

Standard Operating Procedure: Activating and Maintaining the Emergency Siren Network

31 July 2014



MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT
DISASTER MANAGEMENT OFFICE



Cover Image

A siren mounted on a tripod at Poutasi.

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Section 1 Introduction

Introduction

The Ministry of Natural Resources and Environment (MNRE), through the Disaster Management Office (DMO), manages an Emergency Siren Network (ESN) to alert the public of impending emergencies. Twenty three (23) sirens are mounted on poles, churches and tripods along the southern coast of Upolu Island.

SOP Purpose

The purpose of this Standard Operating Procedure (SOP) is to provide instructions to DMO staff on how to activate the ESN.

SOP Review

This SOP is to be reviewed every six months.

When to use this SOP

The ESN can be used to warn the public of a variety of hazards or emergencies. Therefore the trigger of when to use the sirens will vary depending on the nature of the emergency.

An indicative threshold table is included below. A degree of flexibility needs to be adopted when using this table and the final decision rests with the Assistant CEO, DMO (MNRE).

Hazard	Threshold for using the Emergency Siren Network
Tsunami	When a 'National Warning – Tsunami Threat to Samoa' is issued by the Samoa Meteorology Division.
Cyclone	When a 'Special Weather Bulletin' is issued by the Samoa Meteorology Division.
Flooding	To be developed.
Forest fire	As required.
Volcanic eruption	To be developed.

Links with other Plans

This SOP should be read in conjunction with the following plans:

- Samoa's National Disaster Management Plan
- Samoa National Tsunami Plan
- Samoa National Tropical Cyclone Plan
- National Fire Plan

Acronyms

A list of acronyms and their meanings can be found in [Appendix 1 List of Acronyms](#) on page 67.

Section 2 Overview of the Emergency Siren Network

Purpose

The purpose of the Emergency Siren Network (ESN) is to warn the public of impending emergencies. When the sirens are sounded, it is the trigger for members of the public to find out more information.

Information sources include:

- **Local TV**
- **DMO Website:** (www.mnre.gov.ws)
- **Radio:** FM 2AP 540, FM Radio Polynesia 89.1/96.1/98.1/99.9/101.1, FM Star Radio 93.7, FM Laufou 103.1/95.1, FM Aiga Fesilafai 90.5
- **Village contacts:** (village mayor, church ministers, teachers, etc)

Siren sites

The ESN is comprised of twenty three (23) sirens on the south coast of Upolu, Samoa from Saleuauma to Mulifanua, (refer to Section 5.2 [Emergency Siren Network and Emergency Radio Network diagrams](#) on page 31).

Siren tones

The sirens produce a mechanical rise and fall sound. There are three siren tones:



- **Warning:** rise and fall sequences over five minutes. This means there is an impending emergency and the public should seek further information.
- **All Clear:** rise, two minute continuous tone, fall. This means the emergency has passed.
- **Test:** one rise and fall sequence for 25 seconds. A test of the ESN takes place on the first Monday of every month at 1500hrs.

Interdependencies

Power

The ESN and Emergency Radio Network (explained below) are both reliant on power, which is provided by the Electric Power Corporation of Samoa (EPC).

One siren, at Salamumu (Samoana Resort), is connected to a backup generator.

All Emergency Radio Network repeater sites are connected to a backup battery.

Emergency Radio Network (ERN)

To activate the sirens centrally, the ESN relies on the ERN being operational. The ERN on Upolu is a network of digital Very High Frequency (VHF) radio repeaters located at strategic locations throughout the island.

The location of Upolu's ERN sites and the radio paths linking the repeaters is outlined in Section 5.2 [Emergency Siren Network and Emergency Radio Network diagrams](#) on page 31.

Repeater sites provide coverage for emergency services radios operating typically within sight of a repeater. As the repeaters are linked, it is possible for radios to communicate at much greater distances than would otherwise be possible. In the case of the ESN, the radio receivers contained in the siren control boxes operate on the ERN and are 'in sight' of an ERN repeater.

It is important to note that where repeaters are linked in series, failure of a repeater earlier in the series will result in all subsequent repeaters being unable to link back to the rest of the network.

How the sirens are activated

The sirens are activated by two means:

- centrally via the National Emergency Operations Centre (NEOC) Communications Room radio based activation systems, or
- locally by village personnel using a manual over-ride button at each site.

NEOC Communications Room

Using software on the NEOC Communications Room computer, DMO staff can activate the Warning, All Clear or Test siren tone on any single, combination or all of the sirens via the ERN. The ESN software monitors the system and indicates when sirens have been activated. The system also indicates if there is a fault with the power to any of the siren sites. The ERN computer, also located in the NEOC Communications Room will indicate if there is a fault within the ERN.

DMO staff also have the option of activating the system via a pre-programmed radio located in the NEOC Communications Room. This back-up radio can send either the Warning, All Clear or Test message to all sites. It is not programmed to send to a single site.

Manual activation

To activate the sirens manually, instructions and training have been provided to village personnel at each siren site. A 'break-glass' button is mounted on the side of each siren control box. To activate the siren manually, the glass must be broken and the button pressed and held for three seconds in order for the siren to activate. Once the siren is activated in this manner, it will sound the Warning sequence and if necessary, the person activating the siren may evacuate the area. Once activated manually, village personnel are to call the DMO to advise whether or not the sirens worked.

Section 3 Activating the Emergency Siren Network from the NEOC

Introduction

There are three ways to activate the Emergency Siren Network (ESN) from the National Emergency Operations Centre (NEOC):

1. Activating **ALL SIRENS** from the **ESN computer** in the NEOC Communications Room,
2. Activating a **SINGLE SIREN** from the **ESN computer** in the NEOC Communications Room, and
3. Activating **ALL SIRENS** using the **radio** in the NEOC Communications Room.

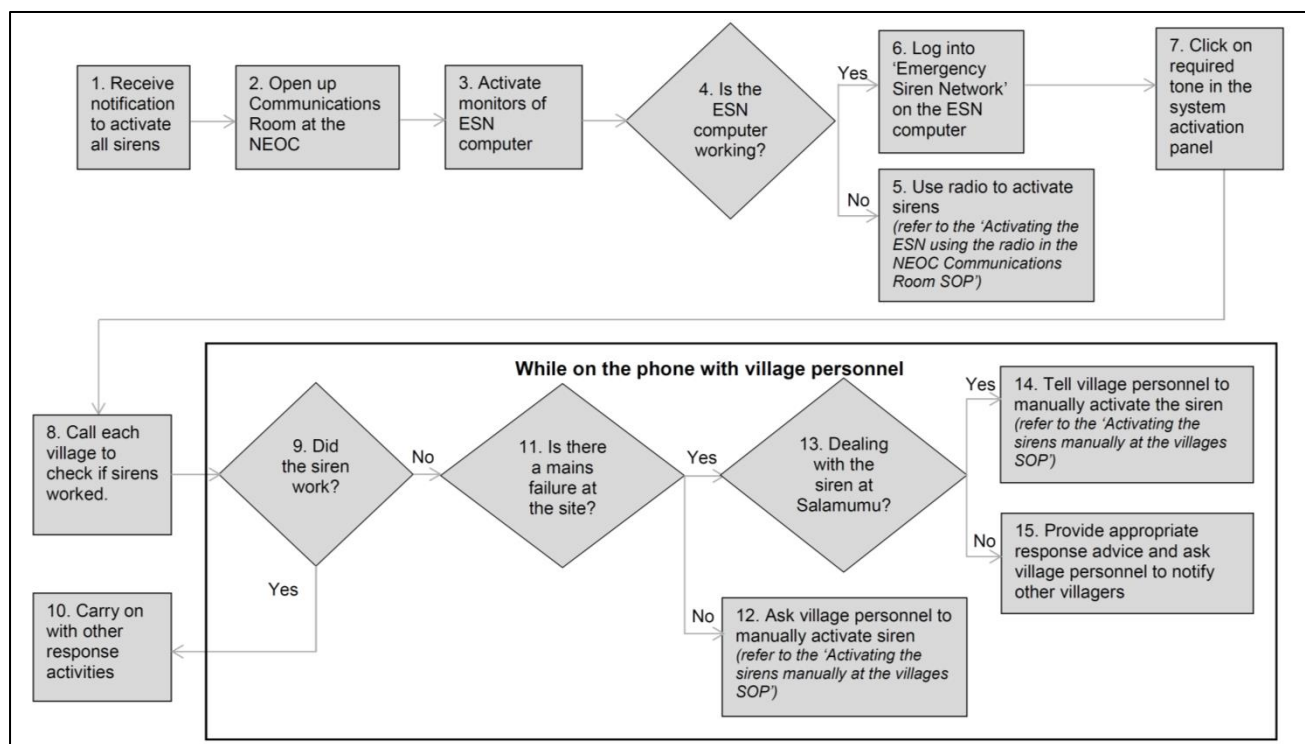
Procedures for each of these methods are detailed below.

3.1 Activating ALL SIRENS from the Emergency Siren Network computer in the NEOC Communications Room

Process flowchart


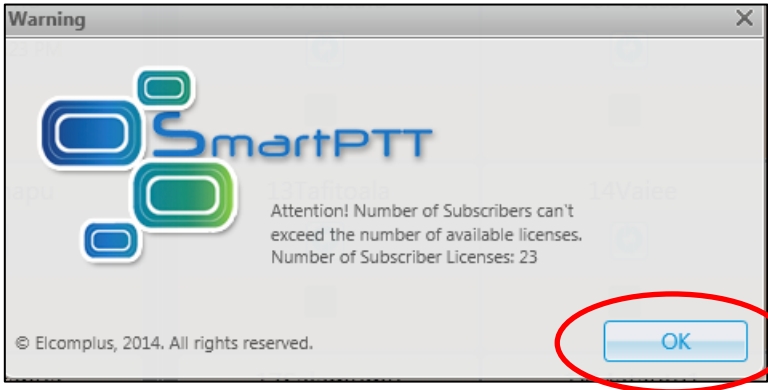
The flowchart below provides an overview of the steps required to activate all sirens from the ESN computer in the NEOC Communications Room.

Information about each step is provided in Section 3.1.1 [Detailed actions](#) on page 8.



3.1.1 Detailed actions

The following table provides detailed information on each step outlined in the process flowchart in Section 3.1 [Activating ALL SIRENS from the Emergency Siren Network computer in the NEOC Communications Room](#) on page 7.

Step	Action
1.	Receive notification to activate all sirens Disaster Management Office (DMO) staff will be notified to activate the sirens by the Assistant CEO, DMO (MNRE).
2.	Open up the Communications Room at the NEOC If not already open, open up the Communications Room. All DMO staff have access to this room.
3.	Activate monitors of ESN computer The ESN computer has two monitors. Activate them by turning on the power buttons in the bottom right hand corner of the monitors  Note: This computer should be left on at all times to ensure quick access. However, if the computer is not on, turn it on. If the following warning message appears, click okay 

4. **Is the ESN computer working?**

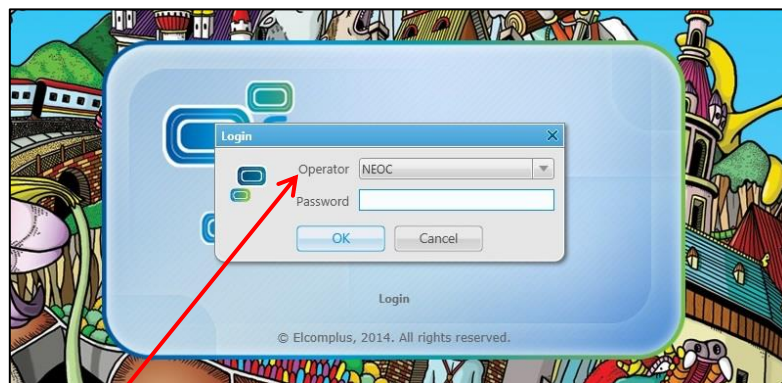
If no, go to step 5.
If yes, go to step 6.

5. **Use radio to activate sirens**

Refer to Section 3.3 [Activating ALL SIRENS using the radio in the Communications Room](#) on page 26.

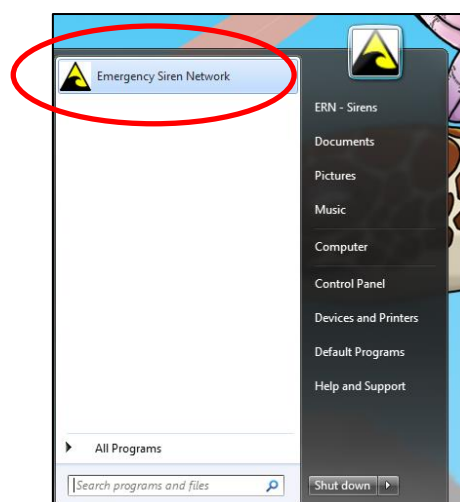
6. **Log into 'Emergency Siren Network' on the Siren computer**

A pop up box should automatically appear when you activate the monitors of the Emergency Siren Network computer (see below).



Make sure the Operator selected is **NEOC**. The password is known by DMO staff that have been identified to activate the Emergency Siren Network.

If the pop up box does not appear, click on 'Emergency Siren Network' in the start menu.



Note: If the ESN computer has to be restarted, it can take up to 20 minutes for the 'Emergency Siren Network' programme to start up.

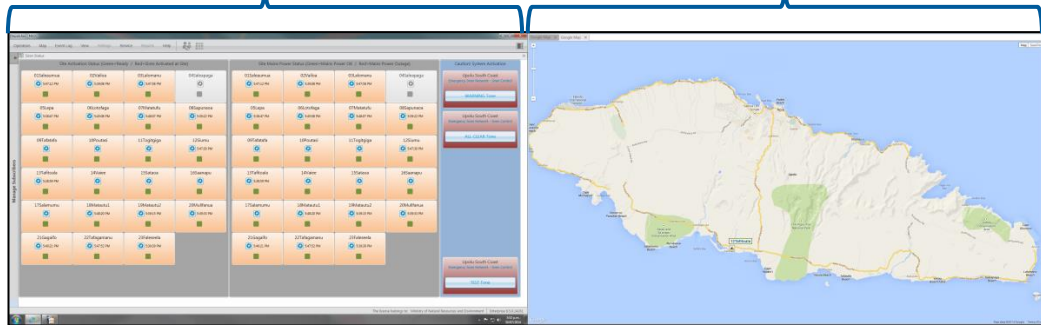
Useful info

There are two monitors attached to the Emergency Siren Network computer.

When you log into the 'Emergency Siren Network' programme, two Graphical User Interfaces (GUIs) will automatically open (one on each monitor).

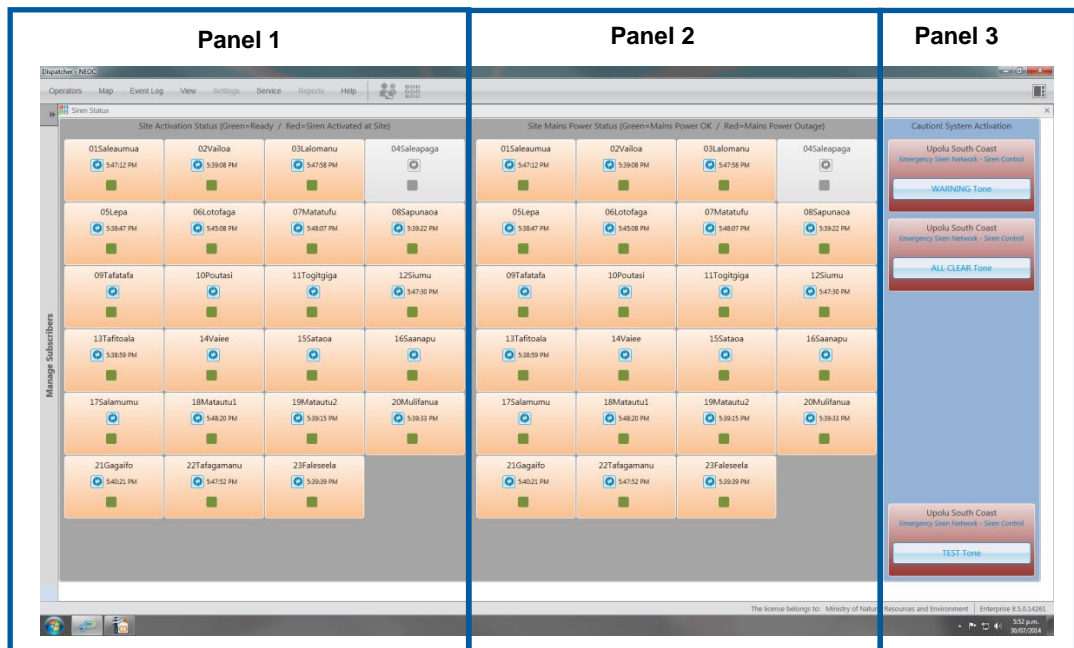
Control GUI (left hand monitor)

Map GUI (right hand monitor)



Control GUI

The Control GUI contains three panels (see below).



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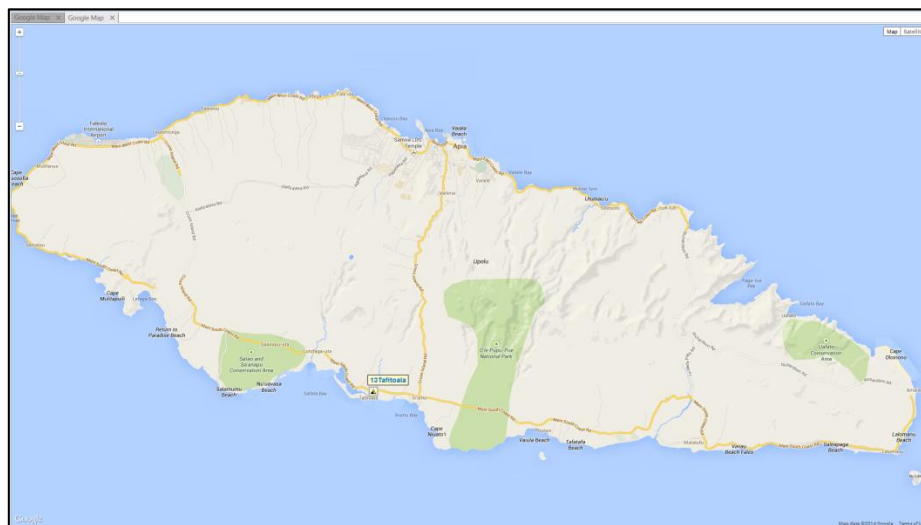
The following table describes each of the three panels.

Panel	Name	Description
1	Site Activation Status	<p>The left hand panel shows the activation status of each of the sirens.</p> <p>Each siren is represented by a single tile:</p> <div data-bbox="715 566 1010 728"> </div> <p>A tile with a grey background indicates that the siren is offline.</p> <div data-bbox="715 766 1010 911"> </div> <p>A tile with an orange background indicates that the siren is online.</p> <div data-bbox="715 983 1010 1128"> </div> <p>Refresh button</p> <ul style="list-style-type: none"> • A green light within a tile indicates that they individual siren is ready to be activated. • A red light within a tile indicates that the siren has been manually activated from a siren site. This light will stay red until the tile is refreshed.
2	Site Mains Power Status	<p>The middle panel shows the mains power status of each of the sirens.</p> <p>Each siren is represented by a single tile:</p> <div data-bbox="667 1565 962 1711"> </div> <ul style="list-style-type: none"> • A green light indicates that the mains power is okay. • A red light indicates that there is a mains power failure.
3	System Activation	<p>The right hand panel is the system activation panel, which allows the Warning, All Clear, or Test tone to be activated.</p>

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Map GUI

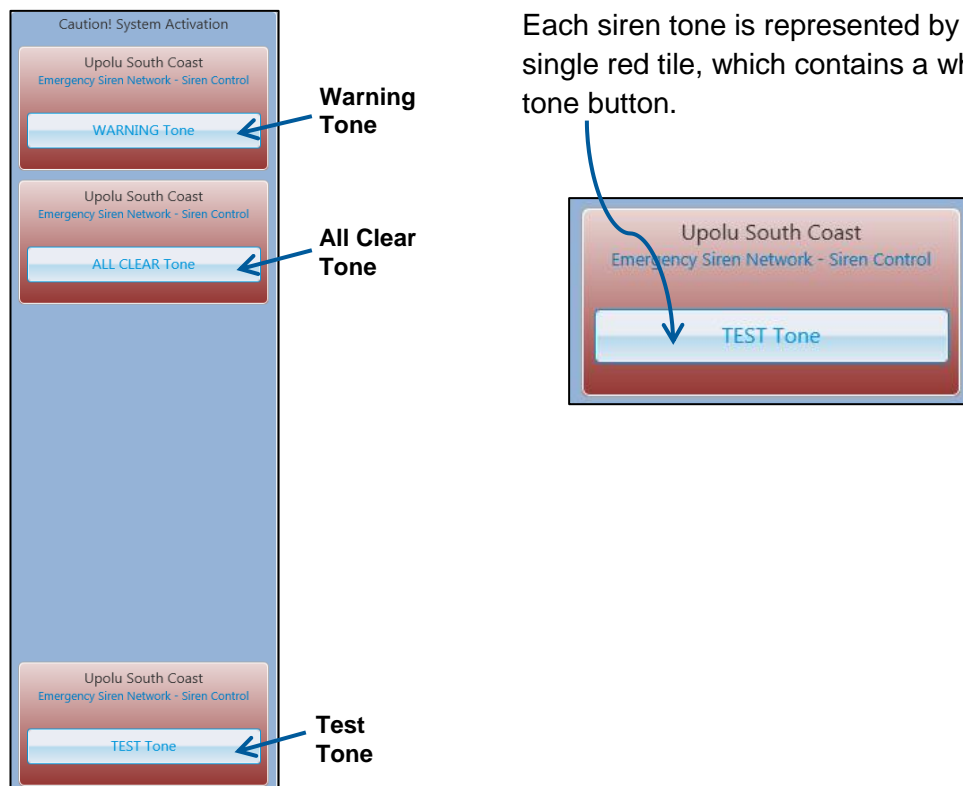
The map GUI shows the location of the sirens.



The map GUI has normal google map functionality with the ability to zoom in and out, and to switch between map and satellite view.

7. Click on the required tone in the system activation panel

The System Activation panel contains three buttons as shown in the left hand image below:



When the **Warning siren tone** has been activated, the light will turn red for 30 seconds. After the 30 seconds has passed, you will be able to activate the All Clear or Test siren tone if required.

When the **All Clear siren tone** has been activated, the light will turn red for two minutes. After the two minutes has passed, you will be able to activate the Test siren tone if required. However, the Warning siren tone can be activated at any time. You do not have to wait until the two minutes has passed.

When the **Test siren tone** has been activated, the light will turn red for 25 seconds. After the 25 seconds has passed, you will be able to activate the All Clear siren tone if required. However, the Warning siren tone can be activated at any time. You do not have to wait until the 25 seconds has passed.

8. Call each village to check if sirens worked

A list of contact numbers is kept on the noticeboard in the NEOC Communications Room.

9. Did the siren work?

While on the phone with village personnel, ask if their siren worked.

If yes, go to step 10.

If no, go to step 11 and remain on the phone.

10. Carry on with other activities

If all sirens did work, carry on with other activities as required. There is no need to proceed further in this SOP until another activation notification is received.

11. Is there a mains failure at the site?

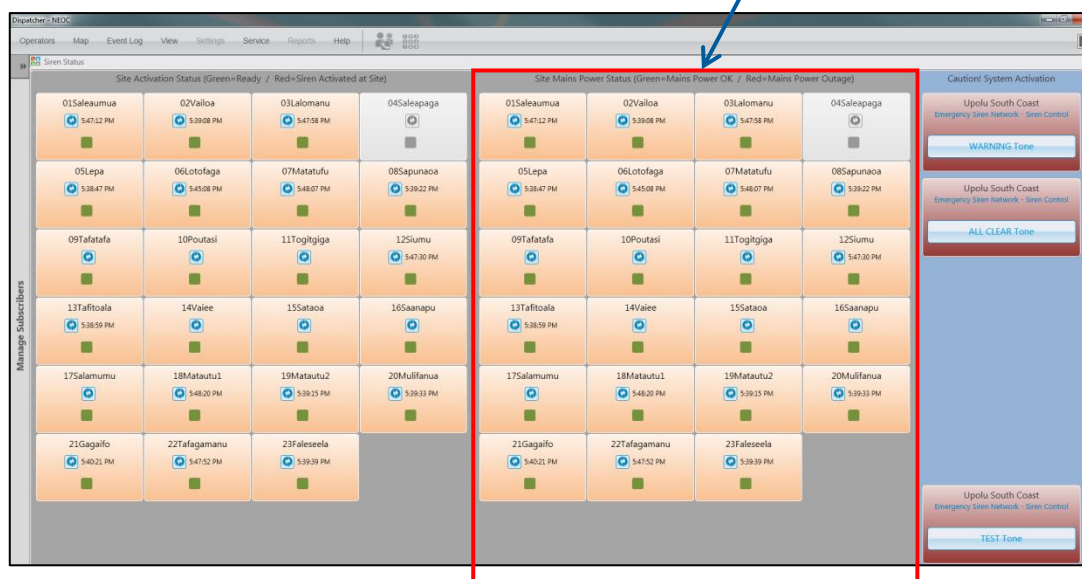
While on the phone, check to see if there is a mains failure at the site.

If no, go to step 12.

If yes, go to step 13.

The Site Mains Power Status panel of the Control GUI (middle panel) shows the mains power status of each of the sirens.

Site Mains Power Status panel



Each siren is represented by a single tile:



- A **green** light indicates that the mains power is okay.
- A **red** light indicates that there is a mains power failure.

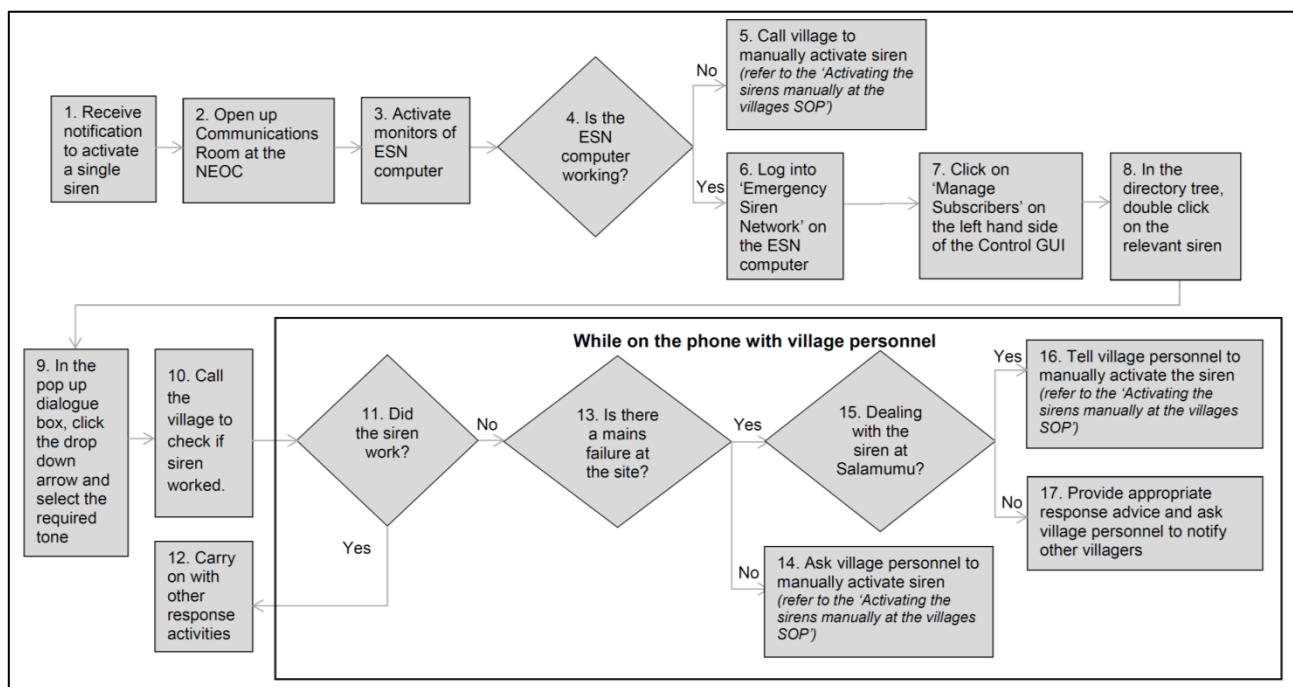
12.	Ask village personnel to manually activate siren. Refer to Section 4 Activating the sirens manually at the villages on page 28.
13.	Dealing with the siren at Salamumu? If yes, go to step 14. If no, go to step 15.
14.	Tell village personnel to manually activate the siren Refer to Section 4 Activating the sirens manually at the villages on page 28 The siren at Salamumu has a backup generator, which will power the siren if there is a power failure. No other sirens have a backup generator and will therefore not work if there are power failures.
15.	Provide appropriate response advice and ask village personnel to notify other villagers As the sirens without power will not work for villages other than at Salamumu, provide advice to the village personnel about what response actions they should take. This will vary depending on the nature of the emergency. Ask the village personnel to notify other villagers of what is going on and what to do.

3.2 Activating a SINGLE SIREN from the Emergency Siren Network computer in the NEOC Communications Room

Process flowchart

The flowchart below provides an overview of the steps required to activate a single siren from the ESN computer in the NEOC Communications Room.


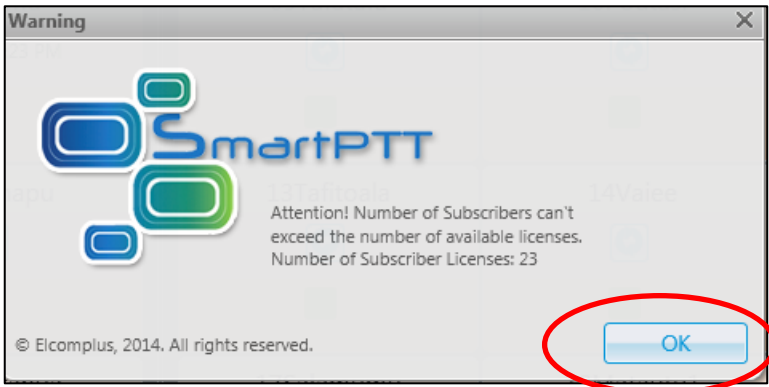
Information about each step is provided in 3.2.1 [Detailed actions](#) on page 16.



3.2.1 Detailed actions

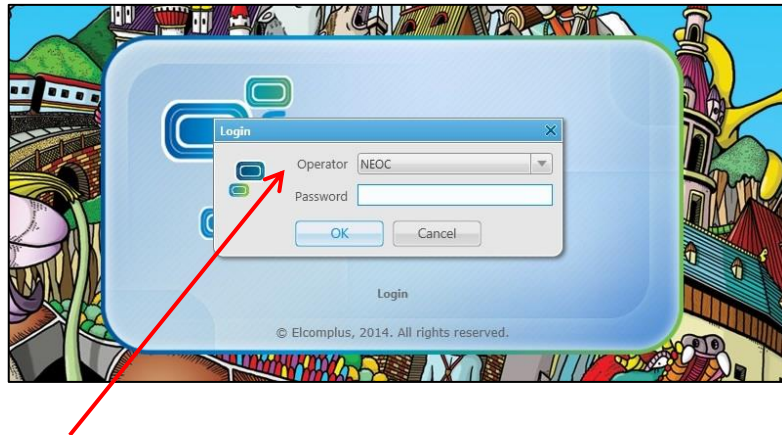
The following table provides detailed information on each step outlined in the process flowchart in Section 3.2 [Activating a SINGLE SIREN from the Emergency Siren Network computer in the NEOC Communications Room](#) on page 16.

Step	Action
1.	Receive notification to activate a single siren Disaster Management Office (DMO) staff will be notified to activate the sirens by the Assistant CEO, DMO (MNRE).

2.	<p>Open up the Communications Room at the NEOC</p> <p>If not already open, open up the Communications Room. All DMO staff have access to this room.</p>
3.	<p>Activate monitors of ESN computer</p> <p>The ESN computer has two monitors. Activate them by turning on the power buttons in the bottom right hand corner of the monitors</p>  <p>Note: This computer should be left on at all times to ensure quick access. However, if the computer is not on, turn it on.</p> <p>If the following warning message appears, click okay</p> 
4.	<p>Is the ESN computer working?</p> <p>If no, go to step 5. If yes, go to step 6.</p>
5.	<p>Call village to manually activate siren</p> <p>Refer to Section 4 Activating the sirens manually at the villages on page 28.</p>

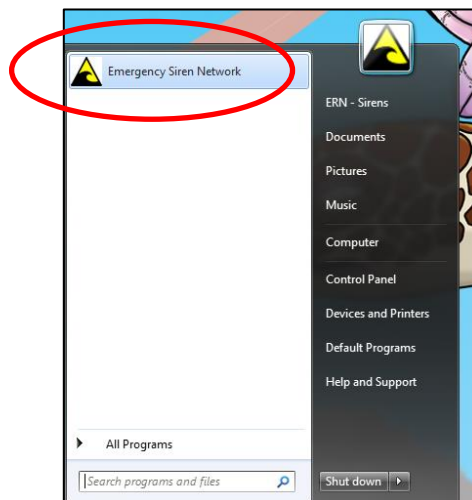
6. Log into 'Emergency Siren Network' on the Siren computer

A pop up box should automatically appear when you activate the monitors of the Emergency Siren Network computer (see below).



Make sure the Operator selected is **NEOC**. The password is known by DMO staff that have been identified to activate the Emergency Siren Network.

If the pop up box does not appear, click on 'Emergency Siren Network' in the start menu.



Note: If the ESN computer has to be restarted, it can take up to 20 minutes for the 'Emergency Siren Network' programme to start up.

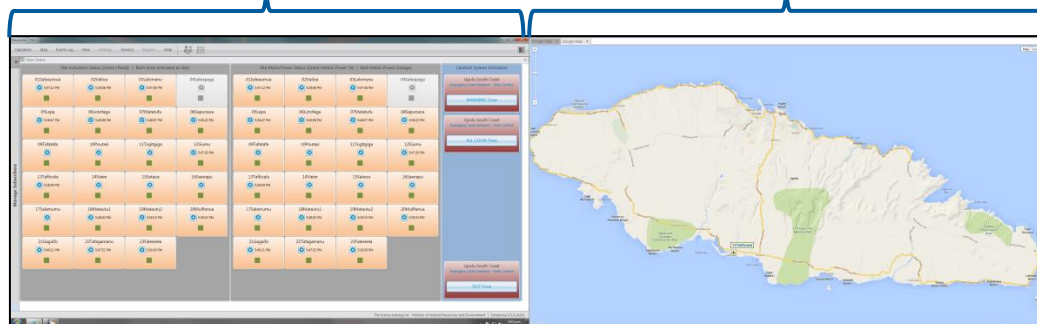
Useful info

There are two monitors attached to the Emergency Siren Network computer.

When you log into the 'Emergency Siren Network' programme, two Graphical User Interfaces (GUIs) will automatically open (one on each monitor).

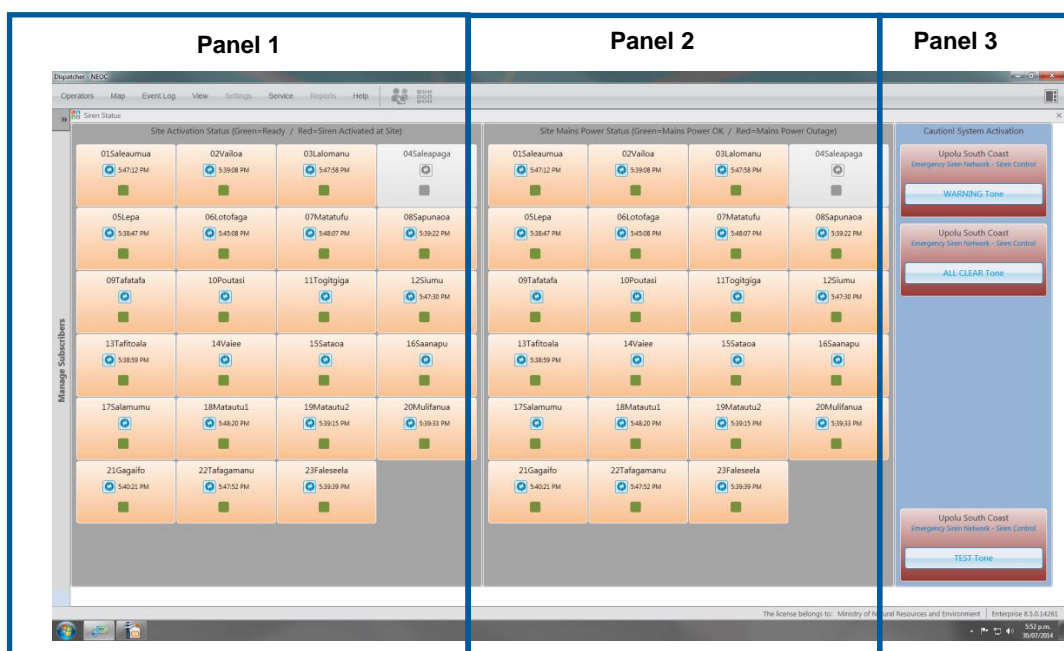
Control GUI (left hand monitor)

Map GUI (right hand monitor)



Control GUI

The Control GUI contains three panels (see below).



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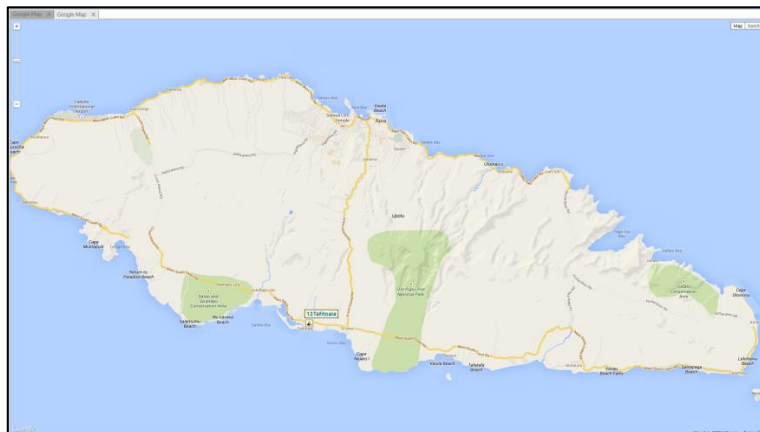
The following table describes each of the three panels.

Panel	Name	Description
1	Site Activation Status	<p>The left hand panel shows the activation status of each of the sirens.</p> <p>Each siren is represented by a single tile:</p> <div data-bbox="684 573 979 734"> </div> <p>A tile with a grey background indicates that the siren is offline.</p> <div data-bbox="684 772 979 918"> </div> <p>A tile with an orange background indicates that the siren is online.</p> <div data-bbox="684 990 979 1137"> </div> <p>Refresh button</p> <ul style="list-style-type: none"> • A green light within a tile indicates that they individual siren is ready to be activated. • A red light within a tile indicates that the siren has been manually activated from a siren site. This light will stay red until the tile is refreshed.
2	Site Mains Power Status	<p>The middle panel shows the mains power status of each of the sirens.</p> <p>Each siren is represented by a single tile:</p> <div data-bbox="636 1574 932 1722"> </div> <ul style="list-style-type: none"> • A green light indicates that the mains power is okay. • A red light indicates that there is a mains power failure.
3	System Activation	<p>The right hand panel is the system activation panel, which allows the Warning, All Clear, or Test tone to be activated.</p>

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Map GUI

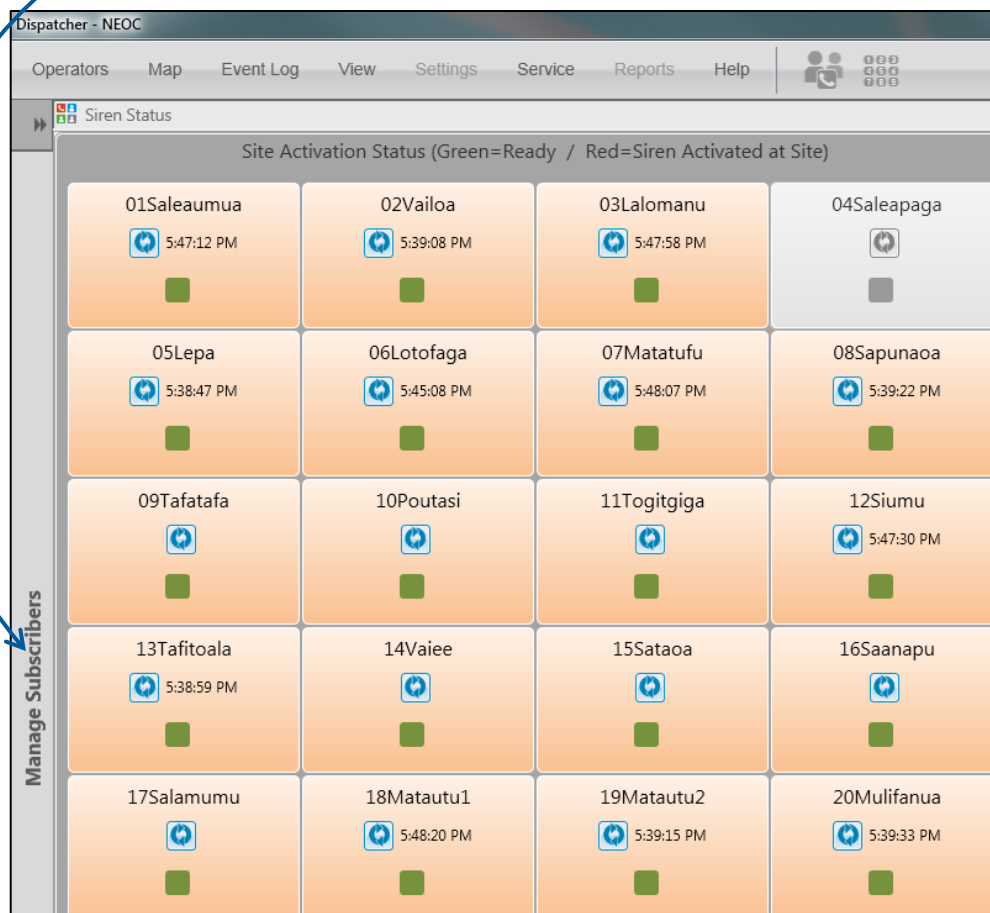
The map GUI shows the location of the sirens.



The map GUI has normal google map functionality with the ability to zoom in and out, and to switch between map and satellite view.

7. Click on 'Manage Subscribers' on the left hand side of the Control GUI

Click on Manage Subscribers. This will expand the section.

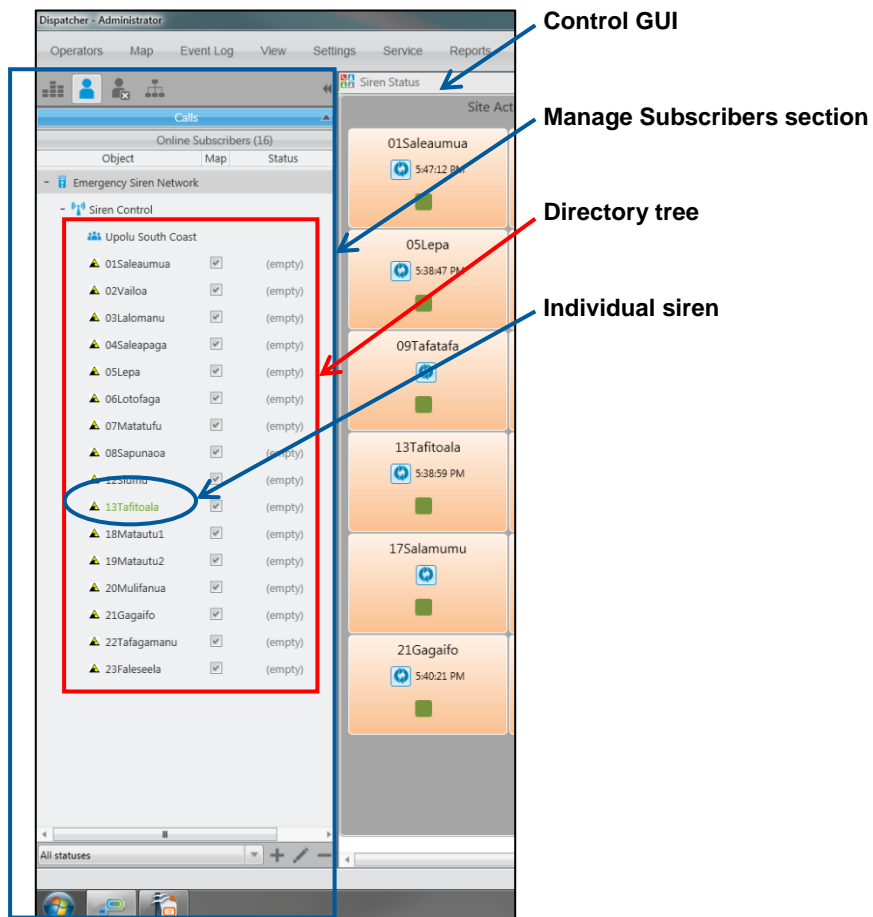


8. In the directory tree, double click on the relevant siren

When 'Manage Subscribers' is expanded, this section appears to the left of the Control GUI.

The Manage Subscribers section contains a directory tree, which lists individual siren sites.

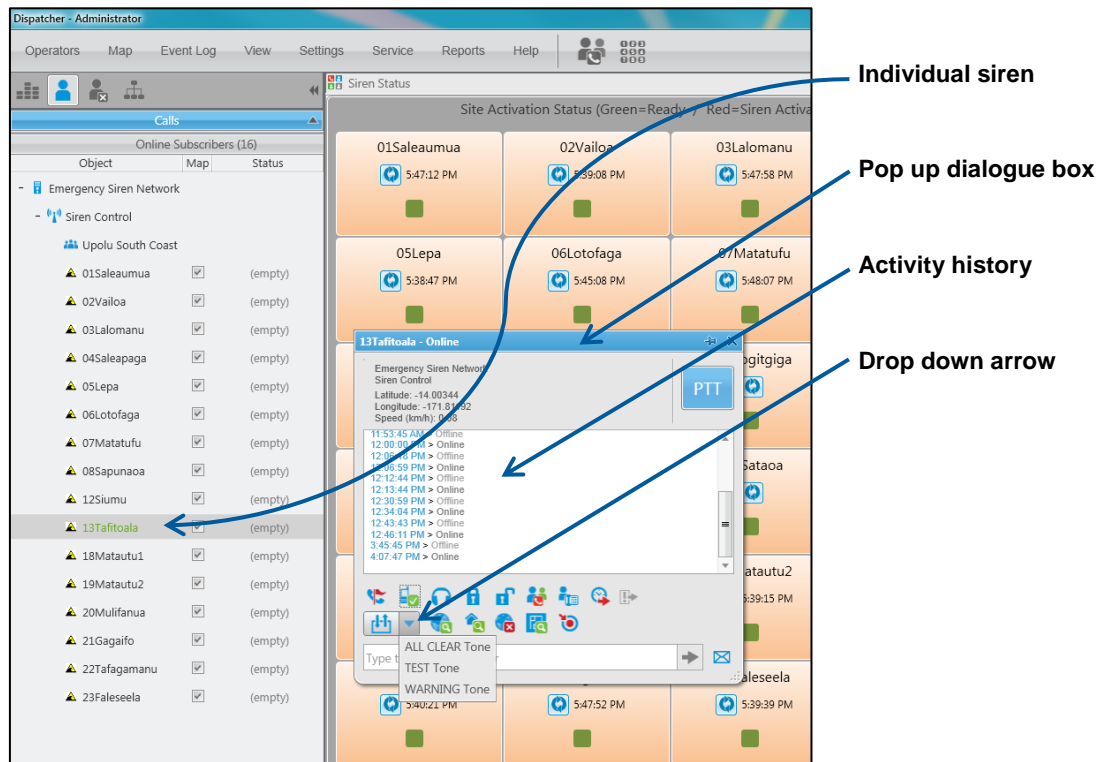
Double click on the siren site you want to activate.



9. In the pop up dialogue box, click the drop down arrow and select the required tone

When an individual siren site is selected, a pop up dialogue box pops up showing a history of activity for that siren site.

At the bottom of the dialogue box is a drop down arrow, which allows the Warning, All Clear or Test siren tone to be activated. Select the required tone.



10. Call the village to check if siren worked

A list of contact numbers is kept on the noticeboard in the NEOC Communications Room.

11. Did the siren work?

While on the phone with village personnel, ask if their siren worked.

If yes, go to step 12.

If no, go to step 13 and remain on the phone.

12. Carry on with other activities

If the siren did work, carry on with other activities as required. There is no need to proceed further in this SOP until another activation notification is received.

13. Is there a mains failure at the site?

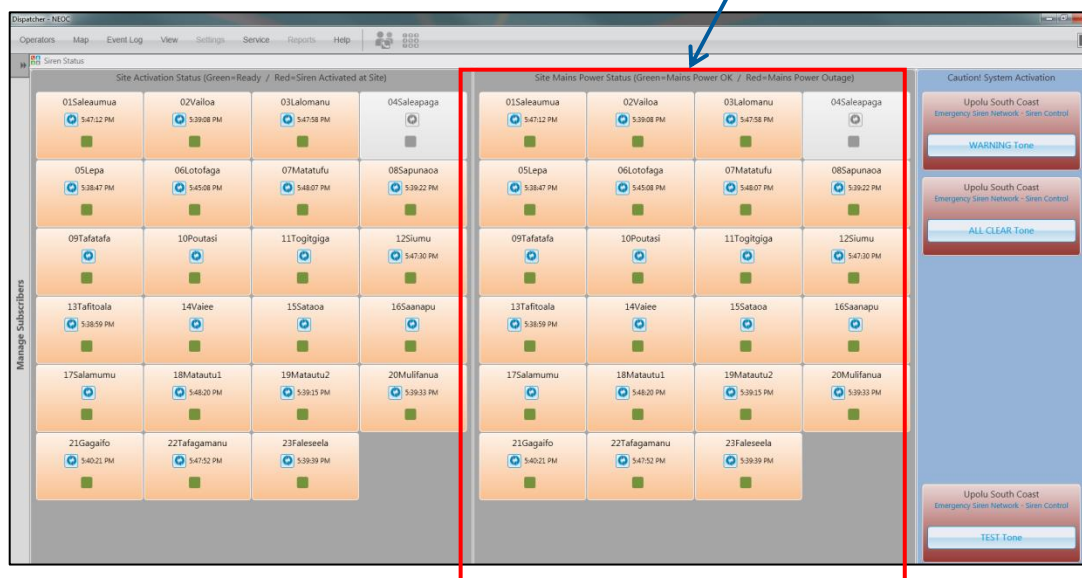
While on the phone, check to see if there is a mains failure to the site.

If no, go to step 14.

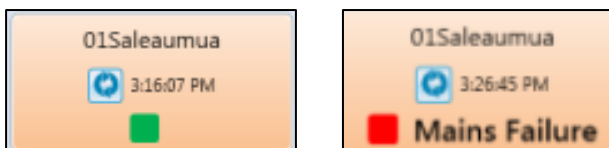
If yes, go to step 15.

The Site Mains Power Status panel of the Control GUI (middle panel) shows the mains power status of each of the sirens.

Site Mains Power Status panel



Each siren is represented by a single tile:



- A **green** light indicates that the mains power is okay.
- A **red** light indicates that there is a mains power failure.

14. Ask village personnel to manually activate siren.

Refer to Section 4 [Activating the sirens manually at the villages](#) on page 28.

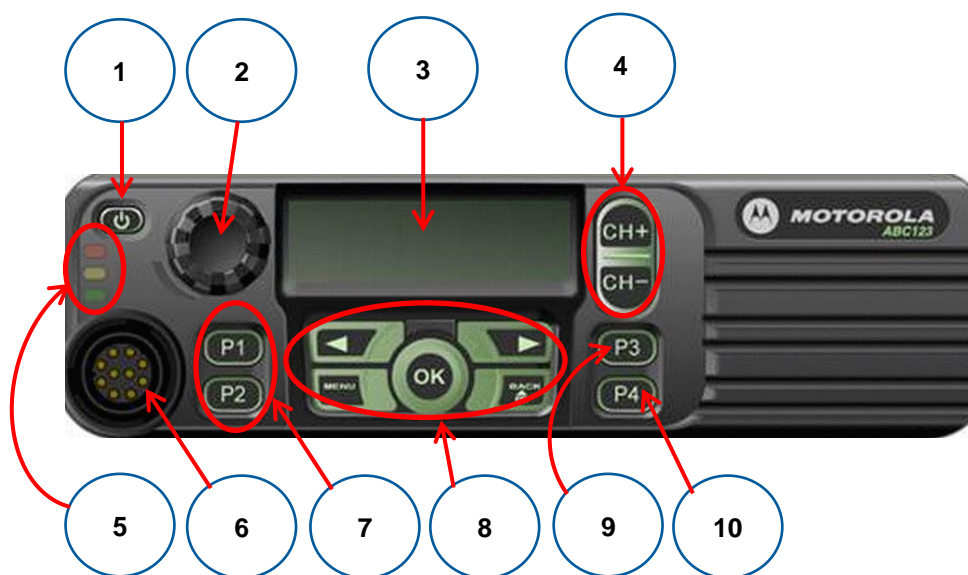
15.	<p>Dealing with the siren at Salamumu?</p> <p>If yes, go to step 16. If no, go to step 17.</p>
16.	<p>Tell village personnel to manually activate the siren</p> <p>Refer to Section 4 Activating the sirens manually at the villages on page 28</p> <p>The siren at Salamumu has a backup generator, which will power the siren if there is a power failure.</p> <p>No other sirens have a backup generator and will therefore not work if there are power failures.</p>
17.	<p>Provide appropriate response advice and ask village personnel to notify other villagers</p> <p>As the sirens without power will not work for villages other than at Salamumu, provide advice to the village personnel about what response actions they should take. This will vary depending on the nature of the emergency.</p> <p>Ask the village personnel to notify other villagers of what is going on and what to do.</p>

3.3 Activating ALL SIRENS using the radio in the Communications Room




The radio is the backup system for activating the Emergency Siren Network. It should only be used when the sirens cannot be activated via the computer or when a test of the radio is required. This is because the radio does not record the results of the Emergency Siren Network.

3.3.1 Radio Components

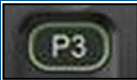


Number	Function	Details
1	Power On/Off	This button has been disabled so that the radio is always on.
2	Volume	The volume button has no functionality as the radio is used for data only.
3	Screen	The screen displays either 'VA Siren Site' or 'FI Siren Site', depending on which repeater the radio is connected to. VA = Mt Vaea FI = Mt Fiamoe
4	Channel selection	These buttons have no functionality.
5	LED display	A solid or blinking green light indicates that the system is connected to a repeater site and is working. An orange light indicates that the system is not connected to a repeater site. If the light is orange , switch the radio off at the power source and back on to reboot the system.
6	Microphone input	No microphone is attached so this has no functionality.
7	Warning tone	P1 <u>or</u> P2 can be used to activate the Warning siren tone.
8	Menu navigation	This set of buttons has been disabled and therefore has no functionality.
9	All Clear tone	P3 activates the All Clear siren tone.
10	Test tone	P4 activates the Test tone.

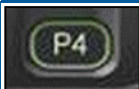
3.3.2 Activating the WARNING Siren

Step	Action
1	 To activate the WARNING tone to all sirens, press and hold either P1 <u>or</u> P2 for three seconds (do not press P1 and P2 together as the sirens will not work). The radio will beep once when the button has been held long enough. The screen will also display 'telemetry message sent'.
2	Call each village to check their sirens have been activated. A list of contact numbers is kept on the noticeboard in the NEOC Communications Room.
3	If the sirens did not work , call the appropriate villages to manually activate their sirens (<i>refer to the 'Activating the sirens manually at the villages SOP'</i>).

3.3.3 Activating the ALL CLEAR Siren

Step	Action
1	 To activate the ALL CLEAR tone to all sirens, press and hold P3 for three seconds. The radio will beep once when the button has been held long enough. The screen will also display 'telemetry message sent'.
2	Call each village to check their sirens have been activated. A list of contact numbers is kept on the noticeboard in the NEOC Communications Room.
3	If the sirens did not work , tell the village personnel that the All Clear has been given.

3.3.4 Activating the TEST Siren

Step	Action
1	 To activate the TEST tone to all sirens, press and hold P4 for three seconds. The radio will beep once when the button has been held long enough. The screen will also display 'telemetry message sent'.
2	Call each village to check their sirens have been activated. A list of contact numbers is kept on the noticeboard in the NEOC Communications Room.
3	If the sirens did not work , refer to the Maintenance section of the 'Standard Operating Procedure: Activating and Maintaining the Emergency Siren Network'.

Section 4 Activating the sirens manually at the villages

Step	Action
1.	Identify which villages need to be contacted (this should be done with the Assistant CEO, DMO (MNRE)). A list of contact numbers is kept on the noticeboard in the NEOC Communications Room.
2.	Work out who (DMO staff) will call which village(s).
3.	Call each village to manually activate the siren(s). Here are some guidelines on what to say: <ol style="list-style-type: none"> 1. “We are issuing a [<i>name of Warning or Bulletin</i>] in response to [<i>type of emergency</i>] and we need you to activate the siren in your village. 2. Is it safe for you to go to the siren? <ol style="list-style-type: none"> 2.1. If no, please [<i>provide advice on how people in the village should respond. This will depend on the type of emergency</i>] 2.2. Thank you”. 2.3. If yes, please <ul style="list-style-type: none"> • activate the siren by breaking the glass on the side of the siren box and pushing and holding the red button for three seconds. • Once you have done this, please [<i>provide advice on how people in the village should respond. This will depend on the type of emergency</i>] • Once you have done this, please call us back on 997 to tell us if the siren worked or not. • Thank you”.

Note: An English and Samoan version of one of the SOPs provided to the villages is included on the next page.

Each SOP provided to the villages has been slightly tailored to include the relevant siren photo for each village.

Copies of each of these SOPs are included in [Appendix 2 Copies of the SOPs for each of the Village Siren Sites](#) on page 68.

Site 1: Saleaamua (English)

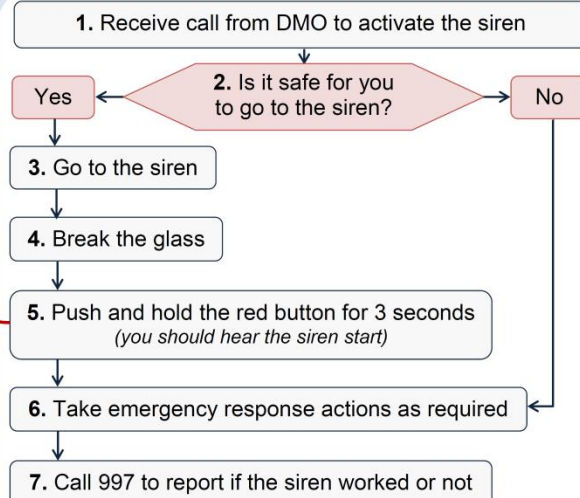
How to activate the siren

Important: You only need to activate the siren if you are requested to by the Disaster Management Office (DMO).



Siren tests
Testing of the sirens will occur on the first Monday of every month at 3pm

Reporting faults or damage
Telefoni 27307 poo le 997 e lipoti iai ni faaletonu



Important: The all clear siren will sound once the emergency has passed.

July 2014
Saleaamua

Site 1: Saleaamua (Samoan)

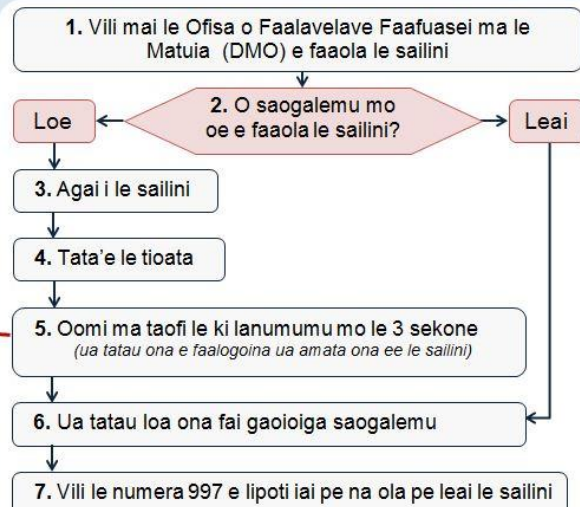
Faaolaina o le sailini

Faaliga Taua: E faatua faaola le sailini pea fesootai mai le Ofisa o Faalavelave Faafuasei ma le Matuia (DMO)



Faaitaiga mo le sailini
Faaitaiga ole sailini o le a faia i Aso Gafua muamua o masina taitasi ile 3 ile aoauli.

Lipoti ni tulaga faaletonu ma faaleagaina
Telefoni 27307 poo le 997 e lipoti iai ni faaletonu



Faaliga Taua: O le leo mo le saogalemu o le a faaee pea afai ua saogalemu ma sefe.

Iulai 2014
Saleaamua

Section 5 Maintenance of the Emergency Siren Network

5.1 Inspection schedule

Introduction

The following pages form the basis of visual site inspections for the Emergency Siren Network (ESN) that should be undertaken on a quarterly basis by the Disaster Management Office (DMO).

These visual inspection sheets should be copied each quarter and kept as a record of the inspection.

Any technical maintenance on components within the siren cabinets needs to be undertaken by a qualified service technician.

Monthly siren test

A monthly siren test sheet should also be maintained (copy included in this schedule).

If the monthly siren test results in a site not working, immediate action should be taken to fix the problem and a copy of the quarterly inspection sheet used as a record of the maintenance. Equally, reports of damage to a site should also be followed up immediately.

Emergency Radio Network

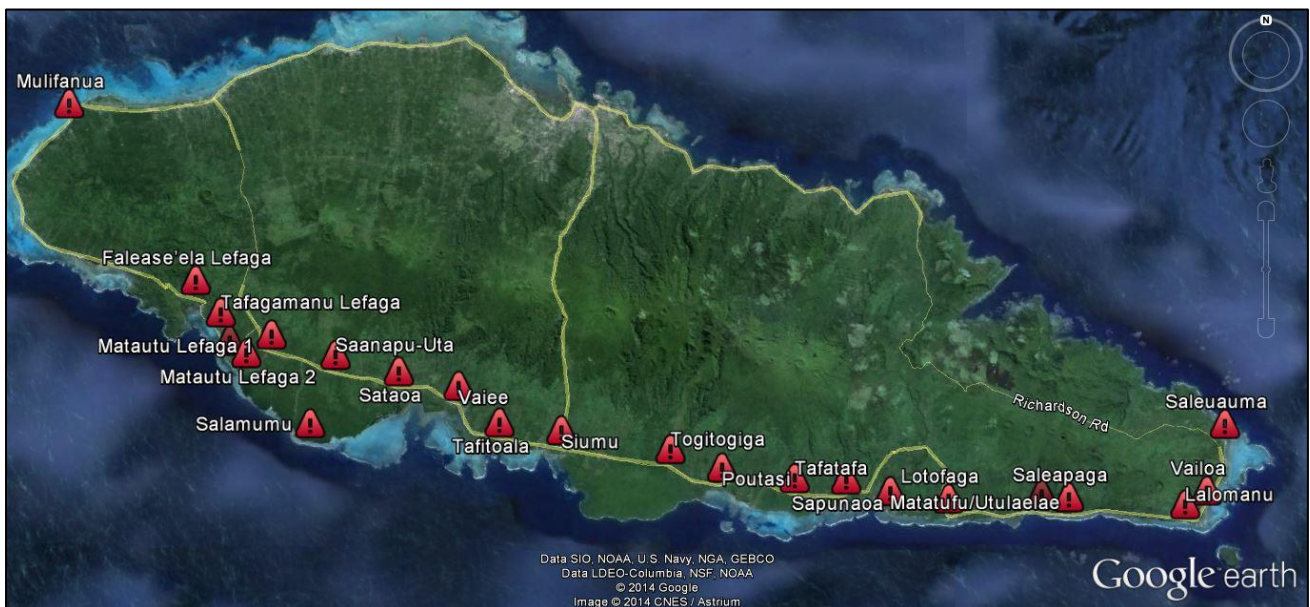
Activation of the Emergency Siren Network (ESN) is dependent on the Emergency Radio Network (ERN). The ERN has its own inspection schedule, and the DMO troubleshooting is described below. Faults in the ERN need to be addressed immediately to maintain the integrity of both the ESN and emergency services radio networks.

5.2 Emergency Siren Network and Emergency Radio Network diagrams

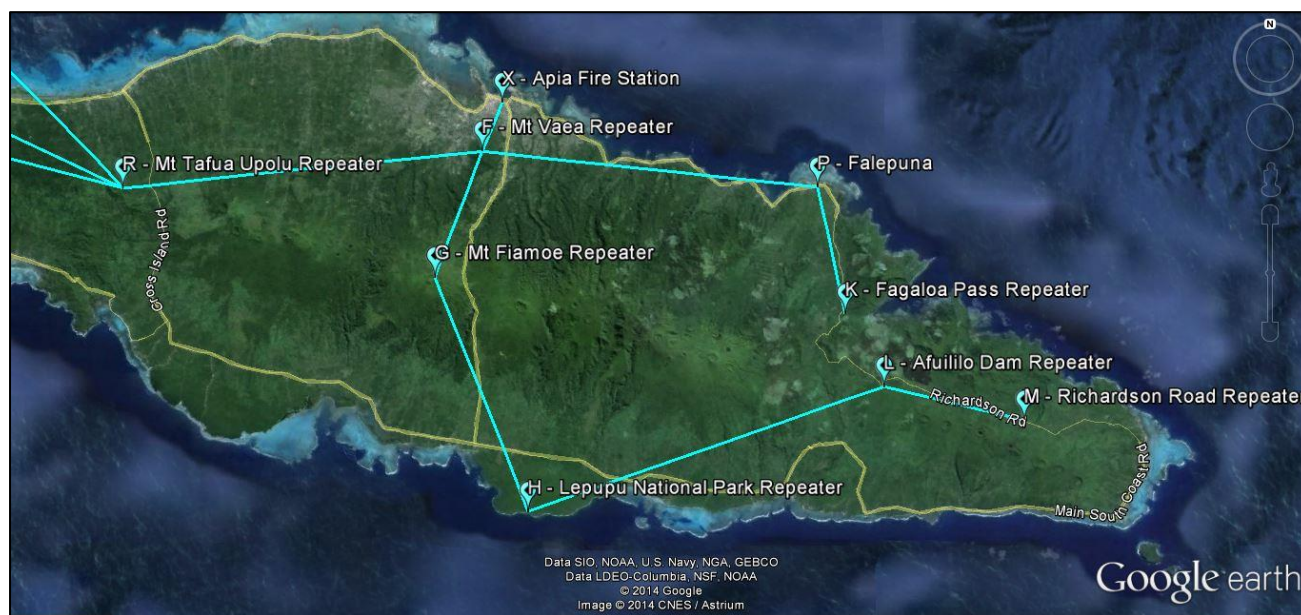
1. Emergency Siren Network site numbers with two kilometre radius



2. Emergency Siren Network site names



3. Emergency Radio Network sites and paths that affect the Emergency Siren Network



5.3 EPC maintenance

Memorandum of Understanding

The Electric Power Corporation of Samoa (EPC) has a memorandum of understanding with the Ministry of Natural Resources and Environment (MNRE) for the use of EPC poles, power and for maintenance related to siren sites.




This maintenance is limited to the connection between the EPC overhead lines and the isolation switch. It does not include the isolation switch itself. The site at Salamumu is somewhat different as a generator is included between the overhead lines and the isolation switch. EPC maintain the line to the generator only.

Annual routine inspection




EPC will undertake an annual routine inspection of these connections. Where DMO identifies a problem at a site that relates to EPC, DMO will advise EPC as soon as practicable. EPC will remedy the situation as soon as practicable to ensure the siren network remains operational. The cost of such maintenance and inspection is the responsibility of MNRE.




5.4 Site location details




The following table is a list of all siren sites along with a photo and their coordinates.




Site	Photo	Location and Coordinates
001		<p>Error! Reference source not found.</p> <p>Congregational Christian Church Church building</p> <p>S 14° 00' 14.9" W 171° 25' 31.2" -14.004139° -171.425333°</p>
002		<p>Vailoa</p> <p>Methodist Church</p> <p>Single pole</p> <p>S 14° 02' 17.7" W 171° 26' 07.2" -14.038250° -171.435333°</p>
003		<p>Lalomanu</p> <p>Opposite the restaurant, control box hidden by tree.</p> <p>S 14° 02' 44.7" W 171° 26' 47.0" -14.04575°, -171.446389°</p>




Site	Photo	Location and Coordinates
004		Saleapaga Catholic Church Steel Tripod Siren Stand S 14 02' 30.8" W 171 30' 32.7" -14.041889° -171.509083°
005		Lepa Congregational Christian Church Steel Tripod Siren Stand S 14° 02' 25.3" W 171° 31' 24.5" -14.040361° -171.523472°
006		Lotofaga Catholic Church, Church building S 14° 02' 33.5" W 171° 34' 21.9" -14.042639° -171.572750°

Site	Photo	Location and Coordinates
007	 <p>Date & Time: Sat Jul 5 14:39:51 WST 2014 Position: -14.03889° / -171.60389° Altitude: 9m Azimuth Bearing: 191° S08E 2664mils (True) Elevation Angle: +05.5° Horizon Angle: -00.5° Zoom: 1X Site: 7</p>	Matatufu/Utulaelae S 14° 02' 20.0" W 171° 36' 14.0" -14.038889° -171.603889°
008	 <p>Date & Time: Sat Jul 5 14:41:03 WST 2014 Position: -14.032917° / -171.627417° Altitude: 8m Azimuth Bearing: 005° N08E 0142mils (True) Elevation Angle: +04.1° Horizon Angle: -00.5° Zoom: 1X Site: 8</p>	Sapunaoa EPC pole # PLØ 003608, In front of LDS Church S 14° 01' 58.5" W 171° 37' 38.7" -14.032917° -171.627417°
009	 <p>Date & Time: Sun Jul 27 13:14:37 WST 2014 Position: -14.032139° / -171.654917° Altitude: 171m Azimuth Bearing: 105° S14W 3320mils (True) Elevation Angle: +04.8° Horizon Angle: -00.5° Zoom: 1X Site: 9</p>	Tafatafa Inside LDS Church compound Steel Tripod Siren Stand S 14° 01' 55.7" W 171° 39' 17.7" -14.032139° -171.654917°

Site	Photo	Location and Coordinates
010	 <p> Date & Time: Sun Jul 27 19:05:57 WST 2014 Position: -014.0006° / -171.6936° Altitude: 12m Azimuth/Bearing: 05° NBE 104mils (True) Elevation Angle: +07.3° Horizon Angle: -00.6° Zoom: IX Site: 10 </p>	Poutasi Inside Police compound Steel Tripod Siren Stand S 14° 01' 36.1" W 171° 41' 36.6" -14.026694° -171.693500°
011	 <p> Date & Time: Sat Jul 5 19:55:31 WST 2014 Position: -014.01705° / -171.72121° Altitude: 35m Azimuth/Bearing: 131° SSE 1973mils (True) Elevation Angle: +01.7° Horizon Angle: -00.5° Zoom: IX Site: 11 </p>	Togitogiga Inside MNRE Forestry Division compound Steel Tripod Siren Stand S 14° 01' 01.8" W 171° 43' 15.5" -14.016717° -171.720972°
012	 <p> Date & Time: Sun Jul 27 19:07:41 WST 2014 Position: -014.00744° / -171.77894° Altitude: 5m Azimuth/Bearing: 122° SSE 216mils (True) Elevation Angle: +06.8° Horizon Angle: -00.8° Zoom: IX Site: 12 </p>	Siumu The intersection of The Cross Island Road and Main South Coast Road S 14° 00' 26.8" W 171° 46' 44.2" -14.007444° -171.778944°

Site	Photo	Location and Coordinates
013	 <p> Date & Time: Sun Jul 27 12:27:43 WEST 2014 Position: -14.00342° / -171.811917° Altitude: 15m Azimuth/Bearing: 114° S66E 2007m/s (True) Elevation Angle: +06.5° Horizon Angle: +00.6° Zoom: IX Site: 13 </p>	<p>Tafitoala</p> <p>In front of Ale Kua's house, pole to be installed next to Samoatel pole #00286</p> <p>S 14° 00' 12.5" W 171° 48' 42.9" -14.003472° -171.811917°</p>
014	 <p> Date & Time: Sun Jul 27 12:17:07 WEST 2014 Position: -13.984639° / -171.833722° Altitude: 20m Azimuth/Bearing: 108° S66E 2700m/s (True) Elevation Angle: +01.1° Horizon Angle: +01.2° Zoom: IX Site: 14 </p>	<p>Vaiee</p> <p>In front of Saolele Savele Keve's house, EPC pole # PLØ003292</p> <p>S 13° 59' 04.7" W 171° 50' 01.4" -13.984639° -171.833722°</p>
015	 <p> Date & Time: Sun Jul 27 12:04:30 WEST 2014 Position: -13.977111° / -171.865556° Altitude: 21m Azimuth/Bearing: 108° S66E 2400m/s (True) Elevation Angle: +06.5° Horizon Angle: +01.7° Zoom: IX Site: 15 </p>	<p>Sataoa</p> <p>In front of EFKS church, EPC pole # PLØ003237</p> <p>S 13° 58' 37.6" W 171° 51' 56.0" -13.977111° -171.865556°</p>

Site	Photo	Location and Coordinates
016	 <p> Date & Time: Sun Jul 27 11:26:59 WEST 2014 Position: -13.968583° / -171.898861° Altitude: 100m Azimuth/Bearing: 055° N55E 0942mils (True) Elevation Angle: +08.9° Horizon Angle: -00.3° Zoom: IX Site: 16 </p>	Saanapu-Uta Within Lualua Inu Family compound , EPC pole # PLØ 14713 S 13° 58' 06.9" W 171° 53' 55.9" -13.968583° -171.898861°
017	 <p> Date & Time: Sun Jul 27 10:47:06 WEST 2014 Position: -14.003889° / -171.912889° Altitude: 30m Azimuth/Bearing: 288° S88W 1274mils (True) Elevation Angle: +10.3° Horizon Angle: -00.4° Zoom: IX Site: 17 </p>	Salamumu Samoana Resort Steel Tripod Siren Stand S 14° 00' 14.0" W 171° 54' 46.4" -14.003889° -171.912889°
018	 <p> Date & Time: Sun Jul 27 10:47:06 WEST 2014 Position: -13.958111° / -171.932972° Altitude: 30m Azimuth/Bearing: 055° N55E 1248mils (True) Elevation Angle: +11.1° Horizon Angle: -00.2° Zoom: IX Site: 18 </p>	Matautu Lefaga 1 In front of Lupe's family, EPC pole # PLØ 14766 S13° 57' 29.2" W171° 55' 58.7" -13.958111°, -171.932972°

Site	Photo	Location and Coordinates
019	 <p> Date & Time: Sun Jul 27 16:26:21 WST 2014 Position: -13.96767° / -171.94669° Altitude: 30m Azimuth/Bearing: 23° NNEW 504mils (True) Elevation Angle: +03.2° Horizon Angle: +00.5° Zoom: 1X Site: 19 </p>	Matautu Lefaga 2 EPC pole # PLØ 14656, S 13° 58' 03.6" W 171° 56' 48.1" -13.967667° -171.946694°
020	 <p> Date & Time: Sun Jul 27 16:19:45 WST 2014 Position: -13.838639° / -172.041444° Altitude: 14m Azimuth/Bearing: 122° SSE 224mils (True) Elevation Angle: +11.8° Horizon Angle: +04.5° Zoom: 1X Site: 20 </p>	Mulifanua Opposite the shop, just to the south of the inter-island wharf. S13° 50' 19.0", W172° 2' 29.2" -13.838639°, -172.041444°
021	 <p> Date & Time: Sun Jul 27 16:21:45 WST 2014 Position: -13.961122° / -171.955500° Altitude: 24m Azimuth/Bearing: 22° NNEW 438mils (True) Elevation Angle: +04.1° Horizon Angle: +01.5° Zoom: 1X Site: 21 </p>	Gagaifo Lefaga EPC Pole in front of Aliitasi Faumuina's house S 13° 57' 40.4" W 171° 57' 19.8" -13.961122° -171.955500°

Site	Photo	Location and Coordinates
022		<p>Tafagamanu Lefaga</p> <p>EPC Pole in front of Puuaupu's house. This is up a little side road off the main road.</p> <p>S 13° 56' 47.7" W 171° 57' 35.7"</p> <p>-13.946583° -171.959917°</p>
023		<p>Falese'ela Lefaga</p> <p>EPC Pole on northern side of Assembly of God's church building</p> <p>S 13° 55' 48.0" W 171° 58' 22.9"</p> <p>-13.93000° -171.973028°</p>

5.5 Visual inspection sheets for all siren sites

The following is a list of visual inspection sheets for all siren sites.

Site 1 – Saleaamua (church)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the structure the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 2 – Vailoa (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 3 – Lalomanu (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 4 – Saleapaga (tripod)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the tripod the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? • Are there signs of rust/corrosion? • Are the welds intact? • Maintain: <ul style="list-style-type: none"> ○ Wire brush and touch up any spots with rust preventing paint. 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 5 – Lepa (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 6 – Lotofaga (church)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the structure the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 7 - Matatufu/Utulaelae (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 8 – Sapunaoa (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 9 – Tafatafa (tripod)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the tripod the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? • Are there signs of rust/corrosion? • Are the welds intact? • Maintain: <ul style="list-style-type: none"> ○ Wire brush and touch up any spots with rust preventing paint. 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 10 – Poutasi (tripod)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the tripod the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? • Are there signs of rust/corrosion? • Are the welds intact? • Maintain: <ul style="list-style-type: none"> ○ Wire brush and touch up any spots with rust preventing paint. 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 11 – Togitogiga (tripod)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the tripod the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? • Are there signs of rust/corrosion? • Are the welds intact? • Maintain: <ul style="list-style-type: none"> ○ Wire brush and touch up any spots with rust preventing paint. 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 12 – Siumu (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 13 – Tafitoala (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 14 – Vaiee (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 15 – Sataoa (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 16 - Saanapu-Uta (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 17 - Salamumu Samoana Resort (tripod)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the tripod the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? • Are there signs of rust/corrosion? • Are the welds intact? • Maintain: <ul style="list-style-type: none"> ○ Wire brush and touch up any spots with rust preventing paint. 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 18 – Matautu Lefaga 1 (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 19 – Matautu Lefaga 2 (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 20 – Mulifanua (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 21 – Gagaifo Lefaga (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 22 – Tafagamanu Lefaga (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

Site 23 – Falese’ela Lefaga (pole)

Inspection date:		Comments
Structure:	<ul style="list-style-type: none"> • Is the pole the siren and control box are attached to still sound? • Are the bolts/brackets in good condition and tight? 	
Siren:	<ul style="list-style-type: none"> • Does the siren appear to be in good condition? • Are there any signs of rust/corrosion? • Does the impeller spin freely? • Is the electrical input undamaged? • Maintain: <ul style="list-style-type: none"> ○ Lubricate ○ Remove any nesting material 	
Control box:	<ul style="list-style-type: none"> • Is the box in good condition? • Are stickers intact and legible? • Is there any sign of corrosion? • Are the glands intact? • Maintain: <ul style="list-style-type: none"> ○ CRC hinges and lock 	
Manual switch:	<ul style="list-style-type: none"> • Is the switch firmly attached to the box? • Is the glass intact? • Are there sign if water intrusion? • Are the stickers clear and legible? 	
Cabling and electrical:	<ul style="list-style-type: none"> • Are cables secure? • Is there any crimping, stretched connections, signs of damage? • Are any wires exposed? 	
Access:	<ul style="list-style-type: none"> • Are there any access issues that need to be resolved? 	

5.6 Monthly siren test results

Instructions Use a highlighter to shade green (good) or red (fault) after each month's test. Once a fault is addressed, write the date it was repaired over the red highlight. This provides an audit trail.

Where an ESS site is the issue, complete an ESS site inspection sheet to record what action was taken. Where the ERN is the issue, use an ERN site inspection sheet to record what action was taken.

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
1 Saleaamua												
2 Vailoa												
3 Lalomanu												
4 Saleapaga												
5 Lepa												
6 Lotofaga												
7 Matatufu/Utulaelae												
8 Sapunaoa												
9 Tafatafa												
10 Poutasi												
11 Togitogiga												
12 Siumu												
13 Tafitoala												
14 Vaiee												
15 Sataoa												
16 Saanapu-Uta												
17 Salamumu Samoana Resort												
18 Matautu Lefaga 1												
19 Matautu Lefaga 2												
20 Mulifanua												
21 Gagaifo Lefaga												
22 Tafagamanu Lefage												
23 Falese'ela Lefaga												

5.7 The Philips and Smith Single Ended Marinised Siren

Introduction

The rugged PSL siren is a single ended siren designed to give effective warning over a wide area. Suitable for disaster, emergency, evacuation etc



Metal parts are protected against the damage caused by a marine or coastal environment.

Information Source

http://www.pslfireandsafety.co.nz/full-product-range/product-details/cat2_/55/Sirens/_prod_/Single-Ended-Siren-Marinised?productlistPCMid=542

Size

Height	410 mm
Width	400 mm
Length	550 mm
Weight	40 kg

Materials and finishing

Outer Casing	Light alloy, powder coated with ZINCSHIELD and top coated with Grey DURALLOY XT powder coat.
Impellers	Light alloy, powder coated with ZINCSHIELD and top coated with Red DURALLOY XT powder coat.
Base Plate	Heat treated light alloy, powder coated with ZINCSHIELD and top coated with Grey DURALLOY XT powder coat.
Nuts & Bolts	Stainless Steel
Motorcasing	Aluminium coated with CAPA THANE for weather resistance.

Power requirements

Single Phase	240 Volt
Starting Amps	54 amps peak
Running Amps	10.5 amps
Motor Rated	14 amps (2.2kw) 3HP - IP55 weather rating

Range

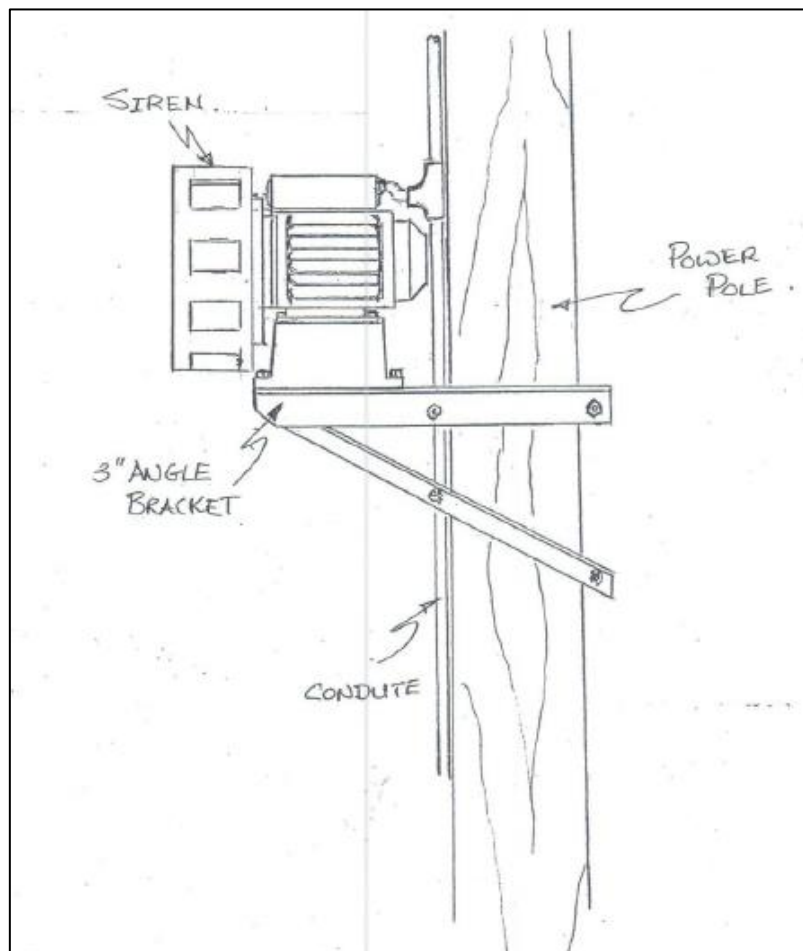
4km in still air (2km radius from siren)

Decibel rating

124.5dB at 1m

Factors affecting noise and range of siren

There are many factors that will affect the noise and range of a siren. Background, wind, structures and terrain can all affect the sound pressure wave. These factors must be taken into account when siting and evaluating the siren.

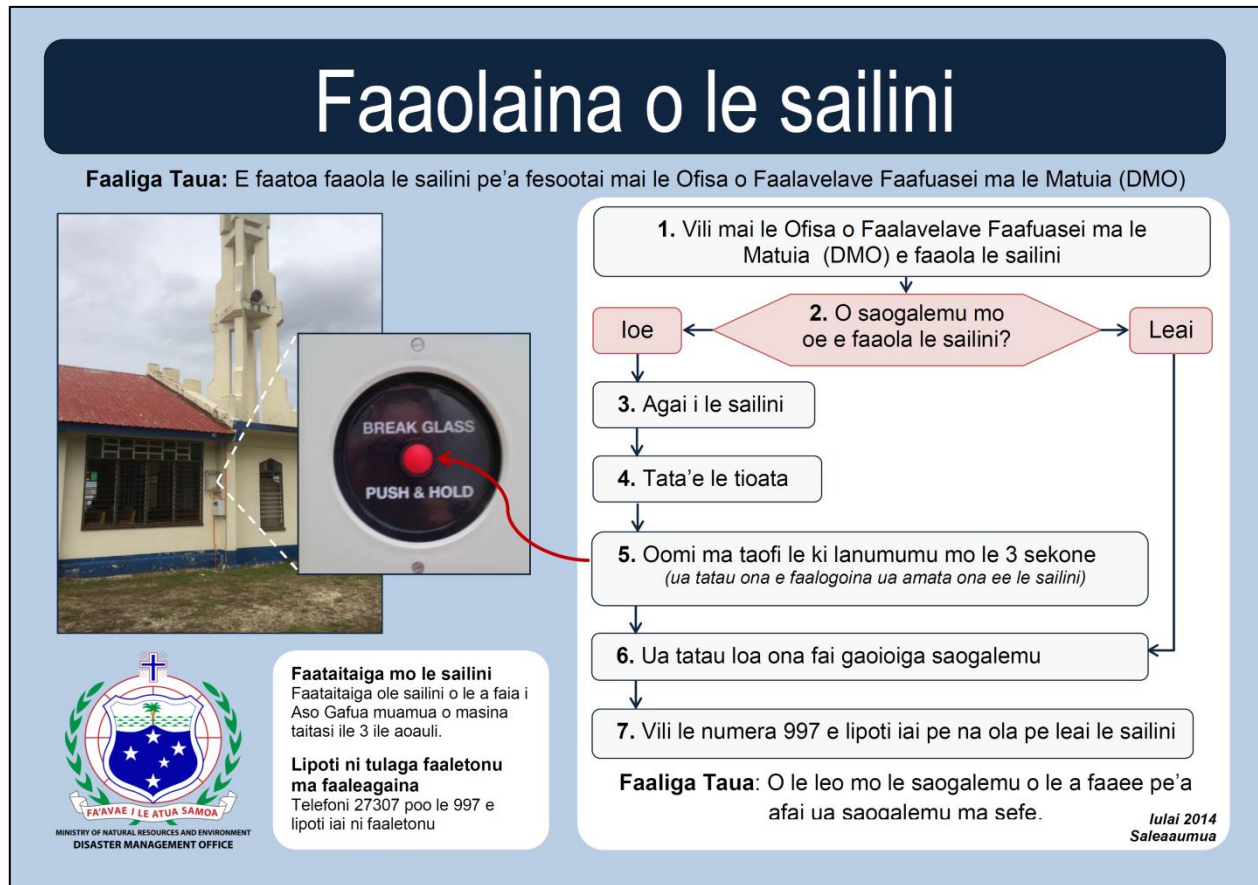


Appendix 1 List of Acronyms

Acronym	Definition
ACEO	Assistant Chief Executive Officer (of the Disaster Management Office, Ministry of Natural Resources and Environment)
DMO	Disaster Management Office (within the Ministry of Natural Resources and Environment)
EPC	Electrical Power Corporation of Samoa
ERN	Emergency Radio Network
ESN	Emergency Siren Network
GUI	Graphical User Interface
LED	Light Emitting Diode
MNRE	Ministry of Natural Resources and Environment
NEOC	National Emergency Operations Centre
SOP	Standard Operating Procedure
RDAC	Repeater Diagnostics & Control
VHF	Very High Frequency

Appendix 2 Copies of the SOPs for each of the Village Siren Sites

Site 1: Saleaamua



Site 2: Vailoa

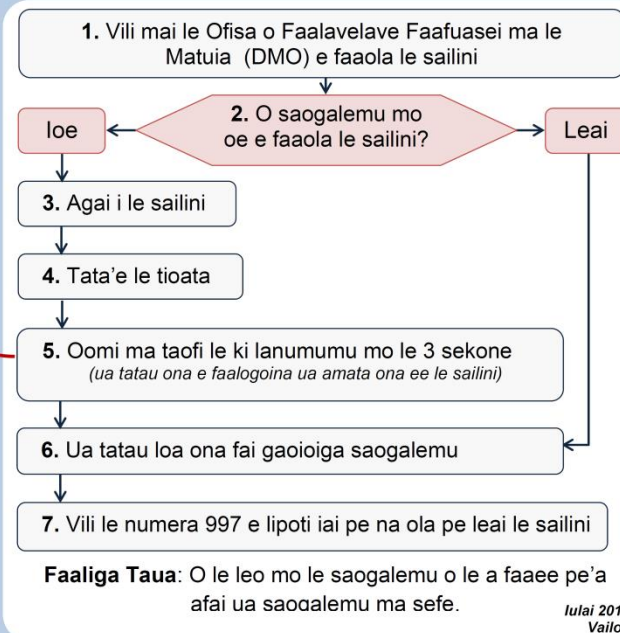
Faaolaina o le sailini

Faaliga Taua: E faatoa faaola le sailini pe'a fesootai mai le Ofisa o Faalavelave Faafuasei ma le Matuia (DMO)



Faataitaiga mo le sailini
Faataitaiga ole sailini o le a faia i Aso Gafua muamua o masina taitasi ile 3 ile aoauli.

Lipoti ni tulaga faaletonu ma faaleagaina
Telefoni 27307 poo le 997 e lipoti iai ni faaletonu



Site 3: Lalomanu

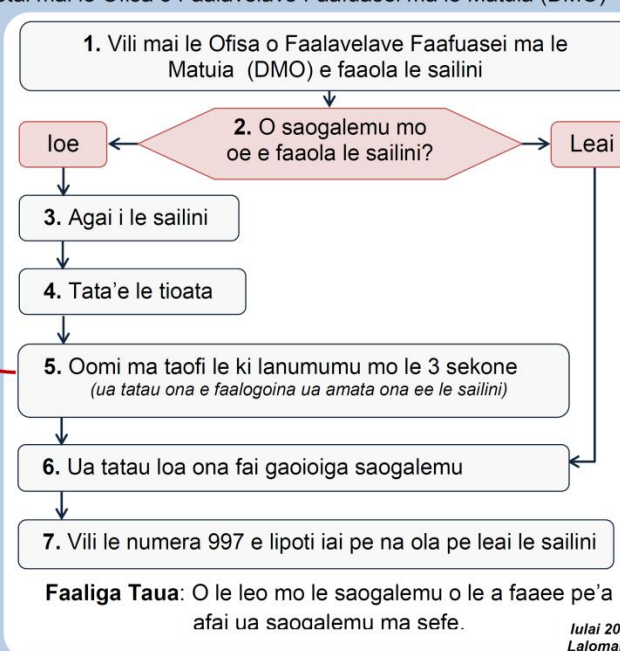
Faaolaina o le sailini

Faaliga Taua: E faatoa faaola le sailini pe'a fesootai mai le Ofisa o Faalavelave Faafuasei ma le Matuia (DMO)



Faataitaiga mo le sailini
Faataitaiga ole sailini o le a faia i Aso Gafua muamua o masina taitasi ile 3 ile aoauli.

Lipoti ni tulaga faaletonu ma faaleagaina
Telefoni 27307 poo le 997 e lipoti iai ni faaletonu



Site 4: Saleapaga

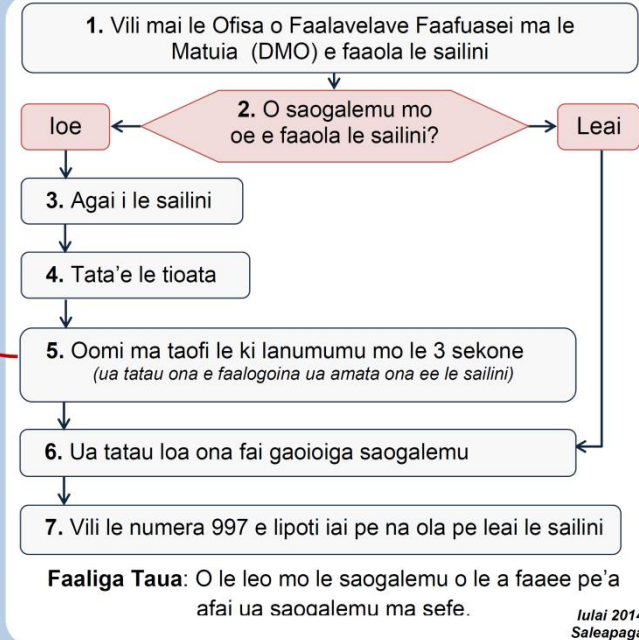
Faaolaina o le sailini

Faaliga Taua: E faatoa faola le sailini pe'a fesootai mai le Ofisa o Faalavelave Faafuasei ma le Matuia (DMO)



Faataitaiga mo le sailini
Faataitaiga ole sailini o le a faia i Aso Gafua muamua o masina taitasi ile 3 ile aoauli.

Lipoti ni tulaga faaletonu ma faaleagaina
Telefoni 27307 poo le 997 e lipoti iai ni faaletonu



Site 5: Lepa

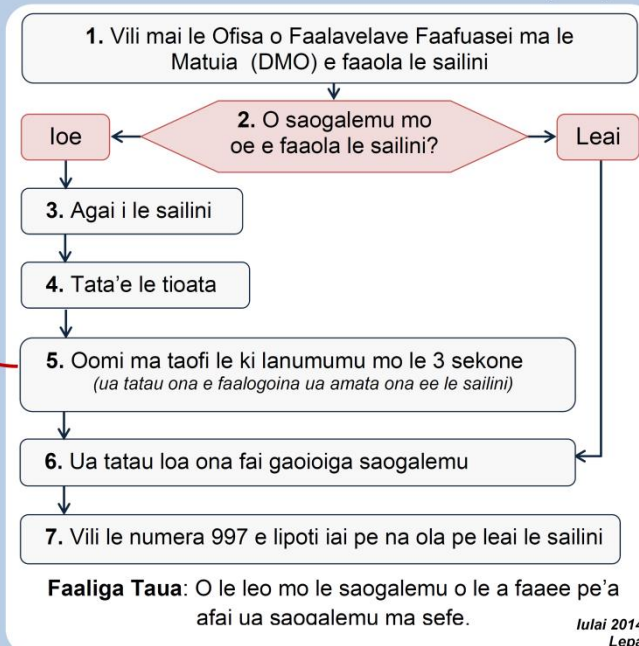
Faaolaina o le sailini

Faaliga Taua: E faatoa faola le sailini pe'a fesootai mai le Ofisa o Faalavelave Faafuasei ma le Matuia (DMO)



Faataitaiga mo le sailini
Faataitaiga ole sailini o le a faia i Aso Gafua muamua o masina taitasi ile 3 ile aoauli.

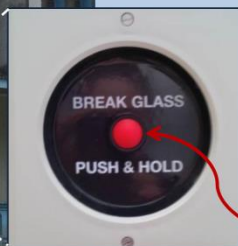
Lipoti ni tulaga faaletonu ma faaleagaina
Telefoni 27307 poo le 997 e lipoti iai ni faaletonu



Site 6: Lotofaga

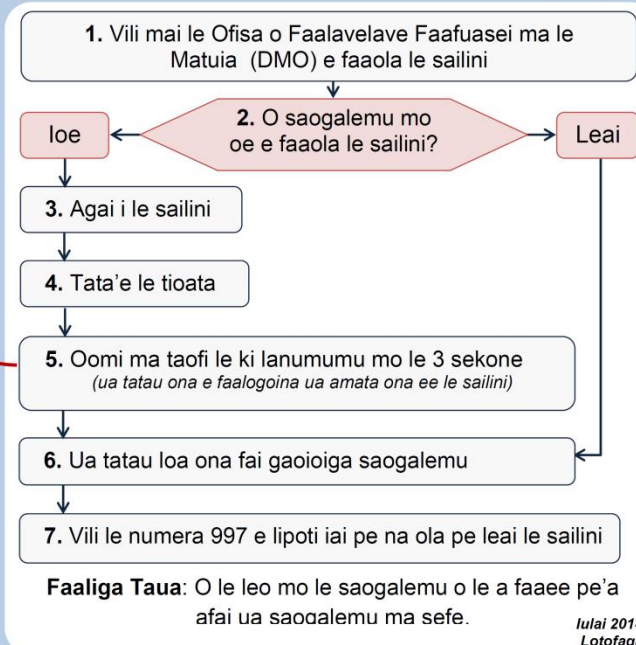
Faaolaina o le sailini

Faaliga Tauga: E faatoa faola le sailini pe'a fesootai mai le Ofisa o Faalavelave Faafuasei ma le Matuia (DMO)



Faataitaiga mo le sailini
Faataitaiga ole sailini o le a faia i Aso Gafua muamua o masina taitasi ile 3 ile aoauli.

Lipoti ni tulaga faaletonu ma faaleagaina
Telefoni 27307 poo le 997 e lipoti iai ni faaletonu

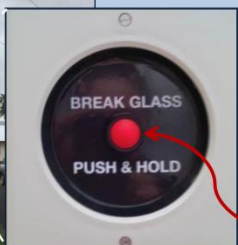


Iulai 2014
Lotofaga

Site 7: Matatufu/Utulaelae

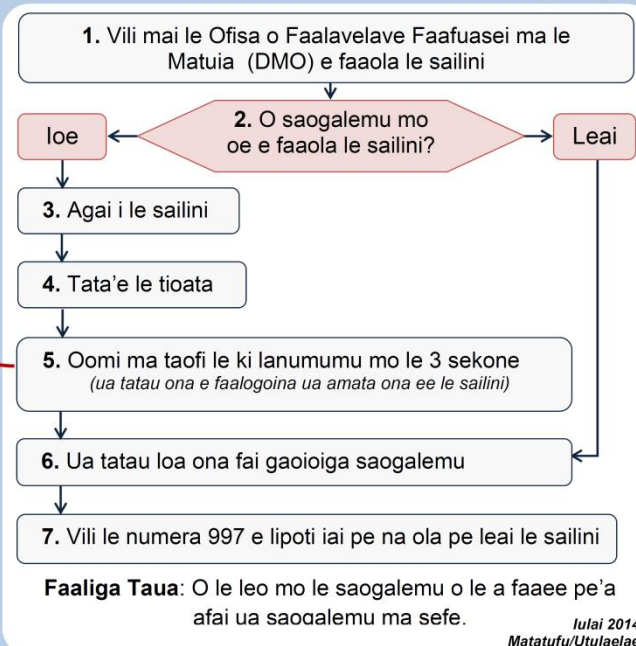
Faaolaina o le sailini

Faaliga Tauga: E faatoa faola le sailini pe'a fesootai mai le Ofisa o Faalavelave Faafuasei ma le Matuia (DMO)



Faataitaiga mo le sailini
Faataitaiga ole sailini o le a faia i Aso Gafua muamua o masina taitasi ile 3 ile aoauli.

Lipoti ni tulaga faaletonu ma faaleagaina
Telefoni 27307 poo le 997 e lipoti iai ni faaletonu



Iulai 2014
Matatufu/Utulaelae

Site 8: Sapunaoa

Faaolaina o le sailini

Faaliga Taua: E faatoa faola le sailini pe'a fesootai mai le Ofisa o Faalavelave Faafuasei ma le Matuia (DMO)



Faataitaiga mo le sailini
Faataitaiga ole sailini o le a faia i Aso Gafua muamua o masina taitasi ile 3 ile aoauli.

Lipoti ni tulaga faaletonu ma faaleagaina
Telefoni 27307 poo le 997 e lipoti iai ni faaletonu



Site 9: Tafatafa

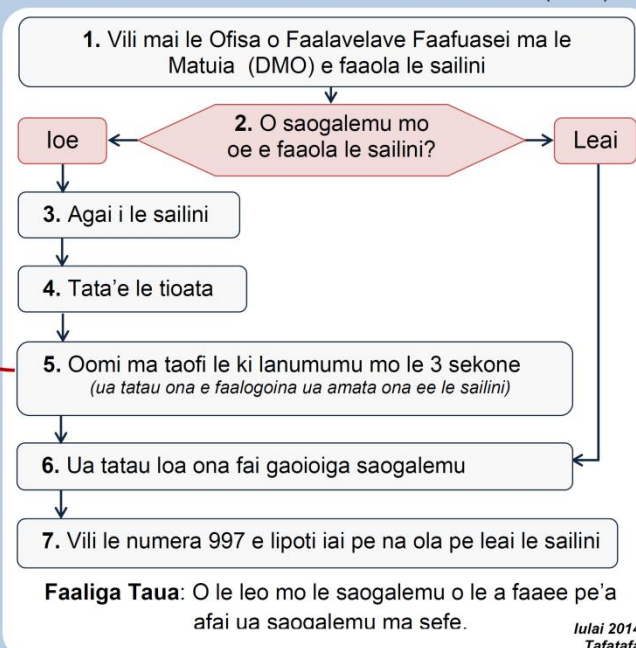
Faaolaina o le sailini

Faaliga Taua: E faatoa faola le sailini pe'a fesootai mai le Ofisa o Faalavelave Faafuasei ma le Matuia (DMO)



Faataitaiga mo le sailini
Faataitaiga ole sailini o le a faia i Aso Gafua muamua o masina taitasi ile 3 ile aoauli.

Lipoti ni tulaga faaletonu ma faaleagaina
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Site 10: Poutasi

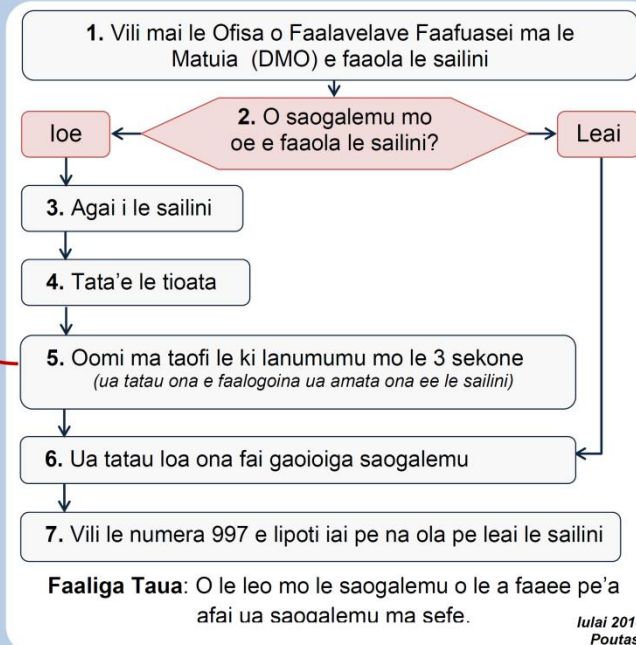
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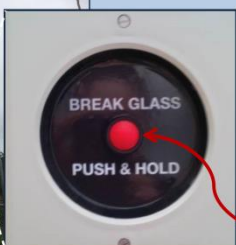


Iulai 2014
Poutasi

Site 11: Togitogiga

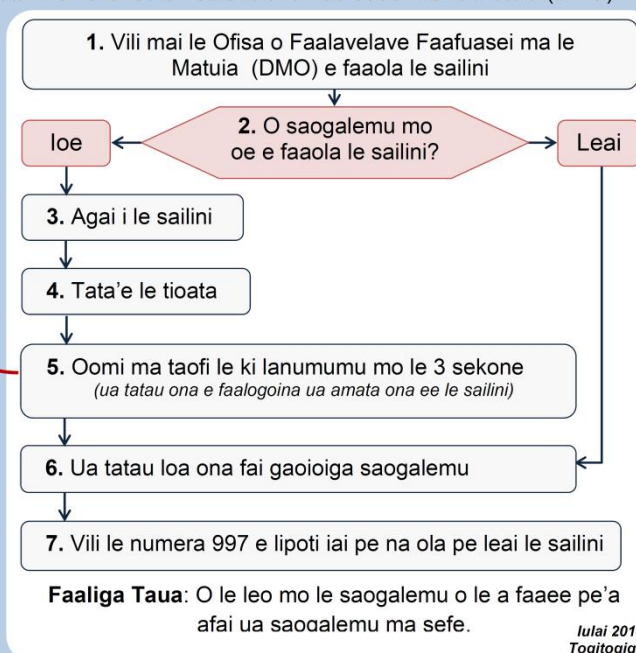
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Iulai 2014
Togitogiga

Site 12: Siumu

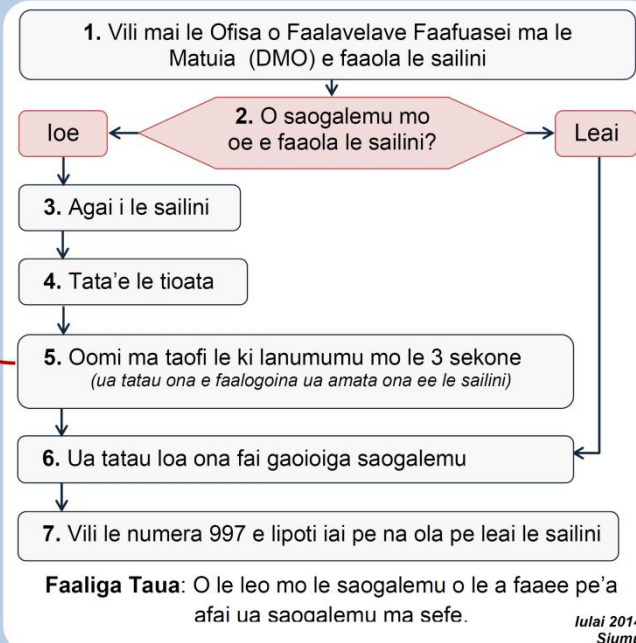
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Site 13: Tafitoala

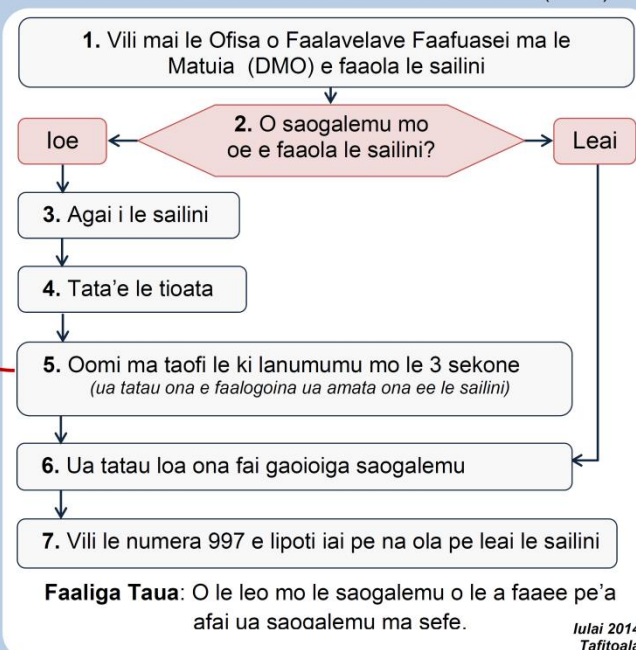
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Site 14: Vaiee

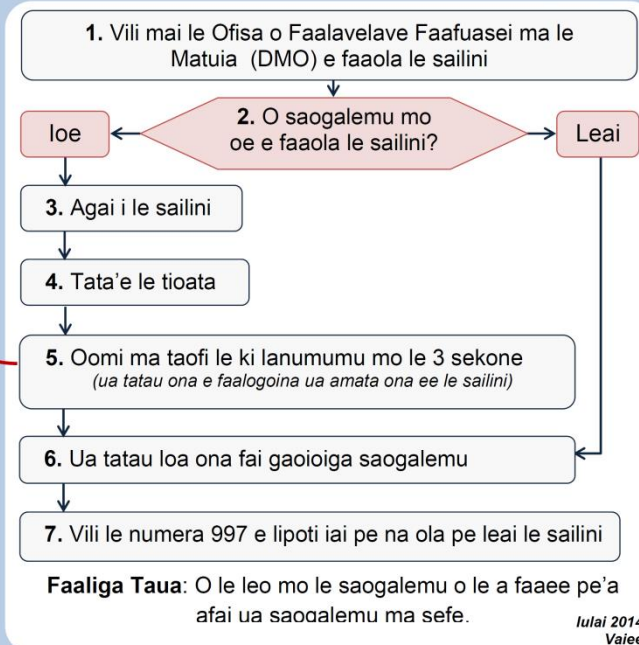
Faaolaina o le sailini

Faaliga Taua: E faatoa faaola le sailini pe'a fesootai mai le Ofisa o Faalavelave Faafuasei ma le Matuia (DMO)



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lulai 2014
Vaiee

Site 15: Sataoa

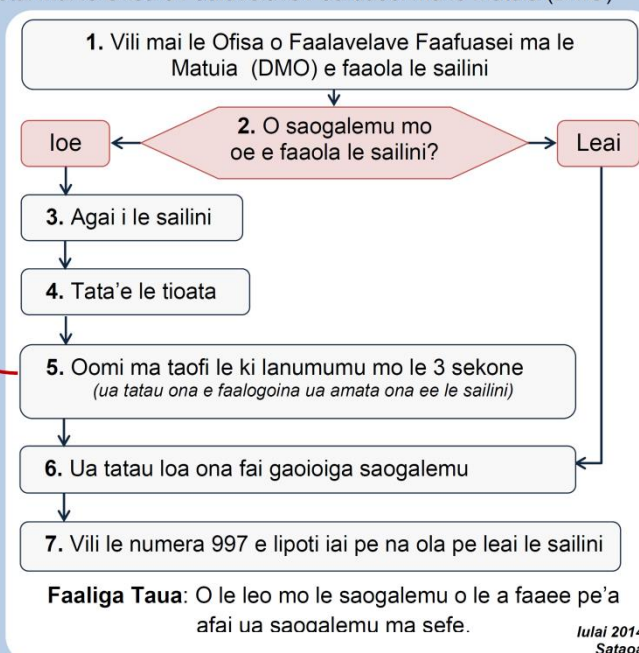
Faaolaina o le sailini

Faaliga Taua: E faatoa faaola le sailini pe'a fesootai mai le Ofisa o Faalavelave Faafuasei ma le Matuia (DMO)



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lulai 2014
Sataoa

Site 16: Saanapu-Uta

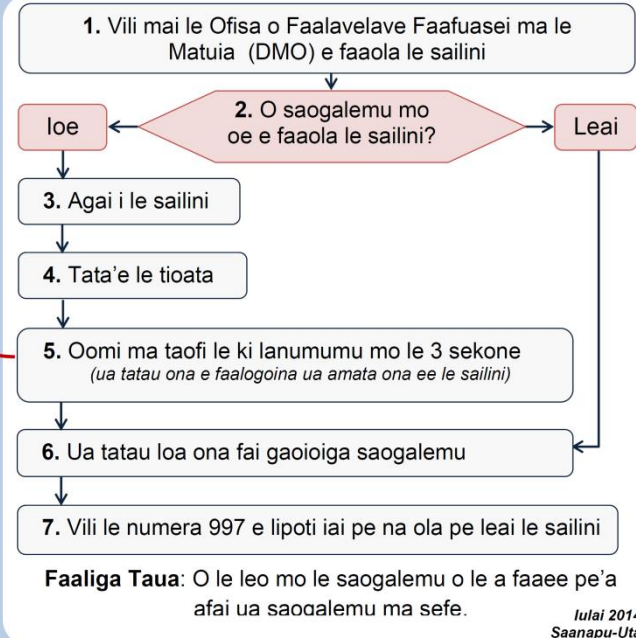
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Site 17: Salamumu Samoana Resort

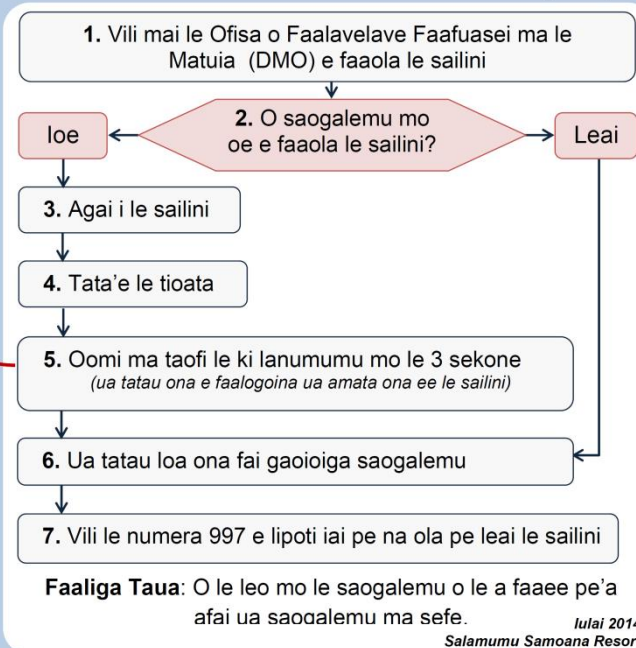
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Site 18: Matautu Lefaga 1

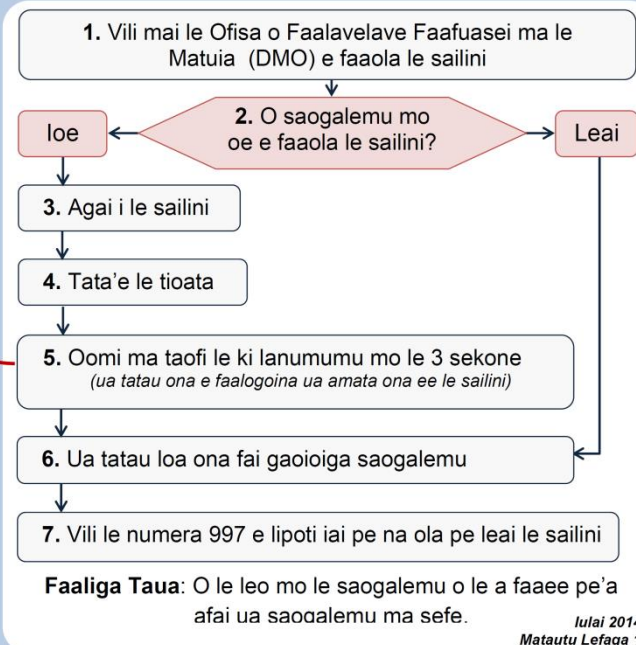
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Site 19: Matautu Lefaga 2

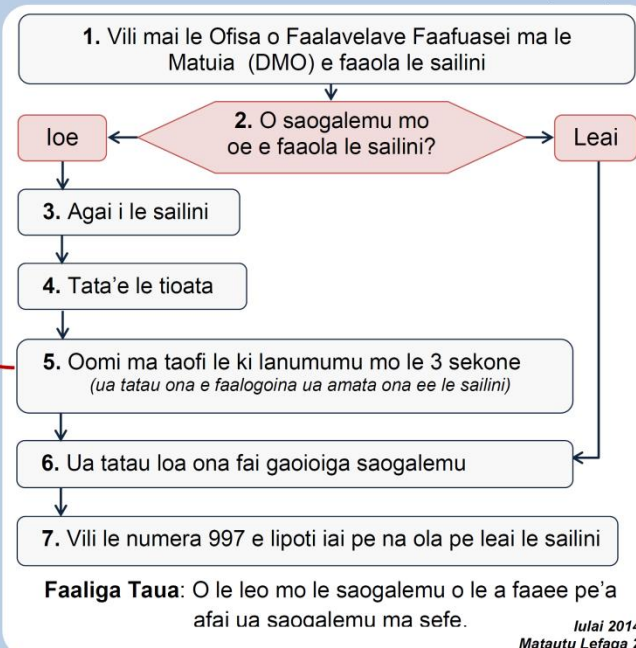
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Site 20: Mulifanua

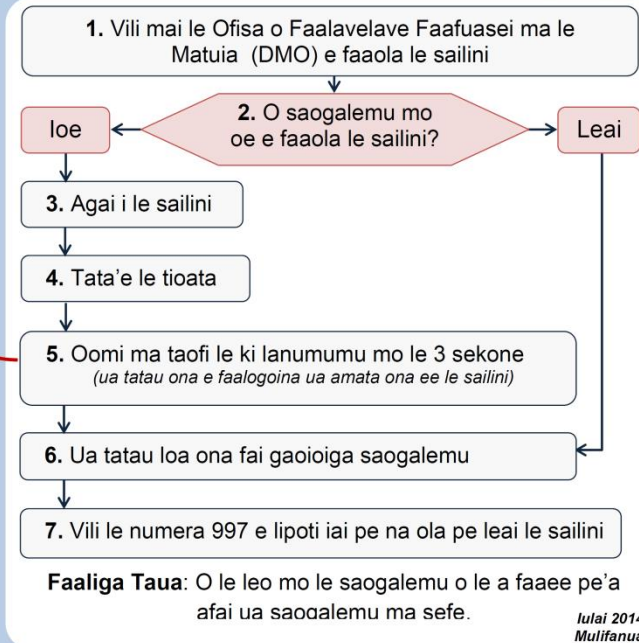
Faaolaina o le sailini

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Site 21: Gagaifo Lefaga

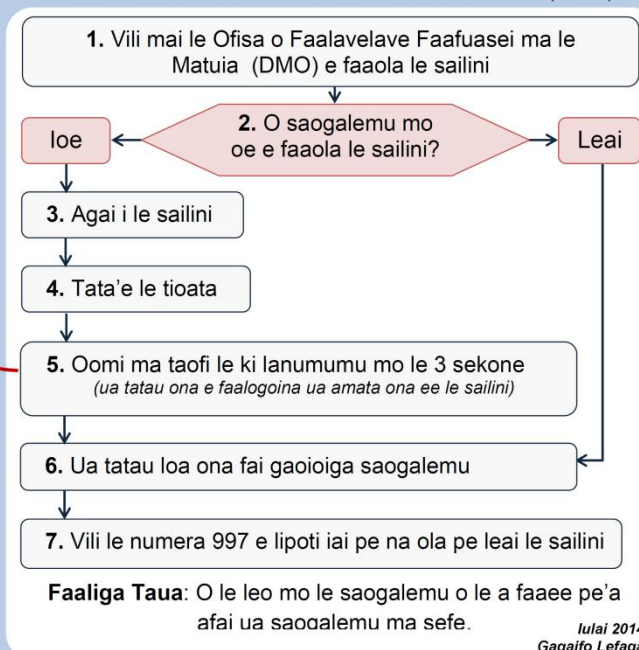
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Site 22: Tafagamanu Lefaga

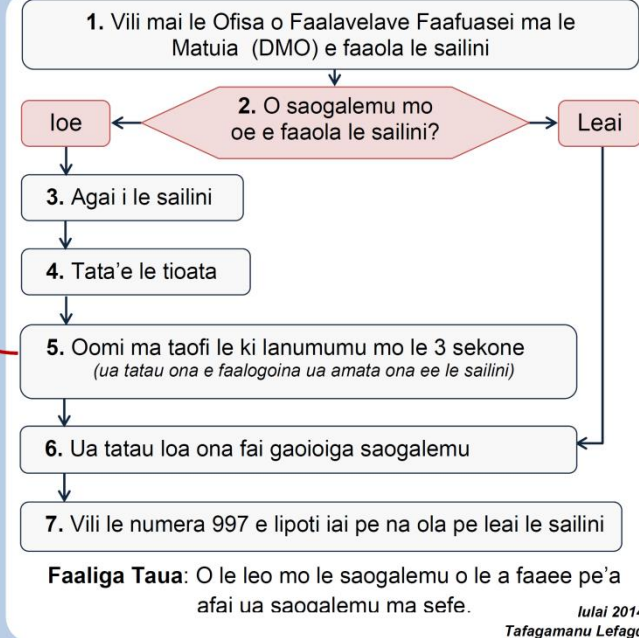
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Site 23: Falese'ela Lefaga

Faaolaina o le sailini

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