

**IN THE MATTER OF
THE CANTERBURY EARTHQUAKES ROYAL COMMISSION**

BRIEF OF EVIDENCE OF PETER JOHN WILDING

7 August 2012

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Introduction

1. My full name is Peter John Wilding. I am the National Manager of Fire Investigation and Arson Reduction for the New Zealand Fire Service (NZFS). In my role I am responsible for the development and quality of fire investigation training and processes in the NZFS.
2. I was deployed to Christchurch on 27 February 2011 as part of the NZFS incident management team and was tasked to manage the safety of all NZFS operations; that is, whether the teams were operating safe work practices. As part of my role I visited incident sites where NZFS operations were being conducted including the CTV site. I visited the CTV site on my arrival into Christchurch on 27 February and a number of times after that date.
3. I have been asked to give evidence to assist the Royal Commission with its inquiry in relation to the collapse of the CTV Building. Counsel Assisting the Royal Commission has asked me to comment on why a fire investigation was not conducted to determine the possible cause of fire which occurred at the CTV site.
4. In the course of preparing this statement I have reviewed the witness statements of Margaret Aydon, Thomas Hawker, Penelope Spencer, Michael Williams, Stephen Gill, Alan Edge, Matthew Ross, Graham Frost and Dr Robert Heywood as they make comment about the fire. I have also received information from some NZFS personnel who were charged with fire suppression at the CTV site on 22 and 23 February 2011.

Qualifications

5. I have been employed by the NZFS for 25 years as an operational fire fighter. I have held various ranks during that time. In 2004 I was appointed Deputy Chief Fire Officer West Auckland and in 2008 I was appointed National Manager Fire Investigation and Arson Reduction with the rank of Assistant Regional Commander. I currently respond to major incidents as an executive officer which helps to maintain my

operational management experience. I am a Member of the United Fire Brigades Institute through Examination.

6. I have been responsible for determining cause and origin of fires for the last 16 years. I have completed the NZFS Investigation training as well as the Crime Scene Investigators Fire Investigation training course (UK) delivered by the Home Office Forensic Science Service. I am also a Member of the Institution of Fire Engineers (UK) through examination (which is an internationally recognised qualification within the fire industry) and the recipient of the Godiva Award for highest performing international candidate.
7. As the NZFS representative I sit on the Australasian Fire Authorities Council Fire Investigation Coordinating Group, an organisation that promotes fire investigation best practice and process and the exchange of information relating to fire cause and origin across fire agencies throughout Australasia.
8. I have developed and delivered fire investigation training to NZFS Specialist Fire Investigators on national courses run throughout the country over the last 4 years. I have also delivered fire investigation training to NZFS personnel and to Police at the New Zealand Police College. Police attend NZFS fire investigation training courses and we also run specific Police courses to help them understand our functions and needs at incidents so that their actions, where possible, do not compromise our fire investigations. It also assists us in supporting Police investigations at possible crime scenes.
9. I have previously given evidence on fire investigation in the District Court of New Zealand and have recently been called as an expert witness in Niue High Court.

Fire Investigations

10. The NZFS was established by the Fire Service Act 1975 (**Act**). The Act sets out the powers and duties that the NZFS has and provides that it is under the control of the New Zealand Fire Service Commission (**Commission**).

11. s86 of the Act provides that the Minister may, at the request of the Commission or the National Commander, appoint a person to hold an inquiry into a fire. This is something different from a fire investigation and I understand it would be more likely to occur when the National Commander considered it would be in the public interest to hold an independent inquiry into the actions and performance of the fire service at a significant incident. I am not aware of an inquiry having been held previously.
12. The only other provision in the Act that refers to fire investigation is s29(2) which provides that the power to access land and buildings may be used for post incident investigation to determine the cause of any fire or hazardous substance emergency. It does not, however, require a fire investigation to be carried out.
13. Other than that, there is nothing in the Act which specifically refers to a fire investigation or which requires the NZFS to investigate fires to establish cause. However, the Act provides that it is a matter of prime importance for the Commission to take an active and co-ordinating role in the promotion of fire safety in New Zealand. In promoting fire safety s20(2) of the Act requires the Commission to be concerned to reduce the incidence and consequences of fire. The NZFS carries out fire investigations to support the Commission's role in reducing the incidence and consequences of unwanted fires rather than pursuant to a specific legislative requirement. It does so on the basis that by learning about what starts fires, what contributes to their growth, how they can be effectively controlled and the level of damage they cause the NZFS can develop strategies and actions to reduce the chances of them happening again.
14. The NZFS National Commander is responsible for the operational activities of the NZFS. The National Commander does that, in part, by issuing operational instructions under s27A of the Act. NZFS personnel are required to obey and be guided by those operational instructions, as well as other legislation and policies relevant to the NZFS.
15. The operational instruction relevant to fire investigation is Operational Instruction P3 Fire Investigation and Reporting of the Operational

Instruction Series (**Operational Instruction P3**) [BUI.MAD249.0572]. All investigations as to the origin and cause of fire are carried out pursuant to Operational Instruction P3.

16. Operational Instruction P3 details the requirement for fire investigation and describes the consequent reporting requirements. In particular, it requires that all fire incidents attended by the NZFS are investigated to establish cause. It does not prescribe the nature of the investigation, however, that must be undertaken. The type of investigation depends of the scope, severity and complexity of the incident.
17. The responsibility for carrying out a fire investigation rests with the National Commander but delegated to the first arriving officer at a fire scene. The most common fire report is the Station Management System (SMS) incident report that includes a basic determination of origin and cause. This is a simple report completed by the reporting officer selecting options from drop down menus. SMS information about fire cause is examined weekly by the Fire Investigation and Arson Reduction Unit to look for trends such as unsafe installation or operating practices, faulty equipment, unsafe fire behaviour or deliberate fire setting. The larger, complex or serious incidents are usually investigated by specialist fire investigators who are NZFS staff based in each region who have undergone advanced training in fire investigation. That is because Operational Instruction P3 requires a specialist fire investigator to attend and investigate certain fires including, of those relevant to the CTV site:
 - 17.1 Fires where fatalities occur;
 - 17.2 Fires in buildings where built-in fire safety features have failed, or not performed to known or expected standards; and/or
 - 17.3 Fires of significant consequence.
18. Although Operational Instruction PS requires a fire investigation to be carried out, there are a number of other important matters, including legislative and policy considerations, which might defer, delay or prohibit a fire investigation from being undertaken.

19. The most important consideration is risk to NZFS personnel. The NZFS has obligations under the Health and Safety in Employment Act 1992. A fire scene is a "place of work" and as an employer the NZFS is obliged to eliminate, isolate or minimize any hazards in that place. In some cases that can be done by certain control measures such as protective equipment, shoring up structures etc. However, in some circumstances, the NZFS will decide not to commence or complete an investigation as it is too dangerous. We will not, for example, commence an internal examination of a structure if the safety of our staff will be compromised by entering an unsafe site to gather evidence. Usually, where a fire cannot be investigated for safety reasons the cause will be listed as undetermined with the reason for no investigation stated.

20. Other important policy considerations are the Safe Person Concept and the Dynamic Risk Assessment. These illustrate that there are limits to the level of risk that NZFS personnel are expected to accept and times when personnel will and will not risk their safety. The Safe Person Concept governs everything that we do. It provides that, in a highly considered way, fire fighters:
 - 20.1 will take some risk to save saveable lives;

 - 20.2 may take some risk to save saveable property;

 - 20.3 will not take any risk at all to try and save lives or properties that are already lost.

21. The Dynamic Risk Assessment model also supports the Safe Person Concept [BUI.MAD249.0573].

22. In addition to those legislative and policy considerations, where it is unlikely that the cause of the fire can be determined for any useful learning to be gained, the NZFS may elect to discontinue an investigation. That is because the purpose of a fire investigation is to establish the cause and origin of fire. A fire investigation relies heavily on maintaining an undisturbed fire scene. Evidence left by the effects of fire, such as burn patterns, smoke layering and other directional

indicators, are used to determine where a fire started. That area is then investigated to find the point of origin and the possible ignition sources in that location. If the scene has been significantly disturbed then it is unlikely that we would obtain any useful information about cause. The more variables there are, the greater the degree of uncertainty and likely inaccuracy. Any conclusions drawn are unlikely to be helpful. As such, unless we are certain of the cause of the fire, the cause will be recorded as "undetermined".

Fire at the CTV Building

23. A fire investigation was not undertaken at the CTV site because:

23.1 There was a lack of available specialist fire investigators to undertake the investigation. I have spoken to the Senior Fire Risk Management Officer for Christchurch. He, along with other on-call specialist fire investigators, was committed to response functions and management roles for the first 11 hours after the earthquake and was not available to undertake a fire investigation. Following his 11 hours of duty he went home for a short break and then returned to assist the incident management team. Although the Royal Commission is focussed on the CTV site, from an NZFS perspective it is important to remember that at the time we were dealing with a devastating event across a wide area of damage, a number of critical sites across the city and a high number of persons reported missing. Resources were focussed on all rescue efforts as well as responding to fires around the city during this time.

23.2 NZFS operations at the CTV building were focused on rescue, fire suppression to aid rescue, and later assisting with body recovery. Throughout those phases, the building was unsafe and could not be accessed for investigation purposes as it was being de-layered. The collapse pattern of the building meant that it was unstable underfoot and significant aftershocks were being experienced. Even in the second week after the earthquake, when I was on site, we were still experiencing aftershocks of magnitude 3 and 4 which caused further

movement in already compromised structures. To carry out an investigation within the structural remains on this occasion would have put NZFS fire investigators at unacceptable physical risk. I refer again to the Safe Person Concept and the Dynamic Risk Assessment in particular.

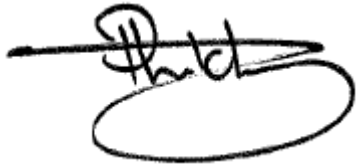
- 23.3 The nature of the collapse meant that only a guess could have been made as to the cause of the fire. When we are investigating the cause of a fire, we work progressively towards determining the area of origin, the point of origin and then towards finding a credible ignition source. At the CTV site this would have been impossible. Walls had come down, the building had completely lost its integrity and everything had been moved about. The fire was reported as being "deep seated". As a result and due to the nature of the collapse it would not have been possible even to determine an area of origin.
- 23.4 The later de-layering of the building during the rescue and body recovery phases prevented any likelihood of gathering useful evidence about where and how the fire started. We have not looked at alternative sources of information, such as video footage or photographs, because they are normally of limited value. To put this in context for the CTV building, those sources may have given us a broad area where the fire was located but it would not assist us in determining a point of origin or a credible ignition source for the fire.
- 23.5 As I have stated, a fire investigation relies heavily on maintaining an undisturbed fire scene. From early in the response, there was a great deal of disturbance of the fire scene at the CTV site. The extensive quake damage coupled with the delayering and deconstruction that was necessary as part of the rescue operation (and later the recovery operation) meant that the scene was significantly disrupted from an evidential viewpoint. As a result the NZFS considers that it would not have been able to draw any credible and reliable conclusions about the origin and cause of the fire.

- 23.6 A reason for undertaking a fire investigation is to comment on the performance or availability of fire safety features in a building. The fire safety features, including automatic sprinklers, safe egress routes and alarm systems, rely on the structural integrity of the building as well as the maintenance of services to the building. The fire safety features of the CTV building were immediately and catastrophically rendered useless by the earthquake and therefore any potential for learning was taken away.
24. The NZFS consider that the fire at the CTV site started during or after the catastrophic building collapse but beyond that we have no credible information available to establish cause. The SMS report that refers to the incident type as "Structure with fire damage" goes on to include details about the fire. It notes various details about the possible heat source and the first object ignited and concludes that the indicated cause was "earthquake". The information included in this section of the SMS report was the officer's best guess provided in order to complete the data fields but there was no way having regard to the nature and extent of the collapse that he could have definitively determined the first object ignited or the heat source. While an earthquake may create an environment where a fire may start, the quake itself does not ignite combustibles therefore technically the cause of this fire should have been listed as "undetermined". As a fatality was recorded in this report it was automatically referred to a Specialist Fire Investigator, Graham Davies, on 29 March 2011. Mr Davies added a notation in the report that the building collapsed in the earthquake and that "no investigation was carried out" [BUI.MAD249.0574].
25. Two further SMS reports (F0914237 and F0914124) were generated by the NZFS computer system for this event on 22 February and were completed by two other fire crews from different stations. They recorded the event as an "earthquake" [BUI.MAD249.0575] and as a "collapse structure" [BUI.MAD249.0576]. As such there was no data fields presented in either of these reports which would have enabled the reporting officers to refer to the fire.

26. It is common when dealing with large emergency incidents for the computer system to generate multiple events logs as different callers may refer to slightly different address points. However these are usually collated by the communications centre staff into one event for one incident. In this case they were not because of the significant number of emergency calls being generated at the time.
27. The NZFS has received no evidence to suggest that the fire started before the earthquake. There were no 111 calls prior to the event, and the automatic detection system was not triggered. Fire appliances self-deployed to the CTV site.
28. In the course of preparing this statement I have reviewed the witness statements before the Royal Commission of those who were in or around the CTV building at the time of collapse, or shortly after. There are a number of differing reports as to when the fire started and where it was located. They have also stated its location at various points in the building making it difficult to be certain as to the fire's exact location and cause. However, several of the statements indicate that the fire was most prevalent in the north to north west area of the building and also around the tower. NZFS personnel who crewed the first two appliances to arrive at the CTV building recall seeing a fire at the site and particularly in the area around the base of tower, up the face of the tower and in the centre of the building.
29. NZFS are not aware of the cause of the fire, or the fuel source. The NZFS does not hold any records about hazardous substances present at the CTV building. However, the NZFS understands that there may have been a 9kg LPG cylinder in the building. The NZFS is not aware of where in the building such a cylinder may have been stored. While flammable gas will obviously ignite if present with a credible ignition source it would be pure speculation to suggest this was the initial fuel source and the NZFS will not speculate on fire cause. There would have been a huge range of potential ignition sources and considerable fire loading as with any commercial office building.
30. I have also seen comments made by Graham Frost as to the potential for cars parked in the building to be a source of ignition and fuel for

the fire. Vehicles can catch fire but again it is just one of a huge range of potential sources and it is impossible on the basis of information available to determine whether that was the source of ignition. The reference text that the NZFS uses for fire investigation (National Fire Protection Assoc. 921 Guide for fire and explosions investigation: s18.6.5.1) states that "it is improper to opine a specific ignition source that has no evidence to support it even though all other hypothesized sources were eliminated." That is the case here.

Dated 7 August 2012

A handwritten signature in black ink, appearing to read 'P Wilding', is written over a horizontal line.

P Wilding

P3 Fire Investigation and Reporting (NCI 56)

Purpose

This document provides for:

- safe and effective fire investigation and reporting.

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Requirements for fire investigation

BUI.MAD249.0572.2

Executive Officers' responsibilities

All fire incidents attended by the NZFS are required to be investigated to establish cause.

Fire Region Managers are responsible for:

- having Specialist Fire Investigators available to investigate fires anywhere within their Fire Region.
- the co-ordination of inter-region specialist investigation teams where appropriate.

Area Managers are responsible for ensuring that operational officers within their districts are trained in fire investigation.

The National Commander is responsible for ensuring the fire investigation and subsequent reporting is completed. The function of completing and submitting the fire investigation report is delegated to the person appointed to carry out the investigation.

The senior most ranking officer from the district in which any incident occurs is responsible for ensuring the SMS report is completed. This function is usually delegated to the first arriving officer.

Technical reference

The NZFS's main reference for fire investigation is:

- *NFPA 921 Guide to Fire and Explosion Investigations*

This reference will:

- provide the model of scientific method by which fire investigations will be systematically undertaken
- be consulted for guidance on the interpretation of evidence
- form the basis of fire investigation training and assessment.

Definitions

For the purposes of this instruction the following definitions apply:

Term	Meaning
Specialist Fire Investigator	any NZFS member assigned by the Fire Region Manager, to assist the region's OIC Fire's with the identification of the origin and cause of fires. Such officers will typically: <ul style="list-style-type: none"> • possess extensive experience in firefighting or fire safety, AND • have received specialised training and assessment in fire investigation techniques.
cause	the means by which a possible fuel source is brought into contact with a possible ignition source (or vice versa) to start fire
circumstances	the setting; including the actions or inaction of people before, during and after the ignition of a fire, allowing it to start or spread, or otherwise contributed to the outcome

deliberately lit - lawful	a fire that was ignited intentionally for lawful purposes, including authorised open burning of agricultural or silvicultural purposes, rubbish disposal, cooking or heating, and allowed bonfires
deliberately lit - unlawful	<p>a fire that was ignited intentionally, under circumstances where the fire should not have been ignited, and one or more indicators as listed in section 19.2 of <i>NFPA 921:2008 Guide to Fire and Explosion Investigations</i> have been observed.</p> <p>These fires may be reported as “incendiary”.</p> <p>No judgement is required to be made as to whether or not the elements of the offence of arson or otherwise have been established.</p>
point of origin	the exact physical location where a heat source and a fuel come in contact with each other and a fire begins.
indicated cause	a professional opinion relating to the cause of a fire, based on factual analysis, physical evidence, experience and training.
suspicious	<p>an unlawfully deliberately lit fire where, given the known information and based on the balance of probabilities, the investigator considers that the fire was a result of malicious or wilful intent, or wanton disregard for others and property, to cause unlawful damage.</p> <p>No judgement is required to be made as to whether or not the elements of the offence of arson or otherwise have been established.</p>
undetermined	<p>the supposed cause of a fire cannot be proven to an acceptable level of certainty e.g.</p> <ul style="list-style-type: none"> a) more than one probable accidental or natural cause exists and cannot be eliminated, AND b) no indications exist that the fire resulted from a deliberate act. <p>This does not exclude the possibility that the fire was intentionally set, but indicates that the investigator found no indications as such.</p>

Fire investigating assistance

If the origin and cause cannot be readily established by the attending officers, it is important to call for a Specialist Fire Investigator to assist at the earliest opportunity.

Specialist Fire Investigators will be called to attend and investigate the following fires:

- fires where fatalities occur
- fires where serious, (life threatening), fire related injury has occurred
- structure fires where the cause is suspicious or cannot be determined
- significant fire spread across a property boundary
- fires in buildings where built-in fire safety features have failed, or not performed to known or expected standards
- structure fires of 3rd alarm equivalent or greater, that may have a significant regional and/or national consequence

Process for requesting a Specialist Fire Investigator

BUI.MAD249.0572.4

The OIC Fire:

- ensures a Preliminary Fire Investigation Form is completed (available at <http://firenet.fire.org.nz/Post-incident-tasks/Pages/default.aspx>).

Scene facts and witness contact details recorded on the Preliminary Fire Investigation form will assist the Specialist Fire Investigator in their investigation.

The OIC either:

- hands the completed form to the Specialist Fire Investigator on their arrival OR
- leaves it at an agreed location (e.g. nearest fire station) if attending after fire crews have left the scene (refer to *Preservation of Evidence section*).

The Specialist Fire Investigator, on receiving a request to attend a fire scene:

- contacts the OIC by phone prior to responding to establish the reason and urgency for response, when practicable
- decides whether to attend immediately or the following day, considering:
 - time of day
 - travelling distances
- requests further assistance if a broader range of knowledge or further resources are required.

Police notification and involvement

Police will be notified when:

- a fire cause is considered suspicious
- fatalities or serious (life threatening) injuries occur.

Police attending incidents with ongoing firefighting operations are to liaise with the Operations Manager or OIC Fire.

Transfer of lead agency to Police will only occur after the danger of fire, structural collapse, exposure to dangerous products of combustion or other fire-related hazards have been identified and eliminated, isolated, or minimised.

Once overall control of an incident is transferred to Police, NZFS officers, including Specialist Fire Investigators, will come under the command of the OIC Fire.

Gas or electrical related fire cause

BUI.MAD249.0572.5

Informing occupants

The OIC Fire will inform the property occupants that the area of origin and/or equipment involved should be safeguarded and not repaired or discarded until it is confirmed that it is not required for any follow up investigation by any government agency expert or authority as required by:

- Electricity Act 1992
- Gas Act 1992
- Health and Safety in Employment Act 1992.

Notifying authorities

Where an electrical or gas fault is believed to have contributed to the cause of a fire, the OIC Fire will make the following notifications:

If the incident is a	then the notification goes to
place of work or where a worker is involved,	Department of Labour (DOL)
public place or non-work environment (such as a private home),	Energy Safety (ES)

If this incident does also involve any of the following triggers:

- fatalities
- serious harm (requires medical attention)
- significant property damage (can no longer be used for intended purpose)

the OIC Fire is to notify ComCen, providing the following information:

- brief reason why the notification is being made
- whether it is work related (DOL), or public place or non-work (ES)
- contact number for the OIC Fire

the ComCen is to notify DOL (work related) or ES (public place or non-work), providing:

- brief reason why the notification is being made
- contact number for the OIC Fire

The on-call agency representative will ring the OIC Fire directly to discuss the next course of action.

If this incident does not also involve any of the above triggers, on return to station the OIC Fire will:

- report the incident including the incident details and appliance involved (make/model/serial number etc) to:
 - Energy Safety using the Event Notification Form on their web site www.energysafety.govt.nz
 - Dept of Labour (0800 209020 extn 1).

Preservation of evidence

BUI.MAD249.0572.6

Whenever required, the area of origin and/or equipment involved will be safeguarded and not repaired or discarded, until it is confirmed that it is not required for any follow up investigation by any government agency expert or authority. If necessary a Police scene-guard may be established to maintain security.

The collection and removal of material from fire scenes will only be done by Police or other agencies with authority to remove evidence. The preservation, analysis and subsequent disposition of all such material is the responsibility of Police.

Fire prevention exhibits

Where an article has a value as an exhibit for use in the promotion of fire safety, and the item is not subject to the “preservation of evidence” rule above, permission from the owner of the article will be obtained before the item is removed from the scene. This permission will be in writing and NZ personnel will declare (in writing) what the intended use of the article is.

Vegetation fires

It is not the responsibility of the NZFS to investigate the cause of vegetation fires outside urban fire districts. Fire Region Managers may make Specialist Fire Investigators available to assist Rural Fire Authorities if requested.

Vegetation fires come with high environmental, cultural and economic costs. To assist fire authorities with the task of determining cause and cost recovery, the OIC Fire will ensure that all practicable actions are taken to preserve the integrity of the area of origin.

Reporting

Anytime the fire cause may be considered suspicious, a K12 message should be sent, as described in *M3-2 Land Mobile radio communications* (K12 is for information gathering purposes only; if a supporting agency response is required, K11 must be used as well).

Inside an urban fire district the responsibility for investigating and reporting fire cause rests with the Area Manager, the function is delegated to the OIC Fire.

Outside an urban fire district, the responsibility for investigating and reporting fire cause rests with the Principal Fire Officer. If they, or their representative, are not in attendance at the incident, the attendant NZFS officer will complete all reporting requirements on their behalf.

The type of fire investigation report depends on the scope, severity, and complexity of the incident. It may be:

- SMS report with additional comments, OR
- SMS report and a full investigation report, OR
- as directed.

Full investigation reports are additional to the SMS incident reports.

A Serious or Unusual Incident Report may also be required in certain circumstances, as specified in the section below.

SMS incident report

[BUI.MAD249.0572.7](#)

The function of completing and filing the SMS incident report is delegated to the first arriving officer. Under normal circumstances the SMS incident report will be completed within 14 days from the date of the incident.

If Specialist Fire Investigators carry out an investigation, the SMS incident report will be reviewed by them before the incident report can be closed.

The Specialist Fire Investigator will verify the information relating to the origin and cause and the circumstances as detailed in the incident report. Using the facility provided in SMS, they will then:

- note observations and details of the investigation by adding comments to the incident report, OR
- attach a full investigation report.

Full investigation reports

Specialist Fire Investigators will complete a full investigation report for every incident involving:

- a fire related death
- serious (life-threatening) fire related injury
- the failure of fire protection systems or fire safety features to contain or control a fire
- fire spread from one building to another
- structure fires where cause is:
 - believed to be of a suspicious nature, OR
 - known to be arson
- more information than is recorded in a SMS report.

As a minimum, a full investigation report will include the information within the fields of the national fire report template, available by going to:

Microsoft Word>office button>new>my templates>reports tab

This report template is modular and can be sized to suit the event.

NZFS Post Incident Observations and Findings will be in an appendix to the report.

Following peer review (see below), the OIC Fire and Fire Region Manager (or delegated officer) will review the completed investigation report.

All information gained by the Specialist Fire Investigator relating to a fire (including notes, photos, audio files etc) will be stored electronically in the national repository on "N" drive irrespective whether a full fire report is completed.

Post Incident Analysis Reports

The Fire Service Act 1975 obligates the NZFS to learn from fire events, distribute that learning and advocate to the government, the building industry and the wider community for improved fire safety practices. In addition to gaining an understanding about what causes fire, it is also important to capture knowledge about the performance of building design, the effectiveness of fire suppression and detection systems and human behaviour at fire incidents. This is achieved through Post Incident Analysis (PIA).

PIA occurs in its simplest form when issues such as the performance of smoke detection or sprinklers are recorded through the SMS incident reporting system. More advanced fire related

learning can be reported by Specialist Fire Investigators using the "observations and findings" appendix in the national template of the full fire investigation report. Detailed PIA may require the skills and experience of a qualified fire engineer to complete a dedicated PIA report.

The PIA process

The SMS incident report or full fire investigation report should be used to capture PIA information appropriate to the level of report and investigator.

Where any of the following criteria are met, the specialist fire investigator is to contact the ComCen and request the on-call fire engineer is paged to contact them.

- Fire in large crowd occupancy (>100 people)
- Fire in sleeping accommodation - non-residential
- Fire spread across boundary or fire compartment
- Failure of occupants to escape/ rescue required
- Inadequate fire-fighting water supply
- Failure of fire safety system
- Anytime where a PIA will be of significant benefit in capturing relevant information

The on-call fire engineer will contact the specialist fire investigator, discuss the incident and decide whether the potential learning can be captured by the specialist fire investigator or if a dedicated PIA is warranted requiring a fire engineer to respond. If the fire engineer considers a dedicated PIA is warranted, he/she will contact the fire engineering unit team leader closest to the incident to authorise a response.

The fire engineering unit team leader will either;

- decline and refer it back to the specialist fire investigator to include in their report or,
- approve the request and issue the terms of reference for the PIA. The team leader is responsible for :
 - allocating fire engineering resources to attend and complete the PIA
 - notifying the respective regional management and manager fire engineering that the PIA has been authorised.

Note:

- contacting the on-call fire engineer does not generate an automatic response of a fire engineer to an incident.

Report deadlines

BUI.MAD249.0572.9

All full investigation reports will be completed within one month from the date of the incident. If any external reports, such as Coroners reports, specialist analyses etc are not available at this time, this is to be noted and the report filed. The external information will be attached when it becomes available at a later stage.

SMS reports and additional commentary to the SMS report will be completed within 14 days from the date of the incident.

Post Incident Analysis reports will be completed within two months from the date of the incident.

Review of investigation reports

All reports are to be subject of a peer review process to verify clarity and completeness. The Legal Advisor may be used to review reports where fatalities have been involved and/or where criminal prosecution proceedings are probable.

Serious or unusual incident report

The National Commander requires early notification of incidents that may result in:

- media attention
- changes of legislation
- NZFS operations being questioned.

A Serious and Unusual Incident Report is to be forwarded to the National Commander, through the Director of Operational Support and Training, within three working days of the incident on the form available at:

Word>office button>new>my templates>reports tab.

For any incident that has been identified as „Serious or Unusual’, the Fire Region Manager will notify the National Commander as soon as initial details are available.

Release of information

The OIC Fire or Specialist Fire Investigator may make public comment regarding the incident. Such comment will be in accordance with the provisions of *POLCM1.1 Media*.

No person whatsoever may release any detail relating to the cause of death of any fire victim until after the coroner has announced their official finding.

Where legal proceedings have been initiated, public comment regarding fire cause will only be made in conjunction with NZFS legal advice.

When a copy of a fire investigation report is requested, the provisions of:

- *POLCM2.2 Official Information/Privacy*
- *POLLC1.6 Official Information Act 1982*
- *POLLC1.7 (Privacy Act 1993*

will be strictly adhered to.

Record of amendments

Date	Brief description of amendment
May 2012	Section on PIA reports added, including reference in reporting deadlines. Form links checked and updated

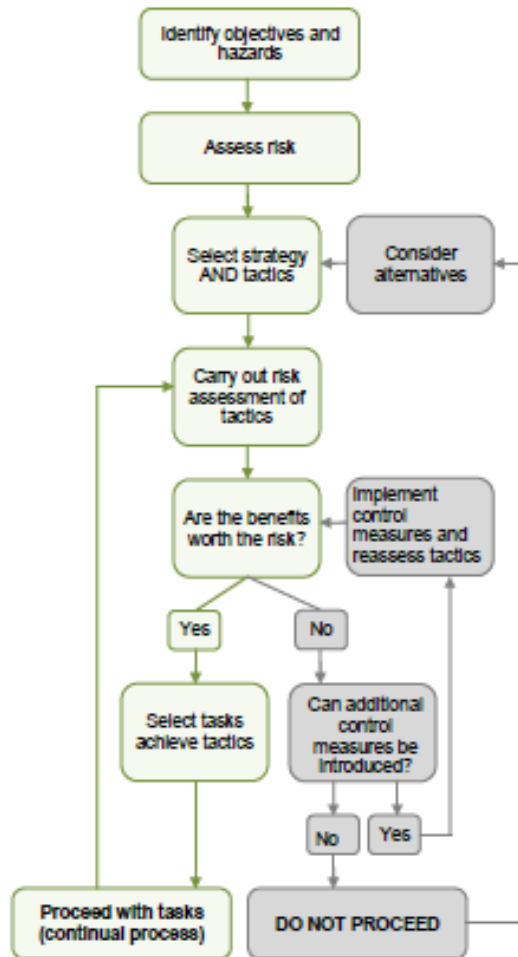
DRA process flowchart
(OIC level)

Figure 1.2: Dynamic Risk Assessment model

SMS Incident Report

6/08/2012 9:28:28 a.m.

Summary

CAD Number F0913883 Status Closed
 Station Addington Station
 Incident Started 22/02/2011 1:32:30 p.m. Incident Ended 2/03/2011 5:40:16 p.m.
 Incident Type 1101: Structure fire with damage
 Common Name CTV
 Address 249 MADRAS STREET CHRISTCHURCH CENTRAL
 Alarm Method 111 Telephone Alarm Level 1
 PFA Number
 Zone 342101 Risk Classification N
 Map Grid E 1571112 Map Grid N 5179963
 First Caller CHRISTCHURCH CENTRAL First Caller Contact 0273310481
 POLICE STN
 Incident Closed 2/03/2011 5:40:16 p.m.
 Report Completed 20:47, Wed 09 Mar 2011 by Bruce Irvine

Responses

Callsign	Type	Station Alert	Enroute Time	Arrival Time	Departed
ADDI221	P1	13:32:31 22 Feb 2011	13:33:00 22 Feb 2011	13:33:22 22 Feb 2011	23:10:48 24 Feb 2011
WOOL2435	PTR	13:46:48 22 Feb 2011	13:46:49 22 Feb 2011	13:46:50 22 Feb 2011	04:13:57 23 Feb 2011
AMBE487	PR	14:10:00 22 Feb 2011	14:15:53 22 Feb 2011	14:32:50 22 Feb 2011	20:30:38 22 Feb 2011
WOOD7711	WT	14:04:00 22 Feb 2011	14:09:13 22 Feb 2011	14:33:25 22 Feb 2011	07:43:53 02 Mar 2011
DUNS4411	WT	14:55:00 22 Feb 2011	15:00:16 22 Feb 2011	15:23:16 22 Feb 2011	10:51:00 02 Mar 2011
21C	OF	13:46:48 22 Feb 2011	13:46:49 22 Feb 2011	15:43:46 22 Feb 2011	18:00:00 22 Feb 2011
MIDCANVSO1	VSO	13:46:48 22 Feb 2011	13:46:49 22 Feb 2011	15:56:59 22 Feb 2011	23:33:57 22 Feb 2011
20A	OF	17:04:37 22 Feb 2011	17:04:45 22 Feb 2011	17:36:07 22 Feb 2011	07:03:03 23 Feb 2011
GOVE331	P1	13:46:48 22 Feb 2011	17:52:47 22 Feb 2011	18:12:35 22 Feb 2011	04:47:14 23 Feb 2011
RANG761	CU	20:14:47 22 Feb 2011	20:15:24 22 Feb 2011	20:41:15 22 Feb 2011	00:24:03 23 Feb 2011
RANG7611	WT	20:15:04 22 Feb 2011	20:15:24 22 Feb 2011	20:41:16 22 Feb 2011	14:29:18 27 Feb 2011
SUMN2810	RU	20:15:18 22 Feb 2011	20:15:24 22 Feb 2011	20:41:16 22 Feb 2011	06:38:54 23 Feb 2011
SOUT451	P1	20:17:59 22 Feb 2011	20:18:58 22 Feb 2011	20:41:17 22 Feb 2011	22:55:57 22 Feb 2011

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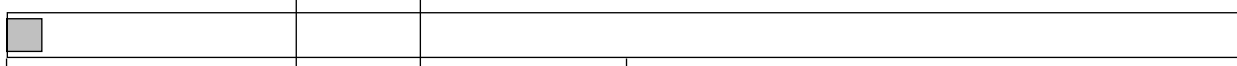
Some message timestamps may differ to actual times in multi-agency incidents. Communication centres can supply correct times if essential.

CHRI216	TL	13:45:00 22 Feb 2011	13:46:49 22 Feb 2011	21:16:13 22 Feb 2011	23:00:00 22 Feb 2011
LINC4111	WT	13:46:48 22 Feb 2011	22:40:00 22 Feb 2011	22:45:44 22 Feb 2011	02:54:50 24 Feb 2011
DUNE2118	CUHU	13:46:48 22 Feb 2011	13:46:49 22 Feb 2011	02:11:43 23 Feb 2011	16:52:18 02 Mar 2011
BROO3111	WT	04:54:21 23 Feb 2011	05:02:51 23 Feb 2011	05:28:36 23 Feb 2011	16:39:13 02 Mar 2011
WEST9511	WT	08:16:58 23 Feb 2011	08:17:32 23 Feb 2011	08:28:59 23 Feb 2011	12:15:17 23 Feb 2011
BROO311	P1	13:46:48 22 Feb 2011	13:46:49 22 Feb 2011	11:30:50 23 Feb 2011	14:56:55 23 Feb 2011
CHRI211	P1	18:24:34 23 Feb 2011	18:25:38 23 Feb 2011	18:30:35 23 Feb 2011	14:03:58 26 Feb 2011
CHRI214	PM	21:34:05 23 Feb 2011	21:35:41 23 Feb 2011	21:39:12 23 Feb 2011	13:43:50 02 Mar 2011
CUST7811	WT	13:46:48 22 Feb 2011	00:32:15 24 Feb 2011	00:34:06 24 Feb 2011	17:59:11 25 Feb 2011
TIMA804	PM	16:59:29 24 Feb 2011	17:04:11 24 Feb 2011	17:10:20 24 Feb 2011	19:43:34 24 Feb 2011
HARE261	P1	22:18:57 24 Feb 2011	22:22:59 24 Feb 2011	22:39:00 24 Feb 2011	03:03:46 25 Feb 2011
STAL231	P1	13:46:48 22 Feb 2011	02:21:41 25 Feb 2011	02:44:44 25 Feb 2011	13:02:01 28 Feb 2011
CHRI217	PR	13:46:48 22 Feb 2011	05:42:55 25 Feb 2011	05:52:31 25 Feb 2011	05:57:02 25 Feb 2011
KIRW7211	WT	13:46:48 22 Feb 2011	13:46:49 22 Feb 2011	16:28:30 25 Feb 2011	09:04:05 28 Feb 2011
SOCK257	PR	18:02:48 22 Feb 2011	18:02:52 22 Feb 2011	12:23:59 27 Feb 2011	16:21:18 27 Feb 2011
TRANS042	P2	13:46:48 22 Feb 2011	13:46:49 22 Feb 2011	21:34:42 27 Feb 2011	02:16:54 28 Feb 2011
BURN911	P1	13:46:48 22 Feb 2011	13:46:49 22 Feb 2011	02:17:06 28 Feb 2011	07:14:02 28 Feb 2011
SOUT4511	WT	09:00:00 28 Feb 2011	09:05:00 28 Feb 2011	09:10:54 28 Feb 2011	18:56:20 01 Mar 2011
RAKA6411	WT	14:35:45 28 Feb 2011	14:36:08 28 Feb 2011	15:12:17 28 Feb 2011	21:41:33 28 Feb 2011
OXFO7911	WT	13:29:26 02 Mar 2011	13:30:24 02 Mar 2011	13:44:25 02 Mar 2011	16:46:14 02 Mar 2011
EAST462	P2	15:15:36 22 Feb 2011			15:16:18 22 Feb 2011
WOOD7726	VN	13:46:48 22 Feb 2011	08:31:45 23 Feb 2011		11:21:53 23 Feb 2011
WOOD777	PR	14:28:59 22 Feb 2011			14:29:09 22 Feb 2011
CHRI212	P2	11:25:21 23 Feb 2011			11:26:00 23 Feb 2011
CHRI2110	RU	13:46:48 22 Feb 2011	14:59:43 22 Feb 2011		15:12:23 22 Feb 2011
HORO7311	WT	13:55:15 01 Mar 2011			13:55:49 01 Mar 2011

Start->Alert

7 min

10 min



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0 min

Alert->1st Arrival

15 min

30 min

Elapsed Times

Callsign	Start To Alert	Alert To Arrival	Start To Arrival	Start To Depart
ADDI221	00:00:01	00:00:51	00:00:52	57:38:18
WOOL2435	00:14:18	00:00:02	00:14:20	14:41:27
AMBE487	00:37:30	00:22:50	01:00:20	06:58:08
WOOD7711	00:31:30	00:29:25	01:00:55	86:11:23
DUNS4411	01:22:30	00:28:16	01:50:46	89:18:30
21C	00:14:18	01:56:58	02:11:16	04:27:30
MIDCANVSO1	00:14:18	02:10:11	02:24:29	10:01:27
20A	03:32:07	00:31:30	04:03:37	17:30:33
GOVE331	00:14:18	04:25:47	04:40:05	15:14:44
RANG761	06:42:17	00:26:28	07:08:45	10:51:33
RANG7611	06:42:34	00:26:12	07:08:46	20:56:48
SUMN2810	06:42:48	00:25:58	07:08:46	17:06:24
SOUT451	06:45:29	00:23:18	07:08:47	09:23:27
CHRI216	00:12:30	07:31:13	07:43:43	09:27:30
LINC4111	00:14:18	08:58:56	09:13:14	37:22:20
DUNE2118	00:14:18	12:24:55	12:39:13	95:19:48
BROO3111	15:21:51	00:34:15	15:56:06	95:06:43
WEST9511	18:44:28	00:12:01	18:56:29	22:42:47
BROO311	00:14:18	21:44:02	21:58:20	25:24:25
CHRI211	28:52:04	00:06:01	28:58:05	96:31:28
CHRI214	32:01:35	00:05:07	32:06:42	92:11:20
CUST7811	00:14:18	34:47:18	35:01:36	76:26:41
TIMA804	51:26:59	00:10:51	51:37:50	54:11:04
HARE261	56:46:27	00:20:03	57:06:30	61:31:16
STAL231	00:14:18	60:57:56	61:12:14	43:29:31
CHRI217	00:14:18	64:05:43	64:20:01	64:24:32
KIRW7211	00:14:18	74:41:42	74:56:00	39:31:35
SOCK257	04:30:18	14:21:11	18:51:29	22:48:48
TRANS042	00:14:18	27:47:54	28:02:12	32:44:24
BURN911	00:14:18	32:30:18	32:44:36	37:41:32
SOUT4511	39:27:30	00:10:54	39:38:24	73:23:50
RAKA6411	45:03:15	00:36:32	45:39:47	52:09:03
OXFO7911	91:56:56	00:14:59	92:11:55	95:13:44
EAST462	01:43:06			01:43:48
WOOD7726	00:14:18			21:49:23
WOOD777	00:56:29			00:56:39
CHRI212	21:52:51			21:53:30
CHRI2110	00:14:18			01:39:53
HORO7311	68:22:45			68:23:19

Notifications

Date	Time	Party Notified
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Date	Time	Party Notified
23 Feb 2011	13:35:04	AMBO
24 Feb 2011	10:27:51	CITY ICP WILL ORGANISE DAZZLE PAINT
24 Feb 2011	13:03:55	RANG USAR COMMAND - THEY WILL ORGANISE THIS FOR CTV COMMAND
25 Feb 2011	16:58:31	CTV COMMAND
25 Feb 2011	16:58:31	SOUTHCOMS ACK JOB
25 Feb 2011	16:58:31	POLICE - THEY WILL VERIFY THE DETAILS AND ADVISE
27 Feb 2011	13:14:17	USAR COMMAND ADVISED WOOD7711 NOT BEING RELEASED BY QUEENSLAND USAR.

Equipment Involved	Unable to classify
Year	
Make	
Model	

Fire

Arrival Condition	Small fire		
Heat Source	Heat from electrical equipment: Properly operating		
Termination Stage	Flame		
First Object Ignited	Packing, Wrapping material		
First Object Material	Cardboard		
Second Object Ignited			
Second Object Material			
Indicated Cause	Earthquake		
Certainty of Cause	High		
Age of Person	No person involved		
Ethnicity	No person involved		
Gender			
FAIP Service Offered	No	FAIP Service Accepted	No

Alarms

Type of Alarm Initiating Call	Smoke Detector System (Monitored)
Performance of System	Unable to classify
Failure/Ineffectiveness of system	Unable to classify
Number of sprinkler heads operated	

Structure

Area of One Floor	600
Age of Building	1970 - 1991
Structural Frame Type	Reinforced concrete tilt slab
Number of Floors	5
Number of Basements	0
Internal Wall Lining	Gypsum board (e.g. Gib board, Elephant board)
Ceiling Lining	Gypsum board (e.g. Gib board, Elephant board)
Material Generating Most Flame	Wood: Sawn, Finished timber
Material Generating Most Smoke	Fabric, Fibre
Avenue of Flame Travel	Unknown
Avenue of Smoke Travel	Unknown
Extent of Flame Damage	Confined to structure of origin
Area of Flame Damage	400

Extent of Smoke Damage	No damage of this type
Area of Smoke Damage	0
Extent of Water Damage	No damage of this type
Area of Water Damage	0
Extent of Fire Control Damage	Confined to structure of origin
Area of Fire Control Damage	400

Comments

08:46, Wed 9 March 2011

Reporter Comments

Multiple Rescues and Multiple Fatalities as a result of the earthquake.
DVI Police and USAR involved in operations

Bruce Irvine

09:50, Tue 29 March 2011

Reporter Comments

This building was collapsed during the QE and no investigation was carried out.

Graham Davies

SMS Incident Report

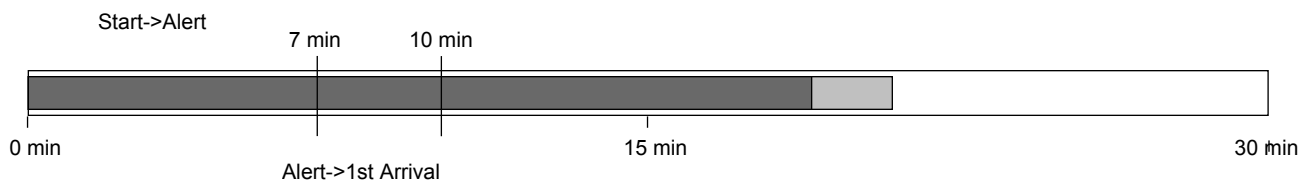
6/08/2012 9:30:55 a.m.

Summary

CAD Number F0914237 Status Closed
 Station Amberley Volunteer Fire Brigade
 Incident Started 22/02/2011 3:30:05 p.m. Incident Ended 22/02/2011 8:46:21 p.m.
 Incident Type 8101: Earthquake
 Common Name CTV
 Address 249 MADRAS STREET CHRISTCHURCH CENTRAL
 Alarm Method 111 Telephone Alarm Level 1
 PFA Number
 Zone 342101 Risk Classification N
 Map Grid E 1571112 Map Grid N 5179963
 First Caller KOMOTO/KIYU First Caller Contact 10274017000
 Incident Closed 22/02/2011 8:46:21 p.m.
 Report Completed 19:52, Mon 04 Apr 2011 by Bertha Dodds

Responses

Callsign	Type	Station Alert	Enroute Time	Arrival Time	Departed
AMBE487	PR	15:49:03 22 Feb 2011	15:50:00 22 Feb 2011	15:51:00 22 Feb 2011	16:21:46 22 Feb 2011



Elapsed Times

Callsign	Start To Alert	Alert To Arrival	Start To Arrival	Start To Depart
AMBE487	00:18:58	00:01:57	00:20:55	00:51:41

Notifications

Date	Time	Party Notified
22 Feb 2011	15:55:23	TOO MUCH LEFT ON BATTERY

Incident

CAD Number F0914237
Incident Reporter Bertha Dodds
Incident Controller D.C.F.O. Parish.
Distance Travelled (km) 5
Delay In Receiving Call

Property Details

Occupant
Building Owner
General Property Use Office, Bank, Embassy, Fire/Ambulance/Police station
Special Property Use Office: General business
Purpose Group

Actions

Persons Reported Trapped Yes
Evacuation Status
Action Prior 1
Action Prior 2
Action Taken Extinguishment only: Includes isolating fuel/power supply

Civilians

Civilians Rescued 0
Civilians Extricated 0
Civilians Assisted 0
Civilians Evacuated

Origin

Location
Level

Equipment Used

Quantity	Equipment
1	Low pressure delivery

Equipment Involved

Equipment Involved
Year
Make
Model

Comments

07:52, Mon 4 April 2011

Reporter Comments

Earthquake. Assisted Woolston Appliance, feeder for fire. on scene for approximately 30 mins.

Bertha Dodds

SMS Incident Report

6/08/2012 9:30:09 a.m.

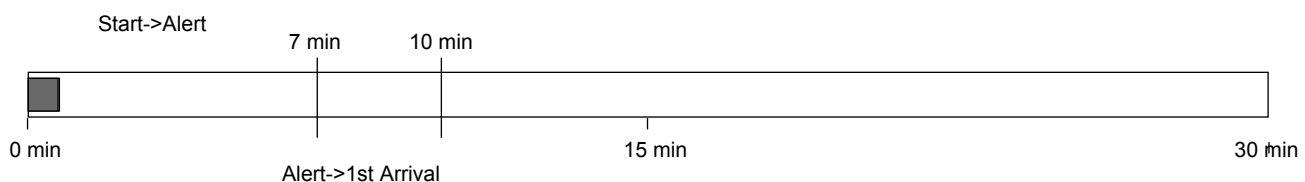
Summary

SERIOUS OR UNUSUAL INCIDENT

CAD Number F0914124 Status Closed
 Station Christchurch City Station
 Incident Started 22/02/2011 2:39:24 p.m. Incident Ended 23/02/2011 4:41:30 p.m.
 Incident Type 3105: Collapsed structure rescue
 Common Name CTV
 Address 249 MADRAS STREET CHRISTCHURCH CENTRAL
 Alarm Method 111 Telephone Alarm Level 1
 PFA Number
 Zone 342101 Risk Classification N
 Map Grid E 1571111 Map Grid N 5179962
 First Caller First Caller Contact
 Incident Closed 23/02/2011 4:41:30 p.m.
 Report Completed 15:45, Tue 29 Mar 2011 by Gary Quigan

Responses

Callsign	Type	Station Alert	Enroute Time	Arrival Time	Departed
CHRI217	PR	14:40:09 22 Feb 2011	14:40:10 22 Feb 2011	14:40:11 22 Feb 2011	14:53:30 23 Feb 2011
GOVE3311	WT	18:29:46 22 Feb 2011	18:29:47 22 Feb 2011	18:29:48 22 Feb 2011	16:10:03 23 Feb 2011



Elapsed Times

Callsign	Start To Alert	Alert To Arrival	Start To Arrival	Start To Depart
CHRI217	00:00:45	00:00:02	00:00:47	24:14:06
GOVE3311	03:50:22	00:00:02	03:50:24	25:30:39

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Incident

CAD Number F0914124
Incident Reporter Steve Warner
Incident Controller steve warner
Distance Travelled (km) 3
Delay In Receiving Call

Property Details

Occupant
Building Owner
General Property Use Office, Bank, Embassy, Fire/Ambulance/Police station
Special Property Use Office: General business
Purpose Group

Actions

Persons Reported Trapped Yes
Evacuation Status
Action Prior 1 Rescue performed to save life
Action Prior 2
Action Taken Rescue, Search and Rescue

Civilians

Civilians Rescued 20
Civilians Extricated 0
Civilians Assisted 0
Civilians Evacuated

Origin

Location
Level

Equipment Used

Quantity	Equipment
1	Hose reel, high pressure delivery
4	Handheld Radio (or Cellphone)
4	Vehicle Radio (LMR)
1	Hand tools: Crowbar, Saw, Hammer, Mop, Broom, Misc small gear
2	Stretcher, Rescue Basket
30	Stabilisation equipment (eg. rope/lines, blocks/chocks, cribbage etc)
2	Generator
4	Lighting/lights/lighting apparatus
2	Hydraulic jack

Equipment Involved

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Equipment Involved

Year

Make

Model

Comments

07:28, Sun 27 March 2011

SUI Incident Comments

CTV building totally destroyed result of earthquake

Steve Warner