

Non-MCR Operator use of the Simulator

What else can you leverage the sim for?



Exelon Generation®

Training uses:

Braidwood has made an overt attempt to try and leverage the simulator for groups other than the MCR operators that we normally associate with the simulator. We have had both good results with the training in student feedback and in performance improvement for the training groups.

With retirements and turn over of staff we have more new or inexperienced people across the whole station staff. The simulator is great way to get them aligned with how the MCR functions without having to clog up the MCR.

Who does the MCR interact with? Chemistry

Chemistry – Chemistry was rolled into a larger Operational department with ops as part of a restructure. To both build teamwork and to expand training we came up with a LORT training set that was designed around chemistry issues. The Chem group training was scheduled to have their cycle coincide with the LORT cycles. Chem techs monitored from the both and when the crew got to points that they needed to work with chemistry the chem tech would then “come to the control room” and interact with the crew and SM.

The chem techs had some learnings with why OPS pushes so hard for certain results and the time constraints and a lot of “what are you really looking for in this event?” and “our procedure is not clear on this” came out. Overall a lot of communication issues were cleared up chem techs had a new appreciation of the business of the control room during events.

Who does the MCR interact with? Engineering

Engineers have used the simulator for development and training in two areas. The biggest one is for trouble shooting and real time communication and coordination with the MCR on emergent plant issues.

The engineer student were brought into the sim with a mini-crew in place. They were given a set of indications and annunciators. The crew would inform them of a tech spec entry for a component issue and they would then need to develop a plan to trouble shoot and then correct the issue.

They would setup a troubleshooter and would work through the process of solving an issue in real time with the crew.

The second part of this is to drive familiarity with the MCR and how operations is run. With the turn over of engineers due to retirements this understanding needs to be learned.

Who does the MCR interact with? Field Operators

We use a non-licensed operator for making NARS (state and local) notifications and other communication roles. We do on some sets coordinate and bring in EO's to serve this roll.

We are moving to more integrated use of the V-panels in the simulator. We are working toward having the ability to use the V-panels to simulate plant panels such as the DG local panels. The plan is to have an EO, when dispatched to locally start a DG, actually respond and use the V-panel to accomplish the task. (Working on this.)

Engineering and procedure development

During our Ovation upgrade we ran into scheduling issues with the plant VS simulator time line. Many of the changes could not really be tested dynamically during times when the hardware test bed was not available.

Is that how it's supposed to work? Was a common refrain. There were a lot of weekends with Westinghouse engineers on site at the simulator making logic changes to the plant design and beta testing it in the simulator before going back to fix the plant design.

The simulator gave the opportunity to look at dynamic response. Looking at static logic is just not the same. Additionally some of the testing they could do with the hardware test systems were limited. They could only feed a limited number of points and sometimes the interaction of the whole was needed to tell what the dynamic response was going to be. Also having an operator trying to figure out plant conditions using the proposed system displays can immediately highlight shortfalls.

Is that how it's supposed to work? This was also common to the procedure writers. How does the new system work? How do you do maintenance? How will all those surveillances work once the system is installed? The glass top version and the live simulator were used extensively for procedure revisions and writing and the entire Post Acceptance Test and tuning plan for the plant start up were tested on the simulator to show they worked and were incorporated into the JITT for the start up crews.

Almost every week now, we go through one or another EC/procedure change/combo of events and use the simulator to develop solutions and procedures.

IMD/MMD/EMD training in the classroom

IMD uses the JADE/glass panel system in their training. They can highlight Ovation interactions and interfaces that the IMD techs will be using in the field. It is great for them to actually see real-time what things look like to the operator.

They also use it for specific IMD calibration and testing to get the new guys to learn their way around the panels in the MCR. They will cover something such as an NI calibration and can actually use the glass panel simulator to “walk” the student around the room and show them all the specific locations that they are looking at so when they go to the MCR they are not totally dependent on the operators for where to look for indications.

What happens in all these OPEXs? We did a series of recorded videos of the MCR room crews experiencing specific OPEX. MMD got to see what a OPEX from another plant would do to Braidwood. It is one thing to see the written OPEX and the result is a trip, it is another to see the actual crew try and deal with it before and after the trip. EMD used a breaker mispositioning OPEX and IMD was a wrong switch OPEX. Fleet and industry OPEX can be more hard hitting if you can show more fully the results. It also was a focus of risk mitigation during maintenance. What is the worst thing that can go wrong?

Questions??