DOMINICA ADAPTED TSUNAMI WARNING PROTOCOL.

1. SOP A (CARIBBEAN EARTHQUAKE OR ATLANTIC OCEAN EARTHQUAKE)

1.1 PURPOSE

To provide procedural guidance and action steps to be followed in responding to a West Coast and Alaskan Tsunami Warning Centre (WCATWC) issued TSUNAMI WATCH BULLETIN or a TSUNAMI INFORMATION STATEMENT due to a local/regional/teletsunami(distant) seismic event to determine whether the Tsunami Watch Bulletin identifies Dominica as threatened or a significant “felt earthquake” is experienced.

1.2 GENERAL

Please note: When a significant “felt earthquake” is experienced, and before any bulletins are received, it is recommended that the Tsunami Warning Focal Point (National Disaster Coordinator) and the National Tsunami Warning Center (Dominica Police Force Services) be authorized to activate all components of SOP A, Section 1.3 Immediate Actions Checklist. Appendix C provides a chart which outlines the characteristics of a felt earthquake indicating comparison levels for Richter Scale magnitude. All of the following may be used to judge a felt earthquake with a magnitude of 7.0 or higher:

- Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of columns, monuments, walls. Heavy furniture overturned.

- Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations or piles.

- Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

- Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.

- Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Comment [O1]: The Caribbean Tsunami Warning Center (CTWC) has not yet been officially established. They should be opening in June 2012. Need to follow up on progress.

Comment [O2]: Only one needs to be inserted there, preferably fire or police who work 24/7.
The WCATWC/Puerto Rico Seismic Network (PRSN) / CTWC – Caribbean Tsunami Warning Center will issue INFORMATION STATEMENT BULLETINS under the following conditions:

Earthquakes in the PR/VI region (17N-21N and 63.5W-68W)
- Magnitude of 4.0 to 6.4 in the Puerto Rico and The Virgin Islands (PRVI) local region at any depth
- Magnitude 6.5 – 7.8 in the Puerto Rico and The Virgin Islands (PRVI) local region at depth greater than or equal to 100km
  ADVISORY
- Magnitude 6.5 – 6.9 in the Puerto Rico and The Virgin Islands (PRVI) local region at a depth greater than 100km
- The earthquake is generated under land
- The event is felt with an intensity less than VII

TSUNAMI WATCH
A Tsunami Watch is given when earthquakes are at a certain level of strength to potentially cause a tsunami.

The PRSN would recommend a Tsunami Watch under the following conditions:
- An earthquake of a magnitude 8.0 or greater at a depth shallower than 60Km is generated by the Caribbean Sea roughly west of longitude 80W, in the Gulf of Mexico or in the Atlantic Ocean beyond the longitude 35 and 75W and Latitude 10 and 35N.
- Reliable reports are received that a tsunami has been observed which has the potential of reaching the Caribbean.

TSUNAMI WARNING
A tsunami warning is a warning issued once a tsunami has been generated. The Puerto Rico Seismic Network (PRSN) would recommend a tsunami warning if there was a possibility that a tsunami could affect Puerto Rico and the Virgin Islands within 2 hours. For this one of the following would have to be met:
- An earthquake of the intensity V11 or greater is felt in Puerto Rico or the Virgin Islands.
- An earthquake of the magnitude 7.0 – 7.8 or greater and shallower than 60Km is detected by the PRSN or the West Coast and Alaskan Tsunami Warning Centre (WCATWC) offshore the PRVI. A threshold of 7.0 is used because of the potential for seismically induced submarine landslides.
- An earthquake of 7.5 or greater is detected by the PRSN or ATWC beyond the PRVI region, but within a two hour travel time as calculated with the Tsunami Travel Time program of Guisakov (2000). In the Caribbean Sea, this corresponds to all
regions roughly East of Longitude 80 W and the Atlantic Ocean between Longitude 35 and 75 W and Latitude 10 and 35 N. This area corresponds roughly to southern Cuba, Jamaica, Haiti, Dominican Republic, the Lesser Antilles and Northern Venezuela.

- An Earthquake of the magnitude greater than or equal to 7.9 at any depth
- Reliable reports were received that a tsunami has been observed locally, in the Eastern Caribbean or the Western Atlantic Ocean as defined in 3.

While arrival time of tsunami generated by either of the preceding events is over 3 hours, this does not mean there is significant time with which to evaluate danger or to begin.

**TSUNAMI “ALL CLEAR”**
A cancellation, “all clear” of a tsunami watch or warning would indicate that the region is no longer at imminent risk from a tsunami. The Tsunami Focal Point (National Disaster Coordinator) and the Police Department (NTWC) will recommend a cancellation under the following conditions:

- The PRSN has notified the National Tsunami Warning Center (Police) that the warning or watch has discontinued.
- The PRSN determines that the conditions to issue the warning or watch was not met.
- The behavior of the sea has returned to normal levels according to reliable reports
- Within an hour of the conditions being met no reports are received that a tsunami has been generated.

At a future date, when the CTWC is built and operational, this information may include coastal tide stations and recorder information about the tsunami and their likely size. For the case of test messages and tsunami drills the same SOPs will be used.

1.3 **TSUNAMI WARNING: SOP A IMMEDIATE ACTIONS CHECKLIST**

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<th>SOP A IMMEDIATE ACTIONS CHECKLIST</th>
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<tr>
<td>[ ] 1.</td>
<td>The head of the National Tsunami Warning Center Chief of Police and the Tsunami Warning Focal Point; National Disaster Coordinator must review the...</td>
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message from the WCATWC (West Coast and Alaska Tsunami Warning Centre) and PRSN (Puerto Rico Seismic Network) and determine if the tsunami is forecast to impact Dominica

[ ] a. Does not threaten Dominica

After assessment of the Bulletin the Tsunami Warning Focal Point (National Disaster Coordinator), determines the event does not threaten Dominica’s coastlines. The National Tsunami Warning Center (Police), should continue to monitor information about the event and contact the National Disaster Coordinator of ODM to advise that a Tsunami Bulletin was received; that assessment shows that it will not impact Dominica and, that no further action is required. (Use Attachment A, for Emergency Contact Information)

[ ] b. If a tsunami watch is issued, PRSN will recommend a tsunami watch under the following conditions Watch: a watch is given when earthquakes are at a certain level of strength to potentially cause a tsunami

- An earthquake of the magnitude 8.0 or greater at a depth shallower than 60 km is generated by the Caribbean sea, roughly west of Longitude 80 West in the Gulf of Mexico or in the Atlantic Ocean, beyond Longitude 35 and 75 W. and Latitude 10 and 35 N.
- Reliable reports are received that a tsunami has been observed which has the potential of reaching the Caribbean

If this message is received by the Focal Point person/s: He/she/they will contact the National Disaster Coordinator of ODM, If not available, they will try the following persons in this specific order.

Permanent Secretary, Ministry of National Security
Police Chief
Fire Chief
Senior Meteorological Officer

If the Disaster Coordinator of ODM gets message directly then he/she will contact

Permanent Secretary, Ministry of National Security
Police Chief
Fire Chief
Senior Meteorological Officer
Rest of ODM staff

Comment [O13]: Primarily the CTWC and other recommended warning centers

Comment [O14]: Verify/ review this attachment to reflect Dominica’s present situation

Comment [O15]: CTWC or other recommended agency

Comment [O16]: Minister/ PS/ or Prime Minister? To be decided...
If time permits the National Tsunami Warning Center (Police/ Fire/ Met) will verify with PRSN and notify the staff who will begin notifying individuals in the emergency contact list starting with the emergency operations group. They will be told that Dominica is under a tsunami watch and this means that an event has occurred with the potential to cause a tsunami. The National Disaster Coordinator will issue a bulletin on all possible media available and the Emergency Operations Center (EOC) will be activated at level 1.

[ ] c. If a Tsunami warning is issued

**TSUNAMI WARNING**

A tsunami warning is a warning issued once a tsunami has been generated. The Puerto Rico Seismic Network (PRSN) would recommend a tsunami warning if there was a possibility that a tsunami could affect Dominica within 2 hours. For this one of the following would have to be met:

- An earthquake of the intensity V11 or greater is felt in Puerto Rico or the Virgin Islands.
- An earthquake of the magnitude 7.0 – 7.8 or greater and shallower than 60Km is detected by the PRSN or the West Coast and Alaskan Tsunami Warning Centre (WCATWC) offshore the PRVI. A threshold of 7.0 is used because of the potential for seismically induced submarine landslides.
- An earthquake of 7.5 or greater is detected by the PRSN or WCATWC beyond the PRVI region, but within a two hour travel time as calculated with the Tsunami Travel Time program of Guisakov (2000). In the Caribbean Sea, this corresponds to all regions roughly East of Longitude 80 W and the Atlantic Ocean between Longitude 35 and 75 W and Latitude 10 and 35 N. This area corresponds roughly to southern Cuba, Jamaica, Haiti, Dominican Republic, the Lesser Antilles and Northern Venezuela.
- An Earthquake of the magnitude greater than or equal to 7.9 at any depth
- Reliable reports were received that a tsunami has been observed locally, in the Eastern Caribbean or the Western Atlantic Ocean as defined in 3.

If this message is received by the National Tsunami Warning Center (Police): they will contact the National Disaster Coordinator of ODM, If not available, try the following persons in this specific order.
| National Disaster Coordinator  
| Permanent Secretary of the Ministry of National Security  
| Fire Chief  
| Senior Met Officer  

If the National Disaster Coordinator of ODM gets the message directly then he/she will contact:

- Permanent Secretary of the Ministry of National Security  
- Police Chief  
- Fire Chief  
- Senior Met Officer  
- Rest of ODM staff

If time permits the **Tsunami Focal Point (National Disaster Coordinator)** will verify with PRSN and notify the staff who will begin notifying individuals in the emergency contact list starting with the emergency operations group.

They will be told that Dominica is under a tsunami warning and this means that a tsunami has been generated and has the potential of affecting Dominica within 2 hours. The **Tsunami Focal Point (National Disaster Coordinator)** will issue a bulletin on all possible media available.

The Disaster Coordinator of ODM would notify all staff:

- Activate the EOC at Level 5  
- Activate all warning systems  
- Notify the Permanent Secretary of the Ministry of National Security  
- Notify the Media

| Initiate Evacuation Immediately.  
|   |   |   |   |   |
|   | i. Evacuate all coastal areas of Dominica?  
|   |   | Or  
|   | ii. Evacuate all vulnerable coastal areas. ([Use Attachment B, for Listing of Vulnerable Coastal Areas.])  
| And  
|   | iii. Notify Emergency Contacts. ([Use Attachment A, for Emergency Contact Information])

**Comment [O21]:** CTWC  
**Comment [O22]:** PS, or Minister or Prime Minister  
**Comment [O23]:** The PS will inform the Minister and Prime Minister.  
**Comment [O24]:** This has to be revised  
**Comment [O25]:** This has to be revised
2. SOP B (CANCELLATION)

2.1 PURPOSE

To provide procedural guidance and action steps to be followed in responding to a WCATWC/PRSN issued TSUNAMI INFORMATION STATEMENT due to a local or regional seismic event.
### 2.2 GENERAL

The [WCATWC/PRSN] will issue a Tsunami Information Statement advising that all danger of a Tsunami has passed.

- Cancellation Message

### 2.3 IMMEDIATE ACTIONS CHECKLIST

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#### SOP D All Clear

An ‘All clear’ of a tsunami watch or warning will indicate that the region is no longer at imminent risk from a tsunami. The **Tsunami Focal Point (National Disaster Coordinator)** will recommend a cancellation under the following conditions:

1. [WCATWC/PRSN] has notified the **National Tsunami Warning Center (Police/Fire/Met)** or **Tsunami Focal Point** that a warning or watch is discontinued
2. [WCATWC/PRSN] determines that the conditions to issue the warning or watch was not meant
3. The behaviour of the sea has returned to normal levels according to reliable reports.
4. Within an hour of the conditions being met, no reports are received that a tsunami has been generated.

The **National Disaster Coordinator/Tsunami Focal Point** will issue the ‘All clear’ message in consultation with the **Prime Minister**.

This will be done through the NEOC Emergency Alert, Broadcast and Communication Systems and the Emergency Contact List. In the event that those systems are not available this would be done by loud hailers carried in emergency response vehicles.

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No further action required. End of Procedure.
3. **SOP ATTACHMENTS**

TO BE REVISED BY ODM: DIRECTORIES TO BE REVISED AND/OR ATTACHED

**ATTACHMENT A. DIRECTORY OF EMERGENCY CONTACT INFORMATION**

In the case of Tsunami warning:

A.- In the case of tsunami with 2 hour or more before impact.

<table>
<thead>
<tr>
<th>NAME</th>
<th>POST</th>
<th>TELEPHONE</th>
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<tr>
<td>COMMISSIONER OF POLICE</td>
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<tr>
<td>DEPUTY COMM. POLICE</td>
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Include contact information:

1. Commissioner of Police
2. Chief Fire Officer or Deputy Chief Fire Officer
3. Hospitals
4. Ministry of Education
5. Coast Guard
6. Fisheries
7. Local Government Commissioner
8. CEO or Director of Operations Airports and Seaport Authority
9. Director Tourist Board
10. Director of PWD
11. Director of DOWASCO
12. Managing Director DOMLEC
13. National Telecommunications Regulatory Commission
14. Home of the elderly
15. Search and Rescue (Police & Fire)
16. District Officers
17. Director Red Cross
18. Manager Facilities Department

B. In the case of a tsunami less than 1 hour for impact:
   1. Inform the Prime Minister
   2. Activate the National Alert and Broadcast system (sirens all of the island, VHF, emergency Broadcast (interruption of all radio stations and issuing of a warning message for the population, and the SMART radios [schools and critical facilities])
   3. Loud hailers on emergency vehicles would be used in the case the National Alert and Broadcast system fails. Text message and Cellphones will be utilized if available.
ATTACHMENT B. LISTING OF TSUNAMI VULNERABLE COASTAL AREAS

SEE TSUNAMI INUNDATION MAPS FOR DOMINICA

ATTACHMENT D. DIRECTORY OF TSUNAMI ALERT MEDIA PARTNERS

<table>
<thead>
<tr>
<th>STATION-TV &amp; RADIO</th>
<th>TELEPHONE</th>
<th>FAX</th>
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ATTACHMENT E. DIRECTORY OF TSUNAMI ALERT CELL SERVICE COMPANY PARTNERS

To be contacted by the Telecommunications Regulatory Commission (TRC). If unable to make contact with the TRC numbers are as follows:

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<tr>
<th>LIME</th>
<th>TELEPHONE</th>
<th>CELLULAR</th>
<th>FAX</th>
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ATTACHMENT F. BROADCAST MESSAGE FOR MEDIA PARTNERS

URGENT TSUNAMI WARNING
BROADCAST SCRIPT
A TSUNAMI WARNING HAS BEEN ISSUED FOR DOMINICA. PERSONS IN LOW- LYING AREAS ARE ASKED TO MOVE TO HIGHER GROUNDS IMMEDIATELY. PLEASE “CONTINUE TO WATCH” .......... FOR FURTHER INFORMATION AND MONITOR ALL LOCAL RADIO STATIONS FOR FURTHER INFORMATION?

A TSUNAMI WARNING HAS BEEN ISSUED.
THIS IS AN URGENT TSUNAMI WARNING FOR

[ ] 1. ALL COASTAL AREAS OF DOMINICA?

OR

[ ] 2. ALL VULNERABLE COASTAL AREAS OF DOMINICA

A TSUNAMI HAS BEEN GENERATED. IMMEDIATELY EVACUATE ALL BEACHES AND ALL LOW LYING COASTAL AREAS. MOVE INLAND TO HIGHER GROUNDS IMMEDIATELY.

ATTACHMENT G. BROADCAST MESSAGE FOR MARINERS

URGENT TSUNAMI WARNING
MARINERS WARNING SCRIPT
A TSUNAMI WARNING HAS BEEN ISSUED FOR DOMINICA. ALL MARINERS WHO ARE OUT AT SEA ARE ASKED TO HEAD OUT TO AT LEAST 1200 FT DEPTH. MARINERS WHO ARE IN SHALLOW WATERS ARE ASKED TO HEAD TO PORT IMMEDIATELY, SECURE VESSELS AND HEAD TO HIGHER GROUND.

ATTACHMENT H. NATIONAL TSUNAMI DRILL RECORD

Date of Drill: ______  ____________________________

Day & Time Drill Initiated: ______  ____________________________

Name of Recorder: ______  ____________________________
Title of Recorder: ______  ________________________________

Complete the following which document the various steps in the process, the contact infrastructure used, the success, the time of message delivery and message receipt.

[ ] Initiate Drill

1. Document the various means of delivering the message:
   [ ] Received Completed Attachment A.
   [ ] Received Completed Attachment C.
   [ ] Received Completed Attachment D.
   [ ] Received Completed Attachment E.

[ ] End Drill

   Record Day & Time Drill Ended: ________________________________

[ ] Record Comments, if any:

   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

ATTACHMENT I. NATIONAL TSUNAMI DRILL BROADCAST MESSAGE FOR MEDIA PARTNERS

NATIONAL TSUNAMI DRILL
BROADCAST SCRIPT

THIS IS AN EXERCISE !!! IT'S NOT THE REAL THING!!! XX
A TSUNAMI WARNING HAS BEEN ISSUED FOR DOMINICA. PERSONS IN LOW LYING COASTAL AREAS ARE ASKED TO MOVE TO HIGHER GROUND IMMEDIATELY. PLEASE “CONTINUE TO WATCH CBN” 51 FOR FURTHER INFORMATION AND MONITOR ALL YOUR LOCAL RADIO STATIONS FOR FURTHER INFORMATION.
USE CURRENT WORDING FOR NATIONAL CARIBE WAVE 2011 MESSAGE FOR MARINERS

NATIONAL TSUNAMI DRILL
BROADCAST SCRIPT

A NATIONAL DRILL OF THE TSUNAMI WARNING SYSTEM IS BEING CONDUCTED BY THE OFFICE OF DISASTER MANAGEMENT & OTHER KEY EMERGENCY RESPONSE AGENCIES. IF THIS HAD BEEN A REAL TSUNAMI ALERT, YOU WOULD BE ADVISED NOT TO MOVE YOUR VESSELS TOWARDS THE COAST LINE AND TO HEAD FOR OPEN WATERS UNTIL AN ALL CLEAR IS SOUNDED. THERE IS NO TSUNAMI; THIS IS ONLY A TSUNAMI DRILL. I REPEAT, THIS IS ONLY A TSUNAMI DRILL.