not be heard flowing at border station
- ▣ Shut-off valve at town border station
- ▣ Pressure dropped on distribution side/maintained pressure on transmission side

Isolate System



Second Leak Survey





- ▣ Dug up abandoned service in the alley
- ▣ CGI in the banks of the ditch line
- ▣ 90% gas in all directions
- ▣ Proceeded east along sewer ditch
- ▣ Continued to CGI-high readings
- ▣ Dug 125'
- ▣ Uncovered blowing gas
- ▣ 2" main cracked

Results

- ▣ Contractor had installed sewer line three weeks prior
- ▣ Backhoe tooth mark found on the main-third party damage
- ▣ Repaired with a split sleeve
- ▣ Gas traveling along sewer ditch line
- ▣ Dry conditions all summer

February 29, 2012

HARVEYVILLE RESPONSE



























