Serious Incident Communication

Incident Date: 8/20/10

The investigation of the fatal incident that occurred on August 20, 2010, near the city of Tuolumne is complete. The following Serious Incident Communication provides the results of that investigation, including the details of the incident and the action steps that will be taken to prevent re-occurrence.

As you will discover when you read this communication, this tragic incident was completely avoidable. This information must be shared with all your employees. Rules and work procedures are in place to ensure the safety of our employees and the public. Include in your communications the expectation that working safely at PG&E and following all the rules and work procedures is a condition of employment.

Jack Keenan **Chief Operating Officer**	**Geisha Williams** **Senior V.P. – ED**	**Greg Kiraly** **Vice President**
Gregg Lemler **Lead - M&C Electric**	**John Parks** **Director - M&C Electric**	**Mark Hughes** **Director - SH&C**

Incident Summary:
Gerald “Jerry” Biedinger, a 57 year old T&D Equipment Operator with 33 years of Company experience, was fatally injured on August 20, 2010, at approximately noon while working in a rural area near the city of Tuolumne. He was electrocuted due to touch potential when he became the path to ground from an energized highway digger.

What Happened?
Gerald “Jerry” Biedinger was assigned to dig four pole holes for a new construction project near the city of Tuolumne. Work was scheduled to extend existing electrical overhead lines by three spans to accommodate the request.

An electric crew was at the jobsite on Monday, August 16, 2010, to frame and place four new poles near the marked locations. At that time, because the USA marking request had not been completed, the crew was not able to dig the holes and was scheduled to return the following Saturday to complete the project. In order to expedite setting the poles on Saturday, the crew requested the holes be dug by Friday.

On Wednesday, August 18, Jerry visited his family physician for a personal medical condition and was prescribed medication which was labeled as potentially causing impairment.

On Friday morning, August 20, Jerry arrived to work at his headquarters in Angels Camp and

was directed to contact the Sonora Headquarters temporary supervisor regarding a work assignment near the city of Tuolumne. Jerry arrived at the Sonora Headquarters at approximately 8:30 a.m., and after a brief discussion of the job with the temporary supervisor, Jerry was offered an observer to accompany him, but he declined the offer. Jerry followed the temporary supervisor to the work location.

At the jobsite, the temporary supervisor drove Jerry to three of the four locations, pointed out where the holes were to be dug, and mentioned the overhead lines above the inter-set pole location (Hole #4). Jerry drove the highway digger to the location (Hole #1) furthest from the 17 kV lines and began to work.

Jerry completed digging three pole holes by approximately 11:30 a.m. before moving to the next location (Hole #4). As Jerry was raising the boom to dig the fourth pole hole, the boom came in contact with one conductor of the overhead single phase 17 kV line, resulting in the vehicle becoming energized at approximately 9800 volts (17 kV to ground voltage). Contact marks were found on the boom guide rollers and conductor indicating that, as the boom was raised, it contacted the conductor for 31 inches before coming to rest.

For some unknown reason, Jerry exited the rear of the vehicle. It has been determined that his leather work gloves and work boots insulated him from touch potential as he exited the energized truck. Analysis of the leather gloves and work boots determined that the gloves provided approximately 2,000 volts of insulation and the boots provided some level of insulation up to approximately 8,000 volts.

Based on evidence collected, it was determined that Jerry made contact with the auger at his upper left thigh. At this point, the insulation value of Jerry's boots was exceeded, allowing the current to pass through his legs.

After initial contact with the energized auger, one primary fuse failed and de-energized the single phase in contact with the boom. The second primary fuse remained intact and continued to energize the vehicle through back feed (approximately 2,600 volts).

After the initial contact with the auger, Jerry fell to the ground where he laid in contact with the outrigger stabilizing leg, where fatal injuries occurred.

What went wrong:

(Based on evidence, witness statements and interviews)

Jerry failed to:

- Follow minimum work distance rules related to operating a non-insulated steel boom near energized lines.
- Identify, evaluate and control the hazards (overhead energized lines) associated with the work.
- Notify his supervisor that he was taking a medication which contained a warning label indicating it could cause impairment.
- Provide written authorization from his physician confirming that he could safely perform the duties of his job.
- Chock and secure vehicle when it was parked on a 12 degree slope (vehicle was left running).
- Wear insulating PPE when operating in the vicinity of energized conductors.

Leadership failed to:

Day of Incident

- Identify, evaluate and control the hazards (overhead energized lines) associated with the work.
  - The wrong type of truck was used for the job.
  - Overhead lines were not de-energized/rubbered/spread for work.
  - Document that it had conducted a tailboard.
- Require the assistance of a second person, a qualified electrical worker (QEW), when working near energized lines.

Vehicle:

- The umbrella attached to the controller seat on the highway digger may have obstructed the view of the overhead conductors.

Root Causes

- **Human Performance** – Jerry violated PG&E and OSHA requirements when he brought the non-insulated boom of the highway digger within 10 feet of the overhead energized lines.
- **Management System** – Jerry worked in an environment in which little oversight was provided by supervision or coworkers; and therefore was allowed to operate outside the job duties of a T&D Equipment Operator.

Rule Violations

- Utility Standard Practice 1 – Employee Conduct
  - Employees are required to notify their supervisor of any prescription drugs or over-the-counter medication that could affect their ability to work safely or efficiently.
  - *Jerry failed to notify his supervisor that he was taking a medication which contained a warning label indicating it could cause impairment.*
- CSP Rule 1, Tailboard Briefings
  - Employees shall participate in tailboard briefings given by the employee-in-charge of the job. After the briefing, each crew member should be able to demonstrate knowledge of:
    - The work methods, procedures, and proper sequences for the job
    - What s/he and the other members of the crew are to do
    - The responsibilities and appropriate actions in emergency situations
    - The potential or known hazards or trouble spots involved and the controls to mitigate the hazards
    - What other work is going on in the area (e.g., PG&E, contractor, County, etc.).
  - *The temporary supervisor failed to complete the M&C Electric Tailboard Briefing*
- CSP 2 - Adequate PPE
  - *Jerry failed to wear insulated overshoes and Class II rubber gloves*
- Company and IBEW Union Letter of Agreement 04-16-PGE (DOT Drug & Alcohol Testing Program)
  - Employees taking prescription medication which carry a warning label that indicates mental functioning, motor skills, or judgment may be adversely affected must report the use of such medication to supervisory personnel and obtain medical advice and written authorization from the attending physician before performing work related duties.

- *Jerry held a Class A drivers license and failed to provide written authorization from his physician confirming that he could safely perform the duties of his job before performing work related duties.*

- CSP Rule 36 (d), Cranes, Hoists and Derricks
    a. Operators not qualified to exercise the above exemption, or not under the immediate, direct supervision of a QEW, shall maintain the distances from energized high voltage lines specified in the following table:

Minimum Clearance Distances (For Operators of Cranes, Hoists, and Derricks who are not Qualified Electrical Workers or Under the Direct Supervision of a Qualified Electrical Worker)			
Nominal Voltage *(phase-to-phase)*	**Minimum Working Distance for a Qualified Person (MWD-QP)**	**Minimum Working Distance for Non Electric Workers (MWD-NEW)**	**Minimum Working Distance for Cranes (MWD-Cranes)**
Under 50V	Not Specified	Not Specified	Not Specified
50V – 300V	Avoid Contact	3’ 6”	Not Specified
301 V – 600 V	12”	3’ 6”	Not Specified
601 v – 15 kV	25”	6’ 0”	10’ 0”
15.1 kV – 36 kV	28”	6’ 0”	10’ 0”
46.1 kV – 72.5 kV	36”	10’ 0”	11’
72.5 kV – 121 kV	40”	10’ 0”	13’
230 kV – 245 kV	63”	10’ 0”	17’
500 kV – 550 kV	135”	16’ 0”	27’

- Jerry was not a QEW and failed to follow minimum work distance rules related to operating a non-insulated steel boom near energized lines.

Corrective Actions/Next Steps:
Leadership will:

1. Review work procedures associated with cranes, hoists and derricks when working near energized lines.
    a. Evaluate grounding of vehicles when potential for direct line contact with voltages is greater than 600 volts.
    b. Evaluate use of rubber protective equipment when the potential for bringing booms, poles and other equipment within 10 feet of lines energized greater than 600 volts.
    c. Review work procedures when working near or around vehicles that are potentially within 10 feet of lines energized greater than 600 volts.
2. Clarify and improve the understanding of the term QEW and Minimum Approach Distances.
    a. Clarification of QEW when working on T&D Electric facilities.
    b. Clarify job definitions for 1, 2 and 3 person units.
    c. Communicate required minimum approach distances for cranes, hoists and derricks ensuring clarity.
3. Clarify tailboard requirements
    a. Finalize EM&C self tailboard document to be used by single person units.
4. Develop condensed version of equipment training and job aids for supervisors to ensure

the right equipment is used for the job.

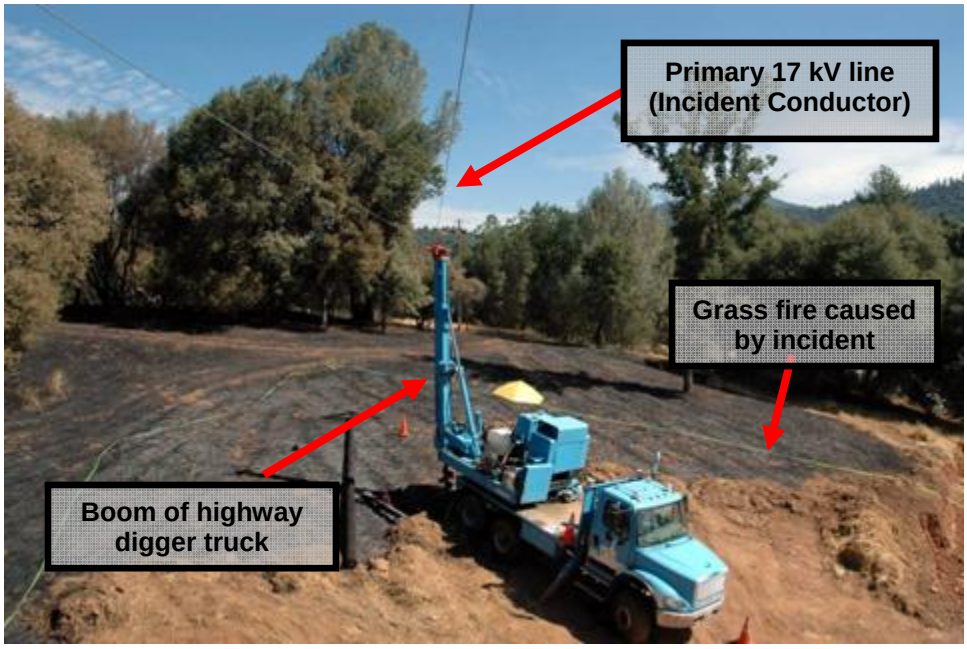
5. Develop a relief supervisor leadership training program.
6. Ensure compliance with USP 1, Employee Conduct (Fitness for Duty)
    a. Develop a tailboard to reinforce the reporting requirements of USP1, Fitness for Duty and DOT reporting requirements for Class “A” Drivers.
7. Improve Transportation Services’ vehicle line of business specification process.
    a. Modify all existing highway diggers with umbrella attachments ensuring umbrellas cannot be utilized.

Below are photographs of the incident site

Aerial View of Jobsite:

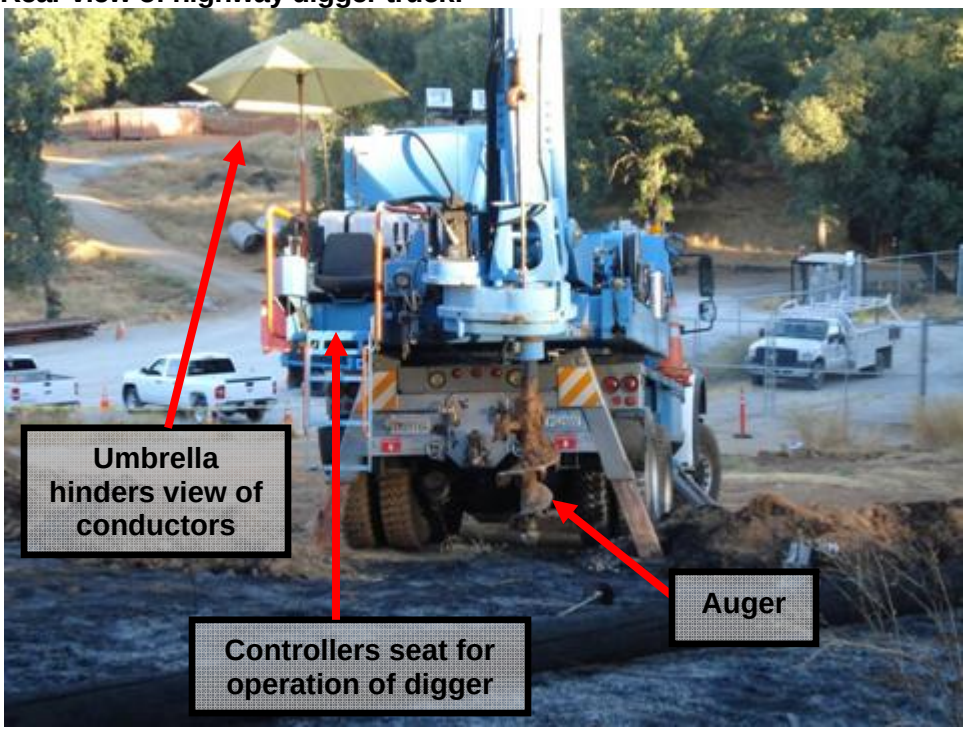
Numbers correspond to pole hole locations that Jerry was assigned to dig. Incident occurred at location #4.

Site of the Incident:



Hole location #4.

Rear view of highway digger truck:



Arcing Marks on Rollers near Top of the Boom:

Arcing Marks Found on Auger – Approximately 29” from Ground: