

2010 Fall System Restoration Drills Debrief

Date Submitted - December 7, 2010

Author – Nick Winter

Introduction

The 2010 Fall System Restoration Drills were held from 10/6 thru 11/9. In all, nine 'individual company' drills were conducted at PJM's Milford facility over 15 days (six of the drills were two day events). While no standard format was followed, the great majority of the drills employed a combination of both the top down and the bottom up approach to system restoration. PJM made every effort to incorporate the member's desired scenario for each drill. In all, 135 operators participated in the drills. Each drill blacked out the transmission zone of the TO participating in that drill, and had all neighboring zones remain whole. The average load restored per Transmission Zone was 33%.

Results Highlights

PJM participated in a joint restoration exercise with MISO / NY / IESO on 10/26 and 10/27. The major benefits gained through this activity were the testing of communication procedures and interconnection procedures. PJM began this drill with several islands established across the footprint. PJM assumed control of the major island, developed an ACE using the Flat Frequency control mode, and then worked to tie the remaining islands. Further, several ties were established with MISO, NYPP, AND TVA.

Off site power was established within our goal of four hours to all nuclear facilities that were blacked out as a result of the drill scenario.

PJM reviewed the TO Restoration Manual Checklist, Attachment 1 – EOP – 005 – 0, with each company.

PJM established a method to involve all GOs / MOCs in the Fall Restoration Drills. A comprehensive list of GOs / MOCs that operate in the footprint was compiled by Transmission Zone. Each GO / MOC was contacted at the start of the drill for the Zone in which they are located.

PJM was represented at the SERC Restoration Drill held in Jackson Mississippi on 11/3 and 11/4.

Member Operator Feedback

Drill participants were requested to fill out a Restoration Training Evaluation. The overall program rating, on a scale from 1 (poor) to 5 (excellent), was **4.5**.

On the positive side, the operators reported that they gained a greater insight from using the simulator as opposed to a table top exercise. The experience gained from

seeing the effects of load pickup on voltage and frequency was cited on a number of the evaluations. The operators saw much value in working the drill with both a top down and bottom up strategy. Finally, the opportunity to interact / work with PJM and other company operators was viewed as a major benefit.

As for challenges and suggested improvements:

Many operators expressed a desire to have more 'curves' thrown during the drills.

For future drills, we will work with the company Training and SRCWG representatives to develop and incorporate some additional challenges (damaged facilities, unit start failures, etc.) into the drills.

A common suggestion was to allow for more time to drill.

We could look to schedule three days for each drill. The first and third days would allow for travel, introductions, and debriefs. The middle day would be devoted entirely to conducting the exercise. Each company needs to determine if they could support three days from a manpower perspective.

PJM's distribution model does not provide the same detail that the member companies see on their systems.

We will need to work through this issue via paper one lines. The member companies are requested to bring more detailed maps to the drill.

The ability of the company Transmission Operators to control an island's generation / load balance was raised.

An effort to emphasize and practice the techniques and skills required to control the gen / load balance and maintain reserves will be incorporated into 2011 drills.

PJM will pursue more RC – RC drills in 2011.

PJM will look to involve all our neighboring RCs in a seminar type restoration 'drill'.

2011 Spring Restoration Drill

The PJM 2011 Spring System Restoration Drill will be a two day event, held on March 8 and March 9. In short, the scenario will be a complete blackout that involves all of PJM and our neighboring systems. We will test all phone numbers on Monday, March 7 at 1000 EST. If your company has any changes to the current phone numbers, please forward those changes to me as soon as possible. Also, forward any scenario input your company would like included in the drill, such as surviving islands, damaged / unavailable equipment, etc. PJM will utilize the EDART Restoration Reporting Tool as part of the drill. A current phone list and drill scenario will be sent in February 2011. If anyone has a question, please don't hesitate to call.