

1 Problem

What	Problem(s)	Employee burn; blow-out injury to knee
When	Date	2014
	Time	?
	Different, unusual, unique	Several contractors involved, new equipment added to work list
Where	Facility, site	Company in the Midwest
	Unit, area, equipment	Switchgear in a building and outside substation
	Task being performed	Cleaning switchgear and vacuum bottles

Impact to the Goals

Safety	Worker suffered burns and blow-out injury
Environmental	?
Customer Service	?
Regulatory	OSHA recordable
Production/ Schedule	?
Property/ Equipment	?
Labor/ Time	?

IS HAVING A LOCKOUT/TAGOUT (LOTO) PROCEDURE ENOUGH?

Cause Map

Worker suffers burn and blow-out injuries while cleaning switchgear

In this incident, several contractors were working on a project involving a particular switchgear. Many of these contractors had performed lockout/tagout for the switchgear box related to the projects that they were working on. After the work began, a worker from a different contractor was asked to clean out a part of the switchgear. Unfortunately, an arc flash occurred when he reached in the switchgear, resulting in burns to his hand and a blow-out injury to his knee. Fortunately, the employee survived, recovered and was able to return to his normal life.

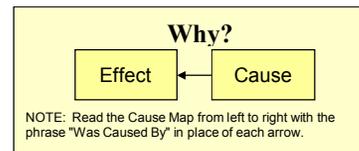
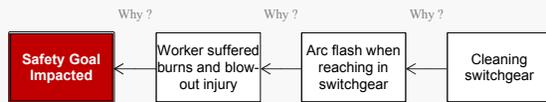
As the Cause Map shows, ensuring that the procedure is followed in combination with other safety standards is important to minimize the risk of injury.

"The OSHA standard for The Control of Hazardous Energy (Lockout/Tagout), Title 29 Code of Federal Regulations (CFR) Part 1910.147, addresses the practices and procedures necessary to disable machinery or equipment, thereby preventing the release of hazardous energy while employees perform servicing and maintenance activities. The standard outlines measures for controlling hazardous energies—electrical, mechanical, hydraulic, pneumatic, chemical, thermal, and other energy sources."

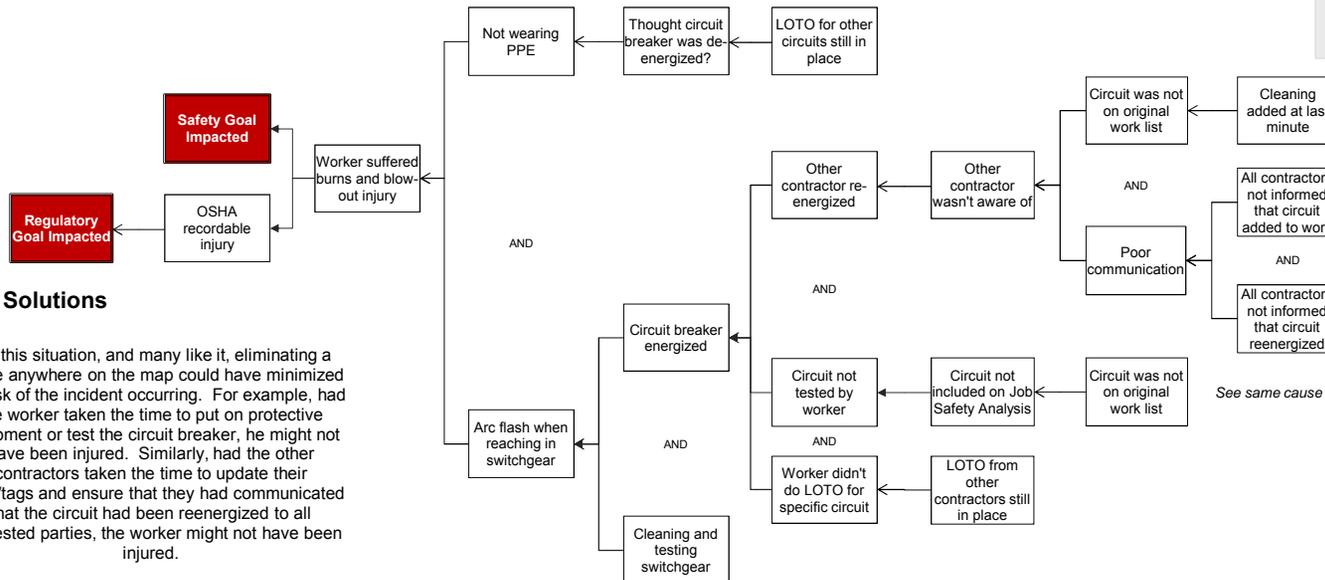
- OSHA FACT Sheet Lockout/Tagout

2 Analysis

Basic Level Cause Map - Start with simple Why questions.



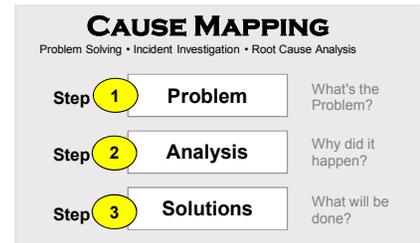
More Detailed Cause Map - Add detail as information becomes available.



3 Solutions

For this situation, and many like it, eliminating a cause anywhere on the map could have minimized the risk of the incident occurring. For example, had the worker taken the time to put on protective equipment or test the circuit breaker, he might not have been injured. Similarly, had the other contractors taken the time to update their locks/tags and ensure that they had communicated that the circuit had been reenergized to all interested parties, the worker might not have been injured.

Cause Mapping is a Root Cause Analysis method that captures basic cause-and-effect relationships supported with evidence.



For a free copy of our Root Cause Analysis Template in Microsoft Excel, used to create this page, visit our web site.

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