

**PACIFIC GAS AND ELECTRIC COMPANY  
San Bruno Explosion and Fire Oil  
Investigation 12-01-007  
Data Request**

Recipient:	Consumer Protection and Safety Division	
PG&E Data Request No.:	PGE-CPSD_005	
PG&E File Name:	SanBrunoExplosion-FireOil_DR_PGE_CPSD005!	
Request Date:	March 30, 2012	
Due Date:	April 13, 2012	

- Q 1: Please identify and describe all SCADA systems, other than PG&E's, that the contributor(s) to the "Milpitas Terminal/SCADA" section (Section VII.) of the CPSD Report has/have reviewed, evaluated, or assessed. Please also identify and describe all SCADA systems which the contributor(s) has/have been involved in designing, constructing and/or commissioning.
- Q 2: Please identify and describe all GIS systems, other than PG&E's, that the contributor(s) to the "Milpitas Terminal/SCADA" section (Section VII.) of the CPSD Report has/have reviewed, evaluated, or assessed. Please also identify and describe all GIS systems which the contributor(s) has/have been involved in designing, constructing and/or commissioning.
- Q 3: Referring to the statements made on page 71, third full paragraph, concerning the integration of SCADA and GIS into a single system with a common database, please describe in detail the basis for these statements and provide all documents that support them.
- Q 4: Please identify all gas transmission and distribution utilities that CPSD is aware of that have integrated a SCADA system with a GIS system. Please describe the state of the systems, whether they are fully integrated, the scope of the systems, and when they were first integrated.
- Q 5: Please identify all gas transmission and distribution utilities that CPSD is aware of that have "the more advanced" or "highly automated" SCADA systems that are described on pages 70-71. Please describe in detail the functionality and approximate costs of those systems.
- Q 6: Referring to page 77, please identify and provide copies of all documents and information on which the diagram in Figure VII-3 is based. With respect to the 9 mini-UPS's shown in Figure VII-3, please describe in detail the basis for the connectivity depicted in Figure VII-3, and identify and provide copies of all documents that support CPSD's explanation.
- Q 7: Referring to page 81, please state whether a loss of electrical power at Milpitas Terminal would impact the monitor valves. Please also state whether the CPSD agrees that the monitor valves at Milpitas Terminal functioned as

intended to limit pressure on September 9, 2010. If CPSD's answer is other than an unqualified yes, please explain in detail and provide all documents that support CPSD's response.

- Q 8: Referring to page 81, please identify and provide copies of all documents and information, other than the transcripts cited in footnotes 123 and 125, which support the statement, "The pressure controllers employed by PG&E have a history of losing their configuration when power to them is cycled on and off."
- Q 9: Referring to page 87, please explain the basis for, and identify and provide copies of all documents that support, the statement, "Shortly after [5:23 pm], the Gas Technician noticed that three controllers had failed...."
- Q 10: Referring to page 87, please identify and provide copies of all documents and information that support the statement, "Such voltage fluctuations are normal for the power supplies when they are overloaded, usually because of a short."
- Q 11: Referring to footnote 143, please identify and provide copies of all documents and information that support the statement, "This is the type of short that occurred on September 9, 2010."
- Q 12: Referring to page 88, please identify and provide copies of all documents and information that support the conclusion, "The shorted connection was at a terminal block near the PS-A and PS-B where wires were possibly jostled during connection of the mini-UPS."
- Q 13: Referring to pages 89-90, please state whether the pressure readings at Milpitas Terminal on September 9, 2010, described as "458 psig before the mixer", "almost 500 psig downstream", and "497 psig before the mixer", were upstream of the header where Line 132, Line 101 and Line 109 originate.
- Q 14: Referring to the statement on page 92, "On September 9, 2010, the Contract Engineer on multiple occasions measured a solid 24 volts on those [power] supplies.", please state whether the CPSD contends that the multiple solid 24 volt measurements of the power supplies by the Contract Engineer occurred after 5:23 pm. If yes, please identify and provide copies of all documents and information that support CPSD's conclusion.
- Q 15: Referring to the statement on page 94, , "The modifications were not always executed properly which resulted in poorly made electrical connections, improperly labeled circuits, missing wire identification labels, aging and obsolete equipment at the end of useful life and inaccurate documentation." , please state in detail the basis for each underlined phrase in this sentence. Please provide copies of all documents and source of information supporting each of these phrases.
- Q 16: Referring to page 95, please state in detail the basis for, and identify and provide copies of all documents and information supporting, the statement,

“This may be attributed to an intermittent short on a piece of wire in the pressure feedback circuit in the Control System equipment enclosure which contains hundreds of wires. The short started a cascade of failures in the gas pressure sensors and pressure controls which lasted over 3 hours.”

- Q 17: Referring to page 96, please state in detail the basis for, and identify and provide copies of all documents and information supporting, the statement, “Some of the SCADA ‘gremlins’ and anomalies are generated by aging, defective SCADA equipment that has been installed at some remote sites.”
- Q 18: Referring to page 96, please state in detail the basis for, and identify and provide copies of all documents and information supporting, the statement, “Sometimes the anomalies or alarms are caused by field technicians working on a sensor without clearance from Gas Operators, which is a violation of PG&E company policy.” Please also state whether CPSD contends that the event cited in footnote 183 involved work on a SCADA sensor without clearance from Gas Operations. If CPSD’s answer is other than an unqualified no, please explain the basis for that conclusion and identify and provide copies of all documents and information that support that conclusion.
- Q 19: Referring to page 96, please state in detail the basis for, and identify and provide copies of all documents and information supporting, the statement, “Initially, some of the Gas Operators disagreed about how to interpret the SCADA data they were viewing.”
- Q 20: Referring to page 97, please state in detail the basis for, and identify and provide copies of all documents and information supporting, the statement, “The short was found in wiring which could have been jostled while connecting the mini-UPS devices earlier that day.”
- Q 21: Referring to the statement on page 98, “Additionally, the current PLC at Milpitas does not appear to have been programmed to recognize the negative pressure values as a failure in the pressure feedback circuit and then override the pressure controller outputs. That would have prevented or minimized loss of pressure control,” please state in detail the basis for the statement and conclusion. Please provide all documents and source of information that support these statements.
- Q 22: For each of the standards described as “modern design standards from ISO, IEC, and UL” on page 98, please state when and in what circumstance CPSD has applied these standards to gas utility operations in California. For each application of these standards, please provide all reports, documents, communications, and memoranda regarding the application of these standards.
- Q 23: Regarding the Summary Finding #1 on page 98, please clarify and explain in detail the basis for the italicized portions of the following statement: “Over decades of updates and revisions to the controls and SCADA at Milpitas, the

integrity of documentation, wiring connections, identification of electrical components, and the equipment itself had deteriorated and increased the chance of an incident.” Please identify and provide copies of all documents and information that support this statement.

- Q 24: Regarding the Summary Finding #2 on page 98, please clarify and explain in detail the basis for the italicized portion of the following statement: “A pattern emerged from the interviews conducted after the event that some PG&E personnel have little recognition that they were working with a very critical system that demands a high level of care in planning and execution of their work.” Please identify and provide copies of all documents and information that support this statement.
- Q 25: Regarding the Summary Finding #4 on page 98, please clarify and explain in detail the basis for following statement: “The electrical, pressure control, and SCADA problems at Milpitas contributed to Line 132 pipe rupture, even though the recorded pressure at Line 132 did not exceed its established MAOP.” Please identify and provide copies of all documents and information that support this statement.
- Q 26: Regarding the Summary Finding #6 on page 99, please clarify and explain in detail the basis for the following statement: “The design of the controls at Milpitas and of the SCADA system did not take advantage of redundant pressure data available in the system to increase reliability and safety.” Please identify and provide copies of all documents and information that support this statement.