Allegory of the Control Room: Reality, Road Trip, Relationships (with appreciation and apologies to Plato)

In the "allegory of the cave" by Plato, people have been imprisoned inside a cave their entire lives, tied and bound so they can only see the stone wall in front of them. Behind them is a fire. Between the fire and the prisoners is a raised walkway, which contains objects. Puppeteers manipulate the objects, cast shadows on the wall, and also make noises.

The prisoners' reality consists of the shadows and the echoes. They interpret what they see and hear, instilling meaning based on the only information available to them. One of the prisoners eventually escapes and goes outside. After his eyes adjust in the bright light, he recognizes that what is visible inside the cave only represents reality. He returns to the cave to tell the others. They believe he has gone mad, and threaten to kill him if he frees them. It is as Julius Caesar said, "as a rule, what is out of sight disturbs men more than what they can see." Relationships are damaged once one goes on a road trip, gathers new information, and has a different view of reality.

What the heck does the allegory of the cave have to do with Control Room Management? Stick with me, as I develop the allegory of the control room. In 2007, Michele Terranova and I did a control room assessment in the Atlanta area. The bunker type control room was dark for the people inside. It was the darkest control room I have ever seen (although it was hard to see much in there), and I have seen over 100. The only light came from the SCADA displays and small lamps that illuminated the desktops. They were not prisoners, although one of them said every time the building door clanged shut behind him, he felt like he was being locked inside a jail.

Although the Controllers were not chained to the consoles, those SCADA displays represented their only reality of pipes, tanks, pumps, and valves. Of course, you and I know the symbols and icons on displays are not real valves, pumps, tanks, and pipe. But those objects on the display that are used to control and monitor pipelines do not provide all of the information about the pipelines. They illustrate well Plato's Theory of Forms.

Let's hope they at least provide **adequate information**, as specified in CFR 195.446 (c) and 192.631(c). If a Controller has never been outside of the control room into the sunlight where there are real pipelines, surely that person knows the displays are only representations and not reality. Do they really know? Can displays be allegorical?

Once I was a manager at a tank farm where batches of petroleum product originated and were pumped into stub lines. Because of some piping changes that were inadequately designed and configured on one of the stub lines, the pumps experienced cavitation when the Controller set the pressures and rates at certain levels.

The reality on the SCADA displays cannot reflect the reality of cavitation inside the pump case to Controllers who had never viewed a pump because their training program did not require any orientation to actual pipeline facilities. Cavitation is just a word in a training guide, like a shadow on a stone wall, if one has never heard the sounds cavitation produces or has seen its effects on the pump impellers.

In addition to damaging the pumps and causing costly repairs, the lack of understanding between the Controllers, the Technicians, and this Manager about the effects of the cavitation did not enhance our relationships. And no amount of **control room team training** as described in CFR 195.446(h)(6) and 192.631(h)(6) was going to help the situation. We were not doing much collaboration in those days, mostly just criticizing.

I asked the Control Center Manager to provide a road trip for some of the Controllers at a time when the line conditions and pumping sequence was likely to produce cavitation. He provided the opportunity. The Controllers came into the light, they saw and heard, and they understood that the line needed to be controlled differently at the times when cavitation was likely to occur. I do not think that any of the Controllers left inside the control room tried to harm them when they went back and told their colleagues about the realities of cavitation.

Some of you might remember that the proposed CRM rule (September 12, 2008) included a requirement that companies provide "periodic visits by controllers to a field installation similar to that which the controllers monitor and control." That idea did not make it into the final rule because of the whining and complaining by those who did not want to comply with that requirement. It would still be a good practice. The rationale for the requirement made sense then and makes sense now:

> *Today, many pipelines hire controllers who do not have field experience and who have limited knowledge of the physical and practical aspects of pipeline operations. Providing an opportunity for controllers to actually see the equipment and talk to station personnel will help expand the controllers' awareness of site specific information. Further, discussions with field personnel in routine, non-stressful situations can help establish a familiarity that will facilitate more efficient and accurate communication during abnormal events. Ideally, controllers would visit the facilities they operate.*

Some control rooms arrange for their Controllers to take road trips now, believing it is a worthwhile investment in practical knowledge and better relationships. One of my favorite control room organizations is in San Antonio. They do things well in that control room. Scarlet Knight and I were onsite last fall for a workload assessment. I was talking to a Controller on night shift.

He had just returned from a site visit to the area of the pipeline he controls. Over a few days, he saw several facilities and met many of the field personnel with whom he had only interacted previously over the telephone. He told me seeing the pipeline facilities was valuable, but the personal interactions were more helpful because now he believed he had a personal relationship with the field personnel. I heard something similar from a Controller in a Canadian control room, whose company provides opportunities to take road trips and to establish personal relationships.

I hope now you understand what the allegory of the cave has to do with control rooms and Control Room Management. Apply the allegory of the control room to your reality, the ways you value road trips, and the importance of relationships. Keep it really real!
I love philosophy!