

**DOCKET**

**09-AFC-4**

DATE	MAR 18 2011
RECD.	MAR 18 2011

March 18, 2011

California Energy Commission  
Docket Unit  
1516 Ninth Street  
Sacramento, CA 95814-5512

Subject: **CONTRA COSTA GENERATING STATION LLC'S  
HAZARDOUS MATERIALS SUPPLEMENTAL TESTIMONY  
OAKLEY GENERATING STATION  
DOCKET NO. (09-AFC-4)**

Enclosed for filing with the California Energy Commission is the original of **CONTRA COSTA GENERATING STATION, LLC'S HAZARDOUS MATERIALS SUPPLEMENTAL TESTIMONY**, for the Oakley Generating Station (09-AFC-4).

Sincerely,



Marie Mills

STATE OF CALIFORNIA

Energy Resources  
Conservation and Development Commission

In the Matter of:

Application For Certification for the  
OAKLEY GENERATION STATION  
PROJECT

DOCKET NO. 09-AFC-4

DECLARATION OF  
Harvey Haines

I, Harvey Haines, declare as follows:

1. I am presently employed by Kiefner & Associates, Inc. as a Senior Pipeline Specialist.
2. A copy of my professional qualifications and experience is included herewith and is incorporated by reference in this Declaration.
3. I prepared the attached Supplemental Testimony relating to the Pipeline Safety portion of the topic of Hazardous Materials for the Oakley Generating Station (California Energy Commission Docket Number 09-AFC-4).
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

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 and that this declaration was executed at 2576 Oak Valley Dr. on March 18, 2011.

Vienna, VA 22181

  
Harvey Haines

**OAKLEY GENERATING STATION PROJECT  
HAZARDOUS MATERIALS  
SUPPLEMENTAL TESTIMONY**

I. Name: Harvey Haines

II. Purpose:

My Supplemental Testimony addresses the Committee Order requesting additional information regarding the PG&E natural gas pipelines associated with the Oakley Generating Station Project (OGS), Docket 09-AFC-4.

III. Qualifications:

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Opinion and Conclusions

The California Energy Commission OGS AFC Committee sent the following Order

“During the Commission business meeting of this morning, the Commission determined that AFC proceedings, including the Oakley Generating Station (OGS) matter, must include an enhanced assessment of natural gas pipeline supply/availability and safety. To this end, the Presiding Member of the OGS AFC Committee hereby directs the Applicant and Staff - and Intervener Sarvey should he have an interest in this particular issue - to address the following questions by way of documentary evidence and declarations from qualified individuals: “

**Questions:**

Q. 1. What testing has PG&E performed on lines 303 and 400 within the past ten years?

A. 1: Line 400 is primarily a 36" pipeline that originates in the north at the California border near Malin, Oregon and terminates at PG&E's Antioch Terminal (over 300 miles long).

Line 303 is a 36" pipeline that originates at the Antioch Terminal and goes south to Irvington Station in Fremont (approximately 45 miles long).

PG&E is required by regulation to have a comprehensive inspection and monitoring program to ensure the safety of its natural gas transmission pipeline system. PG&E is required to conduct leak inspections, surveys, and patrols of all of its natural gas transmission pipelines. Any issues identified as a threat to public safety must be addressed. There are different types of inspections, ranging from patrols, to leak surveys, to inspections of cathodic protection (corrosion protection) systems and integrity assessments.

Patrols: PG&E must perform periodic patrolling of transmission pipelines. Walking or aerial patrols of transmission pipelines are conducted to look for indications of pipeline leaks, missing pipeline markers, construction activity and other factors that may threaten the pipeline. Since natural gas leaks tend to kill vegetation near the leak location, aerial patrols are regularly conducted to look for signs of dead vegetation as well as any activity such as on-going construction that may threaten the pipeline.

Leak Surveys: PG&E must perform annual leak surveys of transmission pipelines. Leak surveys are conducted using flame ionization gas detectors (FID) and newer leak detection instrumentation employing infrared or laser technology. In the usual case, a leak surveyor walks along the surface of the ground above the pipeline using these instruments to conduct a leak survey.

Cathodic Protection System Inspections: PG&E is required to have an active cathodic protection (CP) system on its gas transmission pipelines. These CP systems protect the transmission pipelines against corrosion. Because it is not practical to routinely inspect buried pipelines for corrosion and because it is understood that properly applied CP can prevent pipeline corrosion, the proper maintenance of CP systems is required. Depending upon the type and location of the pipeline, two methods of checking on the proper performance of the CP system are used. For backbone transmission and gas gathering facilities, CP rectifiers are read 6 times per year and pipe-to-soil measurements are made at test stations annually.

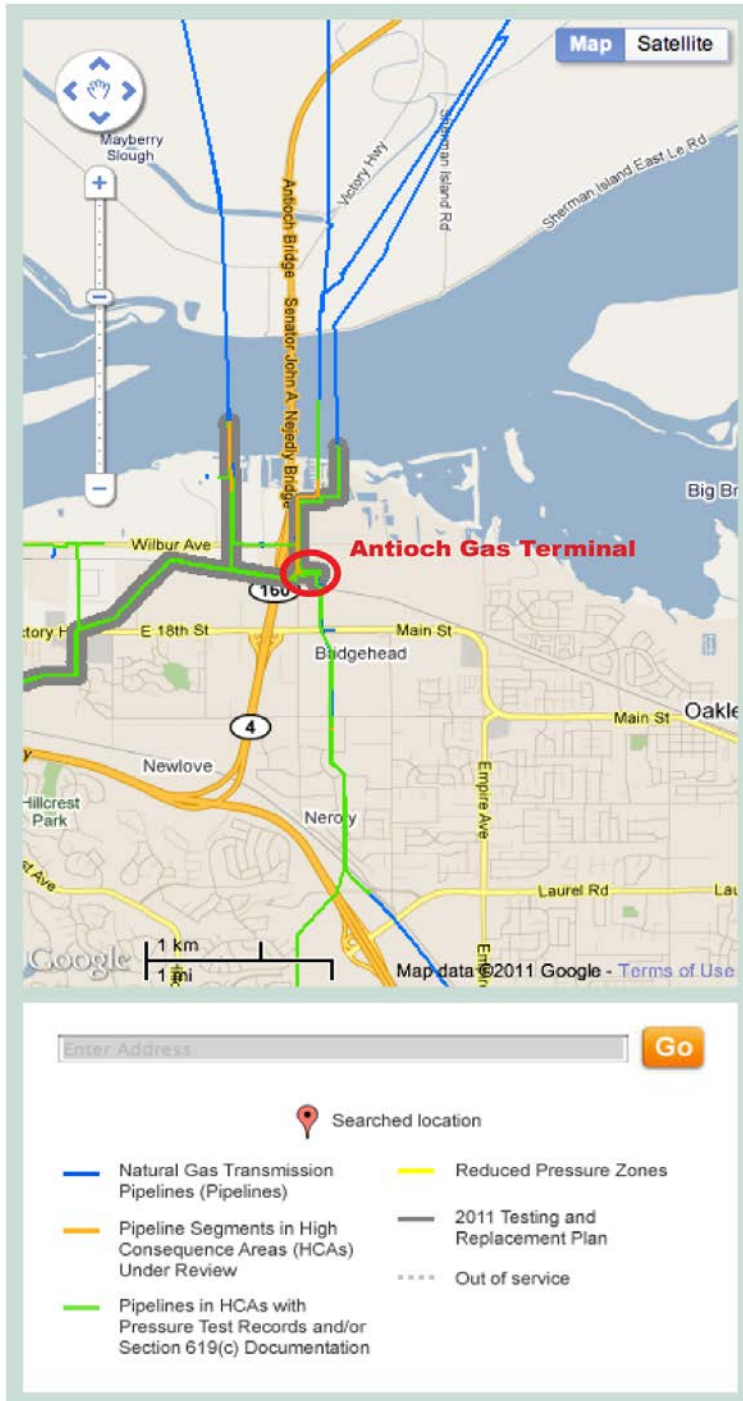
Integrity Assessments: The federal code (49 CFR 192 subpart O) requires that PG&E have an integrity management program for transmission lines in urban and suburban areas. As part of this program, PG&E is required to conduct an initial or "baseline" assessment and then must conduct subsequent assessments periodically at intervals not to exceed seven years. This part of the federal code was added in December 2003. PG&E is required to complete the baseline assessment of its affected transmission lines by December 2012.

There are three federally approved methods to complete a transmission pipeline integrity management baseline assessment: In-Line Inspections, Direct Assessment, and Pressure Testing. External Corrosion Direct Assessment (ECDA) is the primary method used for Direct Assessment.)

- In-Line Inspection involves a tool (commonly known as a "smart pig") inserted into the pipeline, which identifies areas of concern such as potential metal loss (corrosion) or geometric abnormalities (dents) in the pipeline. Excavations are performed in areas of concern as required by federal regulations.
- External Corrosion Direct Assessment is a four step process:
  - Preassessment: provides guidance for selection of the pipeline segment and which indirect methods to be used.
  - Indirect Examination: indirect aboveground electrical surveys are performed to detect coating defects and the level of cathodic protection.
  - Direct Examination: Based on the indirect examination, points of potential interest are excavated to expose the pipe surface for metal loss measurements, and estimated corrosion growth rates.
  - Post Assessment and Continuing Evaluation: sets re-inspection intervals, provides a validation check, and provides performance measures
- Pressure Testing involves filling the pipeline with a test medium (i.e. water, gas, air) and testing to a minimum pressure for a specified duration.

Q. 2. If PG&E has not performed hydrostatic testing on line 303 or line 400 are there any known plans for such testing to occur and if so, when will this occur?

### Gas Transmission Pipeline System Map



A.: PG&E's Gas Transmission Pipeline System Map shows the location of the Antioch Gas Terminal and line 400 to the north and line 303 to the south. A portion of the 400 line indicates the pipeline segment is in an HCA and under review. The grey coding around the line indicates testing is planned in 2011.

Q. 3. Are there existing known conditions/flaws/defects regarding lines 303 and 400? If so, identify and describe each such condition/flaw/defect.

A. 3: It is not known if there are any known flaws regarding lines 303 and 400, but regulations require any known flaws or defects to be remediated if they are of an immediate or scheduled condition.

Q. 4. What is the maximum operating pressure on line 303 and on line 400?

A. 4: The maximum operating pressure (MOP) of any particular line segment is always less than or equal to the maximum allowable operating pressure (MAOP) established in accordance with DOT regulations. According to PG&E's March 15 filing to the CPUC, MOP, MAOP, and design pressure (DP) are all equal for each of these two line segments. At the site of the proposed Oakley Generating Station (OGS), MOP for Line 400 is 975 psig and MOP is 720 psig for Line 303. In addition Radback received hourly pressure data from PG&E for line 303 covering the 3-year period from mid 2005 through mid 2008 and all pressures were within the limits of the established MOP, MAOP, and DP.

Q. 5. To what extent (stated in numbers) would addition of OGS increase the pressure on line 303 and on line 400? Explain whether, and how, these increases are in conformance with applicable laws, ordinances, regulations, and standards.

A. 5: As described above, the MAOP of a gas line is established according to DOT regulations. The addition of OGS to Line 400 and/or 303 cannot result in an increase in the MAOP of either line because it would exceed the design pressure.

Q. 6. Will increased gas pressure affect/exacerbate existing conditions on line 303 or line 400? If so, explain the response.

A. 6: No. There should be no pressures increases above the current MAOP at which the pipelines now operate.

Q. 7. Given that OGS might have numerous startups/shutdowns and ramping up and down over the course of any given year in response to various dispatch orders, would line 303 or line 400 be adversely affected by corresponding pressure changes?

A. 7: As long as gas pipelines have been pressure tested to at least 1.25 times the MAOP no flaw that has survived this type of test is large enough to be susceptible to failure from pressure-cycle fatigue-crack-growth during the life of the pipeline, given that the fluctuations in gas pressure are consistent with normal gas operations. Therefore Lines 303 and 400 would not be negatively impacted by the pressure fluctuations resulting from the operations of OGS. This

opinion is based on numerous studies that KAI has performed on precisely this issue.



**Harvey Haines**  
**Senior Pipeline Specialist**  
**Kiefner and Associates, Inc.**

**Education**

1980, BS Geophysics, Massachusetts Institute of Technology  
1982, MS Geophysics, Massachusetts Institute of Technology

**Qualifications**

Mr. Haines rejoined Kiefner and Associates, Inc. in 2002 and again in 2006 after 15 months at the Pipeline Research Council International. Currently, he manages an operational reliability assessment, and has addressed a corrective action order, evaluated pipelines with various defects, evaluated US DOT gas incident statistics, and helped manage the validation of direct assessment for PRCI.

At PRCI he assisted two committees in placing their research programs, the Design, Materials and Construction Committee and the Underground Storage Committee. This included research programs on welding, damage prevention, and strain based design, and improving integrity and performance of storage reservoirs.

At GRI he developed and managed R&D programs to improve NDE measurements of pipeline steels. During the last 7 years this involved assessing the cause of pipeline failures and developing methods to detect these anomalies before failure. Projects included finding and assessing: third-party damage, corrosion, stress-corrosion cracking, disbanded coating, weld defects, and stress to a pipeline. Results of the R&D were a better understanding of capabilities and limitations of NDE techniques including in-line-inspection tools and in-the-ditch measurements. The R&D resulted in improved technologies to better characterize defects such as corrosion and find more types of defects such as mechanical damage and cracking.

**Relevant Experience**

**Defect Assessment:** Managed research to better understand failure mechanisms such as mechanical damage and stress-corrosion cracking. For stress-corrosion cracking, this included development of a model for understanding accelerated testing of SCC.

**Integrity Evaluation:** Determined dependability of pipelines based on operational history, maintenance, and inspection records along with physical testing and statistical evaluation of sample sets of pipeline material.

**Direct Assessment:** Managed the PRCI-GRI effort to Validate ECDA and ICDA as effective integrity assessment techniques during 2003-2004.

- Managed several programs to validate ECDA and help operators perform ECDA once it became an accepted alternative technique, this included collecting 10 data sets for 9 different pipelines, development of a guideline for performing ECDA, and testing a quantitative method for calculating probability of failure for ECDA inspections.
- Tested and attempted to validate the existing dry gas ICDA technique as outlined in the draft NACE standard on several datasets, in addition initiated programs to develop ICDA techniques for wet gas and liquid systems. These later programs are still under development.
- Tested a few new techniques for use as ECDA indirect inspection techniques. This included testing of a magnetostrictive long range UT on a few field sites and extensive testing of the NoPig system on a few sites to determine improvements needed to become an effective indirect inspection technology.
- And last, developed a document comparing DA, ILI and hydrotesting as integrity management methodologies.

Previous work in the DA area included development of the stray current mapper for detection static and dynamic stray currents, development of long range UT systems over several years with PRCI and GRI, and research in the area of detecting shielding or coating disbondment from above ground using MEIS.

**In-Line Inspection:** Managed the GRI in-line-inspection R&D program from 1994-2001. This included some of the following projects.

- Managed a program to evaluate high-resolution MFL logs and improve sizing. Program resulted in better sizing algorithms, which was passed onto two inspection vendors for inclusion in their interpretation programs.
- Managed the pipeline simulation facility, a 24-inch 4,700 foot log pipeline located on Battelle property near West Jefferson, Ohio. Managed the failure investigation associated with an internal inspection tool fire. Set up a 1-week training workshop on in-line inspection. This workshop survives today as a Southern Gas association workshop and is still offered at the facility.
- Managed two programs to improve ultrasonic inspection of cracks. One improved the British Gas elastic wave vehicle, which used piezoelectric transducers mounted inside liquid-filled wheels, the other used EMAT transducers to generate guided Lamb waves in the pipe.
- Developed program with the U.S. DOT to investigate better ways to detect and characterize mechanical damage.

#### **Professional Affiliations**

NACE International  
SPWLA



**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT  
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1-800-822-6228 – WWW.ENERGY.CA.GOV**

**APPLICATION FOR CERTIFICATION  
FOR THE *OAKLEY GENERATING STATION***

**Docket No. 09-AFC-4  
PROOF OF SERVICE  
(Revised 3/3/2011)**

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DECLARATION OF SERVICE

I, Marie Mills, declare that on March 18, 2011, I served and filed copies of the attached **CONTRA COSTA GENERATING STATION, LLC'S HAZARDOUS MATERIALS SUPPLEMENTAL TESTIMONY**, dated March 18, 2011. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

[\[http://www.energy.ca.gov/sitingcases/contracosta/index.html\]](http://www.energy.ca.gov/sitingcases/contracosta/index.html). The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

*(Check all that Apply)*

FOR SERVICE TO ALL OTHER PARTIES:

- sent electronically to all email addresses on the Proof of Service list;
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- sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (*preferred method*);

**OR**

- depositing in the mail an original and 12 paper copies, as follows:

**CALIFORNIA ENERGY COMMISSION**

Attn: Docket No. 09-AFC-4  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512  
[docket@energy.state.ca.us](mailto:docket@energy.state.ca.us)

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.



\_\_\_\_\_  
Marie Mills