



Moore Dam EAP Functional Exercise – August 2009

Taking our FERC Exercise into a Brave New World....

Background on Moore Dam



Reservoir covers 3,490 acres and is 11 miles long

Reservoir operating range 40 feet (809.0' – 769.0')

Moore Dam Statistics



Largest conventional hydro dam in New England

**Dam height is 178 feet;
Concrete structure and earth embankment is over one-half mile in length.**

Four generators rated at 48 MW's each for a total station capacity of 192 MW's



Moore Dam Hydrologic Statistics



- Total drainage area of 1600 square miles
- At full pond elevation, discharge capacity of generators and spill gates is 120,660 cfs
- Flow of record in area 50,000 cfs in March 1936 (Comerford Dam)
- Moore's record flow is 32,850 cfs on May of 1972
- Site specific PMF calculation is 150,000 cfs

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 - **Moore's record flow is 32,850 cfs on May of 1972**
 - At full pond elevation, **discharge capacity** of generators and spill gates is **120,660 cfs**
 - Site specific **PMF calculation is 150,000 cfs**
 - **BOTH Max Flow and PMF = EPIC FLOWS; requiring EAP Notification**
 - **BOTH Situations - impact 3 States; over 180 miles downstream**
- Diagrammatic annotations: A red arrow points from the 120,660 cfs value to the 50,000 cfs value with the label "2.4x". Another red arrow points from the 120,660 cfs value to the 32,850 cfs value with the label "3.7x".

Moore Dam EAP – TransCanada Goals



- **INTERNAL Perspective**

- **Satisfy FERC requirements** for testing and training
- **Assimilate TransCanada's Emergency Response System** into long-standing FERC EAP program
- Establish and train in **use of NIMS response protocols** (Incident Command Center and Emergency Operations Center)
- **Design and examine usefulness of new GIS EAP Inundation maps** based upon site specific PMF and HEC-GEO RAS Dam breach modeling.
- Would be the TransCanada Corporate Exercise for 2009

Moore Dam EAP – TransCanada Goals



- **EXTERNAL perspective**
 - Work with Local Dispatch agencies, communities and states to prepare, educate and test their ability to respond adequately to Moore Dam EAP and Notification process

Moore Dam EAP – TransCanada REVISED Goals



- **EXTERNAL perspective**

- Work with Local Dispatch agencies, communities and states to prepare, educate and test their ability to respond adequately to Moore Dam EAP and Notification process

What became very apparent early in planning stage:

1. States, response agencies and local officials would NOT participate unless exercise follows DHS (FEMA) “Exercise Evaluation Program” otherwise know as HSEEP
2. It was suddenly going to be a much bigger exercise and a lot more planning and steps to get there

"The Brave New World"



- **Post September 11 Security and Emergency Response and Post Katrina Emergency Planning and Response**
- **Have been one of the primary drivers toward the development of a standardized emergency exercise preparation, design and evaluation program known as HSEEP -Homeland Security Exercise Evaluation Program**
- **It is currently a requirement to implement this program in all interagency exercises.**
- **TransCanada cooperatively performed its 2009 Moore Dam Functional Exercise using this program in cooperation with States of NH, VT and MA Emergency management Agencies and FEMA**



“Old World” Plan for Conducting Functional Exercise

- Conduct outreach sessions on exercise 1 month in advance
- Rent large hall for drill
- Tabletop day before or morning at venue
- Functional Exercise next day or afternoon at venue
- Facilitated discussion and evaluation

Moore Dam EAP Revised Approach



“Brave New World” Plan - Engage States using HSEEP and Foster Development of State and Local Emergency Response Planning for Dam Break and High Flow Emergencies

- **Spring 2009**

- States would conduct own HSEEP tabletop exercise (TX) using Moore Dam scenario
- States would develop TX “after action” recommendations to encourage and develop local response plans to a dam related flood or break

- **August 2009**

- In-Place HSEEP Functional Exercise (FX) to test TC and State-Local response plans
- FX “after action” report would be the basis for FERC report requirement and work to continue TC’s FERC EAP, Its Emergency Response System and State Emergency Planning

Homeland Security Exercise and Evaluation Program (HSEEP) What is it?



- Standardizes exercise design, development, conduct, and evaluation for all (National-level, Federal, State, local) exercises
- Establishes common language and concepts to be adopted and used by various agencies and organizations
- Meets the National Response Plan (NRP) and National Incident Management System (NIMS) goals
- Synchronizes all exercises in the Nation
- Provides tools and resources for States and local jurisdictions to establish self-sustaining exercise programs

Homeland Security Exercise and Evaluation Program (HSEEP) **WITH COMMENTS**



- Standardizes exercise design, development, conduct, and evaluation for all (National-level, Federal, State, local) exercises **EMPHASIS ON STANDARDIZATION – VERY RIGID PROCESS**
- Establishes common language and concepts to be adopted and used by various agencies and organizations **LANGUAGE IS VERY FOREIGN INITIALLY**
- Meets the National Response Plan (NRP) and National Incident Management System (NIMS) goals **AS DOES FERC GUIDANCE DOCUMENT**
- Synchronizes all **FEDERAL** exercises in the Nation **NOT ALL - FERC HAS NOT MANDATED THIS PROCESS ON LICENSES**
- Provides tools and resources for States and local jurisdictions to establish self-sustaining exercise programs **MANDATES USE OR FUNDING IS WITHELD**

HSEEP Components



- **HSEEP addresses the range of exercise evaluation issues through a blended approach involving four related program areas:**
 - Policy and Guidance—Providing the strategic direction for exercise and evaluation programs Nationwide
 - Training—Offering courses and tutorials on the many HSEEP plans, policies, and requirements
 - Technology—Ensuring that Federal, State, and local jurisdictions have the tools necessary to plan and implement exercise programs
 - Direct Support—Supporting jurisdictions across the Nation through funding, training, and other exercise support

Skipped the Jargon... how did it go?



- **OUTREACH:**

- TransCanada carried out outreach sessions in Fall of 2008 in which State Emergency Management Agencies participated and encouraged local participation
- We previewed our plans for releasing Digital GIS based inundation maps
- Sought input from Communities, Regional Planning Agencies and States with respect to providing us with Critical infrastructure datasets for resources located within inundation zones
- Previewed the Upcoming Moore Functional Exercise – the States role and TC's role.
- Large turnouts at most of the Outreach meetings

Skipped the Jargon... how did it go?



- **TABLETOP EXERCISES:**

- States of MA, NH and VT all held HSEEP facilitated Tabletop exercises and invited all 48 towns within PMF inundation zone.
- “After Action” meetings were conducted by FEMA contracted facilitator in NH and VT. Follow-action items were identified, in particular, developing local flood response plans
- In both the exercises and follow-up, Local participation by Towns seemed limited and far less than TC expectations.
- TC hopes that the HSEEP process will actually track the completion of action items but remains somewhat skeptical
- Some sense of process for process sake.... More process than action... is it about ensuring FEMA \$'s continue to flow to States and Communities?

Skipped the Jargon... how did it go?



- **In-Place FUNCTIONAL EXERCISE:**

- 6 1/2 hour FX performed August 28, 2009 – Exercise Controllers providing scenario injects and Evaluators were present at:
 - NH State , VT State and MA Regional Emergency operations Centers;
 - TransCanada Regional and Incident Command Center established at Moore Dam also had Exercise Controller; Corporate Emergency Operations Center also opened and staffed;
 - Numerous Mutual Aid Dispatch Centers serving 3-state area
 - Representative Communities and Municipalities among 3-state inundation zone
 - Over 200 active participants among these sites

Skipped the Jargon... how did it go?



- **Summary of Functional Exercise:**

- ½-hour situation stage setting and updated inundation map primer conducted concurrently at all sites.
- Exercise began with Emergency Operations Centers at State (SEOC's) Local (LEOC's) were already opened due to extreme natural river flow/flooding conditions.
- TransCanada initiated its EAP at Non-Emergency Status when it had to increase spillway flows to levels never experienced before.
- Over 250 scenario injects were released by various controllers situated throughout exercise participants.
- TransCanada eventually elevated status of EAP to Impending Dam Failure when discharge capacity was maximized and problems forced reservoir to surcharge without control. Exercise ends without breach.
- Hot-wash (de-briefing) held at each location and then combined through teleconference

Seriously,how did it go?



- **Summary of Exercise: HUGE SUCCESS**

INTERNAL

- Adequately tested TransCanada's ability to respond to an emergency, activate and carry out its Emergency Action Plan
- Adequately tested TransCanada's Emergency Response System including activation of an Incident Command Center, its Regional and Corporate EOC's and how this process meshes with FERC EAP
- Adequately tested the functionality of the Notification process to effectively contact mutual aid dispatch centers which in turn warn the local police and fire emergency responders
- Adequately assessed how the TransCanada EOC communicates with State EOC's as well as its own Corporate EOC

Seriously,how did it go?



- **Summary of Exercise: HUGE SUCCESS**

EXTERNAL – we are awaiting reports presently

- The Exercise through its design should have been able access how the State EOC's coordinate and support Regional and Local response; how local response plans worked in participating towns.
- The Exercise through its design should have been able to access how well the Dispatch centers and in turn local emergency responders were able to receive and respond to TC's EAP activation and notification as well as use the EAP maps as a resource
- The Exercise through its design should have been able to access how well the State EOC's communicate with each other and with TransCanada in order to maximize, support and coordinate response plans in the affected areas.

Seriously,how did it go?



- **Summary of Exercise: HUGE SUCCESS**

Preliminary Major Findings (Improvements)

The Scale of an emergency of this nature would be HUGE!!!

- TransCanada must increase its communications support role at Incident Command Center and Regional EOC
- Improve response to updating Notifications and status changes to accommodate such a large emergency and the affected area
 - Further develop and implement automatic notification systems
 - Take advantage of Web-based emergency management communication tools used by State EOC's
 - Better educate state emergency management agency folks on how Connecticut River flow is managed and controlled
 - Regional EOC Facility infrastructure needs to be improved

Seriously,how did it go?



- **Summary of Exercise: HUGE SUCCESS**

Assessment of HSEEP and Overall Exercise

- It was one of the largest exercises performed by the three States and by TransCanada as well. Largest Inter-agency & private in FEMA Region 1. Possibly same for FERC.
- The exercise was well facilitated by a FEMA exercise coordinator contractor that knew the HSEEP process. But they were unfamiliar with including a private partner with other non-HSEEP specific evaluation goals. Contractor was following their template and found it difficult to accommodate change.
- If engaged with fully cooperating States, a large exercise such as ours, using the HSEEP process is a benefit; conducting in-place can be a huge advantage – both economically and functionally.
- Finally, it did increase awareness of need to plan for dam breach response and emergency preparedness at the State and local level

Moore Dam EAP Functional Exercise



QUESTIONS ?

