

Freedom of Information Document Schedule for FOI: File: 2011/16529

Name:

Establishment and operations of Energy Services Environmental (ESI), a
 Re: company which provided dechlorination and recycling services from a
 site on Dacre Street in Mitchell.

Document Number	Page Number	Description of Document	Date of Document	Status: Full Release, Partial or Exempt	Reason for Exemption: Section 37 (1)(a) Documents affecting enforcement of the law and protection of public safety Section 41(1) Documents relating to personal privacy. Section 43 Documents relating to business affairs	Details
1	1-2	Maps - Emergency Incident Road Closure Overview	16/09/2011	Full Release		
2	3	Map - Emergency Incident Evacuation Map as at 0900Hrs	16/09/2011	Full Release		
3	4-7	Maps - Emergency Incident EPA Sampling Sites	17/09/2011	Full Release		
4	8	Map - Emergency Incident EPA	18/09/2011	Full Release		
5	9-10	Map - Mitchell Exclusion Zone	18/09/2011	Full Release		
6	11-13	SEMSOG Outcomes/Action Items - Mitchell Hazmat Incident	16/09/2011	Partial Release	Section 41(1)	Medical Information
7	14	Email - 2200 Strep	16/09/2011	Partial Release	Section 37(1)(a)	Names, Position, Telephone numbers
8	15-16	SEMSOG Outcomes/Action Items - Mitchell Hazmat Incident	17/09/2011	Full Release		
9	17	Map - Emergency Incident - Evacuation Map as at 0900Hrs	16/09/2011	Full Release		
10	18	Map - Emergency Incident - New evacuation area 0715Hrs	16/09/2011	Full Release		
11	19	Map - Emergency Incident - Evacuation Map as at 0900Hrs	16/09/2011	Full Release		
12	20	Aerial photograph Mitchell Industrial Area	Undated	Full Release		
13	21-24	Mitchell Exclusion Zone	18/09/2011	Full Release		
14	25	ACT Fire Brigade Fire Investigation Unit - Field Notes	19/09/2011	Partial Release	Section 37 (1)(a) Section 41 (1)	Names, Signature, Telephone numbers, Facsimile number
15	26	ACT FB Fire Investigation Unit - Notes	19/09/2011	Partial Release	Section 37(1)(a)	Signature
16	27-29	Documentation regarding Health effects of PCBs	Undated	Full Release		
17	30-32	ACT Fire Brigade Fire Investigation Report	Undated	Partial Release	Section 37 (1)(a)	Names, Position, Telephone numbers, Facsimile number, email address
18	33-39	Email - ESI Fire Mitchell	7-14/10/2011	Partial Release	Section 37 (1)(a) Section 41 (1)	Names, Telephone numbers, Facsimile numbers, email addresses, personal opinion
19	40-41	Aerial photograph Mitchell Industrial Area	Undated	Full Release		
20	42	Map - Emergency Incident New evacuation area 0715Hrs	16/09/2011	Full Release		
21	43-57	Handwritten notes - Incident response chronology from Mitchell Fire	16/09/2011	Partial Release	Section 37(1)(a)	Names
Total Documents						
21						

Full = 14
 Partial 37 = 6
 Partial 41 = 2

16/8/2011

854 507 Bronto in position getting to work 1

85 507 Cage on Bronto Unmanned controlled from ground

6 Commencing 65mm attack

9 B20 Reading 15 PA Retensia Pond
Flemington Rd Pond

27 B7 Down to Last Drum of Foam

29 B7 Replenished with Foam attach on fire progressing well

29 Approx 40 Drums of Foam Left

1 507 Sand containment completed at site
Excavator relocated to Flemington Pond


507 All members off air

3 507 Airport 3 in position commencing attack
2 water supply to B31 shut down redirected to Airport 3

507 crew back on Air

507 Airport 3 Repositioning to side location

16/9/2011 Mitchell

- 9 37 507 Over the sand on off Air 
- 44 Bravo 25 proceeded to Fireground with replenished cylinders
- 49 i. assuming forward command
- 50 assuming operations officer
- 55 Airport 3 request further foam supplies from Airport Stn
- 10.00 7 Crew ~~to~~ to change over 7 D Crew
- 001 Airport Stand down
(From forward command)
- C78 work with Brants
- C92 + 72 to be relocated
- 04 Resource centre + Airport Fire Service to Liaise re foam supply
- 08 request front gate ^{key} from owner
- 10 has opened front gate
- 15 Bravo 20 entering Fire ground
- 17 C92 commencing Exposure control
- 18 Bravo 7 crew D changed over on to CAFS tanks
- 19 C92 crew all on air
- 21 Bravo 20 crew commencing maintaining Fireground
- 22 Bravo 7 crew on air

16/9/2011 Mitchell

(3)

- 1024 Resource Van arrived with
Foam Supply Fireground
- 27 ³⁷ gaining access through roller door
to access fire
- 32 Atmospheric Monitoring Fireground near building
reading clear
- 35 Bravo 21 1/70 Dacoma St commencing
atmospheric monitoring
- 38 igniting contents of 200 litre
Drums on workshop floor
- 40 Confirmation from owner the drums are empty
- 047 200kpa
- 1048 0.05 reading rear of building.
- 48 ~~at~~ ~~air~~ ~~at~~ ~~Rourke~~ off Air.
off air
- 051 Crew 9D going in to replace 9A (CAFS)
- ~~153~~
156 B20 departing fire scene for Franklin Road
- 157 NSW RFS 20 drums AFFF at Qbn. Will be
delivered to staging area. N

TITLE
1035

7A replaced by 7D (CAFS)

54

1101 - 50 VOS off air

1108 - arrived

1121 9D on air

290kpa. -> relieving 9A (CAFS)

125 - W13 departing Fireground for No. 9 Station.

- FF F arrived on scene. Relieving A Platoon Bronto crew

128 - D8 reports water restrictions in Rear Sector, working with water operator to remedy

1130 - B20 and NSWFB Hazmat crew returned from risk area.

1132 - reports retreating from BLD sector and awaiting additional foam supplies.

1143 - Forward Command requests for ops briefing.

1155 - B15-2 arrived on scene.

} arrived on scene relieving B27 crew.

1158 - "A" platoon B20 crew relieved by "D" Platoon B20 crew.

12:02 - B27 crews swapped over.

manning B27/BAC

12:10 - B15-2 departs incident

12:18 - SO7 advises crews to only gain access to BLD sector via southern road.

12:20 - air readings - request 9 BA cgl.

12:30 - and crew FFlig

12:30 - and changed onto the Bronto.

2:35 - Aviation 3 applying Foam

2:36 - B40 leaving Airport.

2:38 - Fire on North of Bld North wall

16 BT

11 #

arrived on scene

4 sets

41 "

2:43

North wall about to fall

2:47 Fire spread to south west cor.

2:48 " " an report incident

2:53 some height above roof height

2:55 " " withdrawn FF

3:00 Exhaust foam supplies

left incident

3:04

17 on to fwd control

B6

27 large multiple explosions

30 BT

arrived stage area

44 FF

checking drains

~~19 30 at fwd control~~

3:50 wash on air

and crew left for fwd control

hand over entry control to

and crew exit hot zone

entered hot zone

relocate BA Control to Forward Control Point

37 BT crew and departed scene

50 Workshops arrived on scene

left hot zone
from Airport

14.58 B9 crew
with Fire Dragoon.

Also

15.10 Supt and

(Diesel) entered hot zone.

15.20

entered hot zone to deliver boards.

15.23 Aviation

entered hot zone via ACTAS vehicle

15.28

and exit hot zone.

15.33

ACTAS transport vehicle exited hot zone.

15.37

from Aviation, ~~ACTAS~~

and

enter hot zone also truck + bbs drivers.

15.38

exits hot zone.

entered hot zone

15.52 B4

15.53 B9 crew entered hot zone

15.54

+ mechanic entered hot zone to performe repairs to C72

15.55

1 exit hot zone.

16.02 B7 crew

one

exit hot zone.

16.15

1 enter hot zone in College Bus.

16.23

1 entered hot zone with property owner to isolate batteries

in workshop.

16.25 ACTAS Staff

~~exit hot zone~~ out,

Staff Change

~~enter hot zone~~ in

16.28 ACTA

~~exit hot zone~~ out

Staff Change

ACTA

~~enter hot zone~~ in

16.33

+ guest exited hot zone

16.34 B21 exit hot zone

16.45 B7 crew
Hot zone

enter

16.50 FF

site Pod at incident cont

16.55 ESTA workshops

Exit Hot zone

513

- 17:10 - No Smoke
- 17:20 - Exit Hot zone
- 17:27 - " " " " " " enter Hot zone
- 17:30 - " " " " " " + AFP member? enter Hot zone
- 17:33 - Fire out, BS released & heading back to station.
- 17:34 - Possibly still small pocket of fire.
- 17:38 - SES Lighting tower enter hot zone
- 17:40 - B27 Generator leaking oil.
- 17:41 - " " " " " " return to incident control
- 17:44 - " " " " " " leaving hot zone
- 17:44 - " " " " " " back at ICP
- 17:48 - FF " " " " FF " " Enter hot zone for atmospheric monitoring
- 17:50 - C92 with " " " " " " return ICP
- 17:50 - Flash seen Fire alight
- 18:00 - C92 " " " " " " enter hot zone
- 18:02 - C72 " " " " " " no 9 station
- 18:03 - " " " " " " at ICP
- 18:04 - Fire seems to be out.
- 18:24 - A platoon no 4. " " " " " " entering Hot zone to receive
- 18:32 - BS A platoon Enter hot zone

18:37
 18:42 Picking up to Exit Hot zone.
 relived
 18:46 at BA
 18:47 exit Control hot zone
 (Aviation) return to station
 18:51 C72 + B6 Exit hot zone
 18:54 + key holder Enter hot zone
 19:00 ~~B6 D platoon at ICP~~
 B6 D platoon at ICP
 19:10 B6 Depart for home station
 19:11 " exit hot zone
 19:12 enter hot zone
 19:15 " return to station
 19:40 return to ICP
 19:45 B9 enter hot zone

~~19:00 B9 to Bredson to crew return to ICP~~

20:01 B6 - A platoon arrived ICP
 20:10 B6 Entering Hot zone
 20:19 B21 at ICP
 20:30 B21 Enter Hot zone
 20:30 enter hot zone
 20:33 B7 at ICP

16.9.11

2:39 B7 on scene @ ICP.

2:40 B21 @ ICP

2:42 B21 Fountain enter hot zone - Drop BA cylinders to then departing for home.

2:44
2:46 returned to ICP
2:47 B7 departing for home station with C72 & C78
leaving fire ground

2:58 B9 & C72 -
Depart for Home station.

3:06 -

3:27 - 2 FCP

3:36 - B21 @ FCP @ ICP

23:42 -

UPDATE @ ICP to relieve B20 D platoon crew
17.9.11

100

12 Superintendant
departed scene

arrive from fire ground B27.

13

Incident Controller

215

arrive in B21 driver

230

meal break

240

125 B5 departed scene

115 B21 depart scene for #1

110 B4 arrived

1225 B6 Returning to Station.

1605 B9 Arrived

1625 B4 DEPARTED SCENE.

17.9.11

0635 B9 arrived

0700. Performed Atmospheric Monitoring with PID, QRAE + AP2C Around fire scene. Nil readings on all detectors. (NO Volatile Organic Compounds (VOC), No explosive limits, carbon monoxide, hydrogen sulphide or oxygen (High and low) QRAE, NO Phosgene (AP2C).

0745 Stores arrived foam delivery

0815 C9 arrived in W13 + C92 to relieve B9 A9 crew.

arrived - Bronto relief.

0820

0836 B21 arrived

0845 W13 + C92 with B9 crew of

departing

for station

0858 B20 A platoon crew depart for No1 station

0905 performing RECECO of site

0920 return

1000 Change Command post to Tooth st B20 B82 Ambos

1100 B21 Arrives

1115 and in splash suits start cleaning hoses on Dacre~~st~~ street

1130 AFP Arrive SES Generator out of fuel

1155 arrives with

1200 arrive AFP

1210 Roads ACT Arrives

1227 B7 - - - - - arrive

1234 cleaning crew B6, B9, B20 back at staging area

1235 Briefing to B7 Crew, situation, safety, off site

1245 Weather received from Comms Temp 22-24
Wind N-NW 26 -> 50km gusts.

Easing at 1700

1250 a Spot arrive at
Test hoses with PPB Negative reading

1253 From Comms
overheating equipment 32 Essington St.
Discussion with
police escort. Heated with AFP, Rang
Back OK to go in. OK under

1302 B16 Arrived.

1323 Transpacific Tanker into bund area

1324 arrives

- 13 35 Media arrive on site
- 13 44 B9 + B6 left scene
- 1400 Media depart
- 1418 B4 Arrived
- 1428 B7 left scene
- 1430 From (Roads and Bridges) = EPA advised them that they are to erect a fence at NE corner of Dacre St at top of hill for contaminated soil. Will erect Sun Mower's
- 1434 Small puff of smoke from sites. Crews put in place on Bronto to extinguish
- 1500 Polytec rep arrived to own building next door
Sent with him as safety officer with promise that if Brno says too contaminated then no entry will be permitted.
- 1510 B21 arrived to pick up small gear (deconned)
- 1545 Place up 3 x 20 foam Applied.
- 1618 B21 left for Fairbairn.
- 1710 change IC roll with
Sema Conner.
- 1805 EPA refuse of shutdown - Transpacific x 3
A Seeker trucks remain at Mitchell.
- 1840 B9 'D' change B4 'C'
- 1900 Bronto crew changed.
- 2200 FLARE UP NOTIFIED COMMS DO NORTH SOUTH, TRANSPACIFIC
SMOKE DISSIPATED NO BRIGADE ACTION.

- 20:44 - arrived ICP
- 20:45 - ~~Do not enter~~ zero readings on atmospheric readings
- 20:46 - arrived ICP
- 20:52 - B21, arrived on scene. s, Fountain at ICP
- 20:59 - Aviation 3 & ute departing hot zone
- 21:05 - 1, ~~Do not enter~~, enter hot zone
- 21:07 - enter Hot zone
- 21:10 - enter Hot zone
- 21:12 - exit hot zone
- 21:14 - @ ICP
- 21:16 - @ ICP
- 21:22 - @ ICP
- 21:25 - enter hot zone
- 21:33 - @ ICP
- 21:35 - departing from home
- 21:35 - departing for Forest Fire Station
- 21:45 - enter hot zone
- 21:55 - @ ICP
- 22:12 - B5 - @ ICP
- 22:20 - B5 & crew enter hot zone
- 22:27 - @ ICP
- 22:31 - 2 FCP

SAT 17TH SEPT.

- 2210 THERMAL CAMERA USED. NIL HOTSPOTS
- 22.30 VISIBLE. ^{Army} _{Army} - Reported to Sol. 135
- 23.10
- 24.00 - arrived. ^{depart}
- 02.00 Thermal camera used Nil hot spots 20°
- 02.20 BRAVO 8 & crew. " ARRIVED "
- BRAVO 5 departed.
- 05.00 BRAVO 6 + crew
- STOMPS ON SCENE.
- BRAVO 8 DEPARTED.
- 0600 SMALL PUFFS OF SMOKE IN COVER.
- 0800 - arrived, discussion with EPA re samples and contractor PPE requirements
- 0830 and arrive
- ref to No 1

0830 B6 left scene
Chief Officer, [unclear] at
B2

900 Minister arrived for brief and Branto
view.

020 ACREW shut water off to block.
343 " " " " ACREW rep went to look at
turning off water to building only.

052 Water to building isolated by ACREW

055 Meeting with ACREW will turn water to building
back on.

100 water isolated to bldg - street
turned back on

1120 B2 departed / B5 arrived

EMERGENCY INCIDENT

TITLE

New evacuation area 0715hrs

DATE

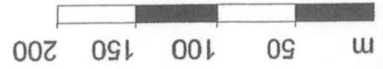
16/9/2011 0715hrs

NOTES

Stop sign = point duty

Red area = evacuation area

Blue CC = command post

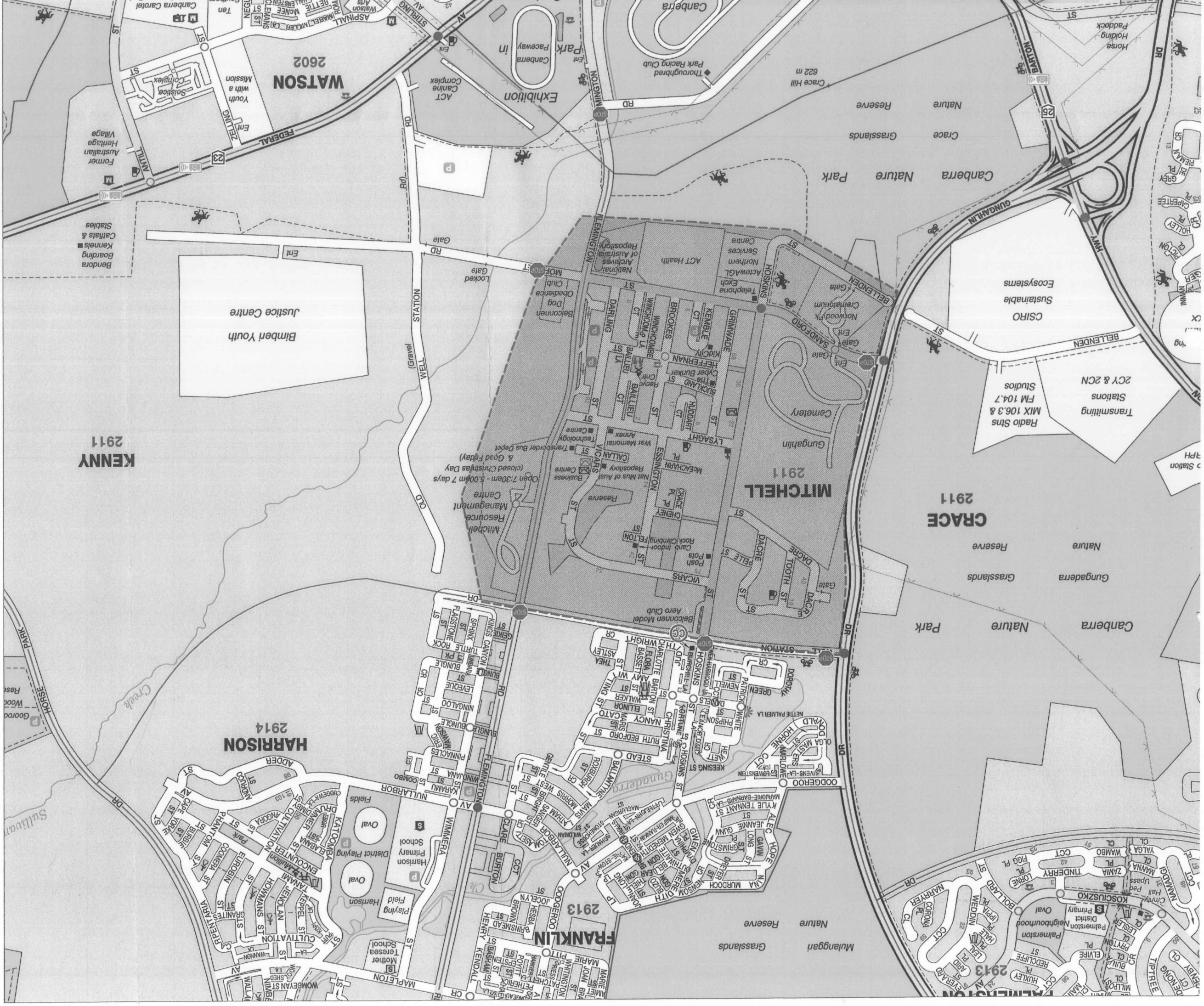


PROGRAM VERSION

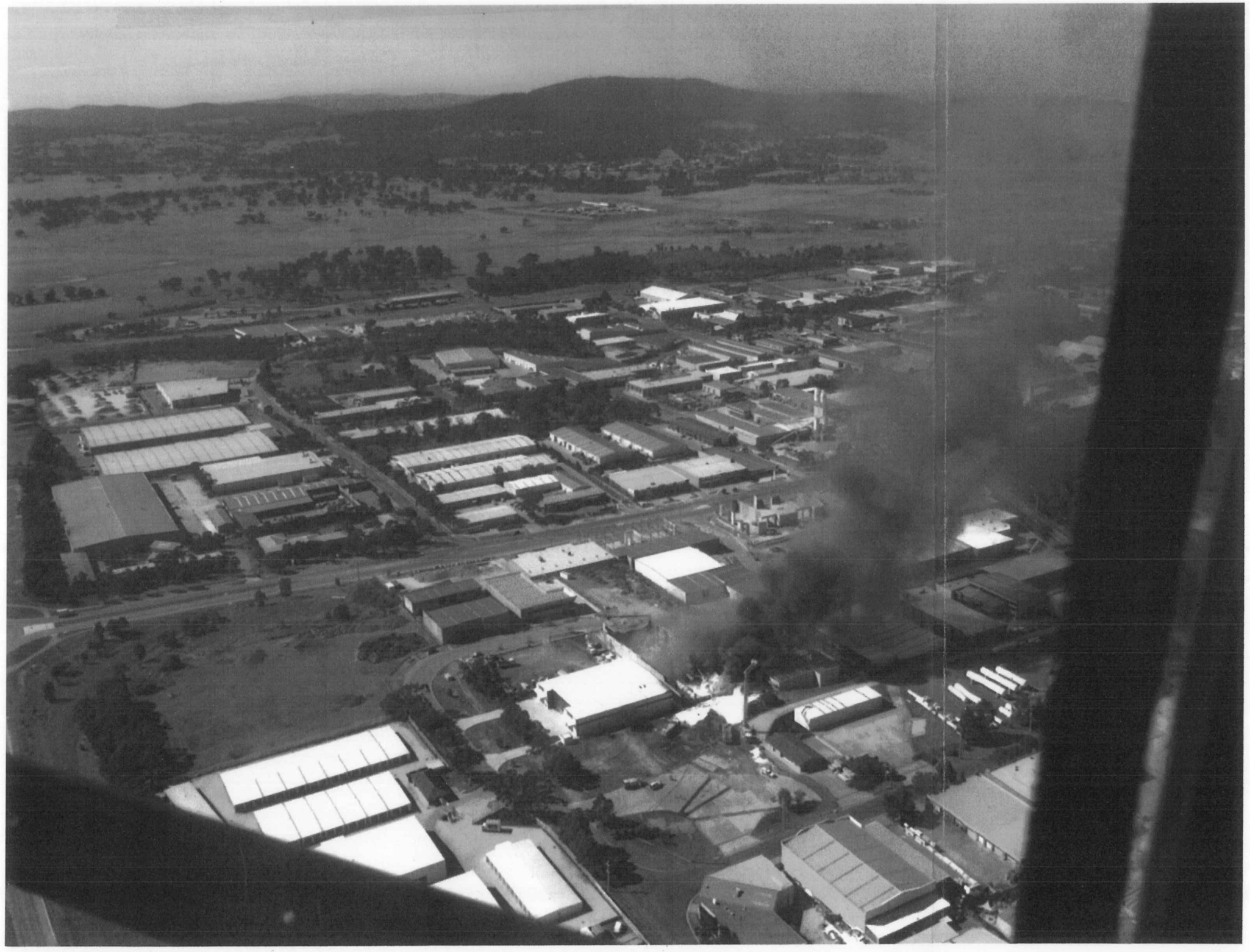
HAZMAT III.1 28JAN2011

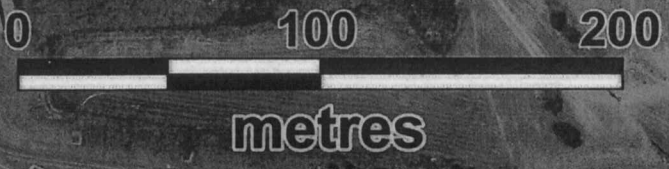


Data supplied by various stakeholders under ANZLIC Guidelines
The information contained herein has been provided in good faith. Effort has been made to ensure its accuracy and completeness. The Stakeholders take no responsibility for errors or omissions nor any loss or damage that may result from the use of this information.
*Australia New Zealand Land Information Council.



don





Gungahlin Drive

Well Station Drive

Hoskins Street

Dacre Street

Tooth Street

Pelle Street

Cheney Place

Felton Street

Vicars

51-53

Burchill Lane

Charlotte Barton Street

Flora Bassett Street

Judith Wright Street

25

31

45

44

56

56

60

68

66

67

59

100

200

metres

20

39 (17)

From:
Sent: Friday, 14 October 2011 5:14 PM
To:
Subject: ESI Fire Mitchell 1 of 4
Attachments: MSDS Folder 1.pdf

Hi
We retrieved a folder and a placard from the site. I've scanned them but they are quite large so I'll have to send them across in 4 emails (3 for the folder, 1 for the placard), even then some of it may be too big. If anything doesn't come through properly let me know.

Regards

Commander
Fire Safety
ACT Fire Brigade



Mob:
Ph: (9 Amberly Avenue Fairbairn, ACT, 2609
Fax: (PO Box 158, Canberra City, 2600

From:
Sent: Wednesday, 12 October 2011 9:59 PM
To:
Cc:
Subject: FW: ESI Fire - Mitchell.

Just to keep you in the loop, I went to copy the documents that you requested today and there is a bit more there than I anticipated. After meeting with Superintendants it has been decided that the material will be scanned and sent to you in electronic form and at a later date we will sign over the originals to your department. Hopefully you will receive the electronic copy early next week. At this stage as we have not heard back from the Coroners Office as to their requirements, this being the case the Brigade has decided to call the fire "Undetermined".

The information that we do know is that the fire started in the south-western corner of the building (Eye witness accounts from first arriving crews) and that

Your Department was notified of these incidents but if you require copies of our reports I can arrange that for you. If you contact and they will inform you officially that the brigade will not require access to the ESI Site.

If I can help you out in any other way don't hesitate to ring me.

Regards

Station Officer

From:
Sent: Monday, 10 October 2011 3:44 PM
To:
Cc:
Subject: RE: ESI Fire - Mitchell.

I just need to confirm a few things with my Senior Management regarding the fire and also touch base with the AFP again. I'll get back to you as soon as I can. What is your physical address so I can drop off the manifest etc, possibly on Wednesday.

Regards

Station Officer

ACTFB

From:
Sent: Friday, 7 October 2011 4:08 PM
To:
Cc: !
Subject: ESI Fire - Mitchell.

Hi

As part of my investigation into the fire at ESI Mitchell, I met you at the site on 23 September 2011 to discuss the ACTFB investigation into the incident.

At that time, you advised that you were waiting on a decision from the Coroner regarding which agency would provide a report on the incident. Can you please advise if a decision has been made regarding this and if so, whether a copy of the report can be provided to WorkSafe.

I would also like a copy of the manifest retrieved by ACTFB at the scene, from the red HazChem box at the front of the building and any placard signage that may have been retrieved.

At this point in time, WorkSafe currently has a prohibition notice in force on the property to prevent any access due to unsafe structures and this is currently stopping any demolition of the site. This notice will remain in force until we are advised that all interested agencies have no further interest in the site. The AFP have advised that their forensics have indicated that they have no further interest in the site and the EPA have handed control back to the building owners.

37

I would also like your opinion on the common types of causes for fires on commercial premises and whether there are any statistics for this.

Please provide a response at your convenience and advise if you require any further information regarding these issues.

Regards,

Inspector
Investigations Team



G.P.O. Box 158 Canberra City ACT 2601
Ph: (_____)_____
Fax: _____
Mobile: _____
Email: _____@_____.au
Web: www.worksafe.act.gov.au

36 (16)

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Investigations Team



G.P.O. Box 158 Canberra City ACT 2601
Ph:
Fax:
Mobile:
Email:
Web: www.worksafe.act.gov.au

34 (15)

From:
Sent: Tuesday, 11 October 2011 8:29 AM
To:
Subject: RE: ESI Fire - Mitchell.

Have we done a cause and origin investigation on Mitchell?

From:
Sent: Monday, 10 October 2011 3:52 PM
To:
Subject: FW: ESI Fire - Mitchell.

District Officer
Fire Safety
ACT Fire Brigade



Mob:
Ph: 9 Amberly Avenue Fairbairn, ACT, 2609
Fax: PO Box 158, Canberra City, 2600

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Investigations Team



G.P.O. Box 158 Canberra City ACT 2601
Ph: _____
Fax: _____
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Email: _____
Web: www.worksafe.act.gov.au

32 (14)



ACT Fire Brigade Fire Investigation Report

Incident Number: 037334 **Incident Date:** 15/09/2011

Address: 60 Dacre Street, Mitchell

Time of Call: 23:09 **How Received:** 000

Incident Type: Structure Fire (Factory Fire)

Fire Investigator:

Report Prepared By: and

Officer in Charge:

Station ID: B9 (First Arriving)

Time of Arrival: 23:20

Synopsis

A structure fire occurred on the premises located at 60 Dacre Street Mitchell. The Business located at the site was Energy Services Invironmental, who specialise in Transformer oil recycling and filtration. The building contained a number of toxic and highly reactive materials including a large volume of PCB Transformer oil and Sodium Metal. The building was completely destroyed by fire. Surrounding buildings were damaged by radiant heat. Metallic items downwind of the fire suffered damage from Sodium hydroxide released from the fire. The fire resulted in the evacuation of the larger Mitchell area and impacted a large proportion of Northern Canberra for a number of days. Reports from attending fire fighters indicate that the fire originated in the South West Region of the building and appeared to be more developed during the early stages of the fire on the Mezzanine level above the South West Corner. This is consistent with the severe fire damage visible in this area post fire.

Introduction

A 000 call was made to Fire Brigade from a security guard patrolling past 60 Dacre Street in Mitchell the security guard reported that there was a fire in the building. The building at 60 Dacre Street was occupied by Energy Services Invironmental. This company specialised in the recycling and processing of transformer oil. A large

amount of Flammable oil and Materials were stored on the premises including transformer oil, and Solid Sodium. Fire Brigade (Bravo 9) arrived on scene at 23:20.

History

Fire Brigade received a 000 call from the security guard at 60 Dacre Street at 23:09. The security guard reported seeing smoke and fire issuing from the eaves and from under the roller door. The security guard was located on Dacre Street near the front entry to the building. The security guard reported that there was a HAZCHEM sign on the door. The Comcen SO recorded the details of hazardous materials located in the building. The security guard waited for the first Fire Brigade appliance to arrive.

The first arriving pumper to the incident at 60 Dacre Street was Bravo 9, followed by Bravo 152 and Bravo 4. The first arriving District Officer was D8. Other specialist fire appliances attended during the course of the fire.

Fire brigade had previously attended incidents at Energy Services Invironmental which was located at unit 2 of 20 Winchcombe Court Mitchell. These incidents included two fires which appear to have been caused by the process of removing PCBs from transformer oil and one medical assist where three employees were sprayed with transformer oil. These incidents were 003513-27012009 on the 27 January 2009, 030708-13092006 on the 13th September 2006 and 004629-12022005 on the 12th February 2005. On the 13th September 2006 Station Officer contacted ACT Work Cover with concerns about the practices being employed by the company.

Security

Fire Brigade (B9) forced entry to the office building located on the eastern edge of the building via Dacre Street. B152 forced entry through the fire door on the western side of the building at 23:30. The building was secure before entry from fire fighters.

Internal Observations

Due to the fire scene being contaminated we were unable to enter the scene to make internal observations. We were able to see the inside of the building from the Bronto Aerial Appliance and conduct limited external observations. The inside of the building was extremely affected by fire. The damage to the rear or Western side of the building was extensive. The damage to the office area on the Eastern side of the building facing Dacre street appeared to be less extensive. The extensive damage on the Western side of the building may have been due to the higher fuel loading in this area as transformer oil and Sodium storage tanks were located on the ground floor in this area.

External Observations

The entire roof of the structure had collapsed in the rear section. Parts of the Western Southern and Eastern external walls had collapsed outward. The building immediately

adjacent to the affected structure on the Southern side was affected by radiant heat. The building adjacent to the affected structure on the northern side was slightly affected by radiant heat.

Path of Fire Travel/Fire Patterns/Observations

Reports from the station officers of Bravo 9, Bravo 152 and Bravo 4 reported seeing the fire in the South West corner of the building in the initial stages of the fires development after their arrival. At 23:28 Bravo 152 reported that the fire had breached the roof. The fire has then spread throughout the building impacting on the flammable and reactive materials stored within the building. At 23:39 Bravo 152 reported that the fire visible from the rear of the building was out the roof with flame height in excess of 10 metres and was made up of dark black smoke. At 00:05 B 152 reported that flames as visible from the rear sector of the building had changed to the colour achieved when burning Magnesium. At 02:09 Comcen passed a message to all units that there had been a series of explosions. The condition of the fire scene is consistent with the above reports. The western side of the building was most affected by fire. In this area the steel roof beams and sheeting were almost completely destroyed.

Area and Point of Origin

Due to the extreme fire conditions and the intense heat of the fire an exact area and point of origin were unable to be determined. We were unable to enter the fire scene as the site was contaminated with hazardous materials.

Cause and Determination

The fire is undetermined for cause.

Fire Investigation Unit

Phone:

Fax:

Email:

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Health effects

The toxicity of PCBs had been known since before its first commercial production through research done by producing companies themselves in the 1930s; however, these conclusions were dismissed as negligible.

The toxicity of PCBs to animals was first noticed in the 1970s, when emaciated seabird corpses with very high PCB body burdens washed up on beaches. Since seabirds may die far out at sea and still wash ashore, the true sources of the PCBs were unknown. Where they were found was not a reliable indicator of where they had died.

The toxicity of PCBs varies considerably among congeners. The coplanar PCBs, known as nonortho PCBs because they are not substituted at the ring positions ortho (next to) the other ring, (i.e. PCBs 77, 126, 169, etc.), tend to have dioxin-like properties, and generally are among the most toxic congeners. Because PCBs are almost invariably found in complex mixtures, the concept of toxic equivalency factors (TEFs) has been developed to facilitate risk assessment and regulatory control, where more toxic PCB congeners are assigned higher TEF values on a scale from 0 to 1. One of the most toxic compounds known, 2,3,7,8-tetrachlorodibenzo[p]dioxin, is assigned a TEF of 1.^[41]

PCBs also have shown toxic and mutagenic effects by interfering with hormones in the body. PCBs, depending on the specific congener, have been shown to both inhibit and imitate estradiol, the main sex hormone in females. Imitation of the estrogen compound can feed estrogen-dependent breast cancer cells, and possibly cause other cancers, such as uterine or cervical. Inhibition of estradiol can lead to serious developmental problems for both males and females, including sexual, skeletal, and mental development issues.

[edit] Exposure and excretion

Individuals can be exposed to PCBs through breathing in contaminated air, consuming contaminated food, and by skin contact with old electrical equipment that contain PCBs. Once exposed, some PCBs may change to other chemicals inside the body. These chemicals or unchanged PCBs can be excreted in feces or may remain in a person's body fat or other organs for months. PCBs may also collect in milk fat and be transmitted to infants through breast-feeding.^[42]

[edit] Signs and symptoms

- **Humans**

The most commonly observed health effects in people exposed to extremely high levels of PCBs are skin conditions, such as chloracne and rashes, but these were known to be symptoms of acute systemic poisoning dating back to 1922. Studies in workers exposed to PCBs have shown changes in blood and urine that may indicate liver damage. In Japan in 1968, 280 kg of PCB-contaminated rice bran oil was used as chicken feed, resulting in a mass poisoning, known as Yushō disease, in over 14,000 people.^[43] Common symptoms included dermal and ocular lesions, irregular menstrual cycles and lowered immune responses.^{[44][45][46]} Other symptoms included

[edit] Mechanism of action

As discussed, PCBs exhibit a wide range of toxic effects. These effects may vary depending on the specific PCB. Similar to dioxin, toxicity of coplanar PCBs and mono-ortho-PCBs are thought to be primarily mediated via binding to aryl hydrocarbon receptor (AhR).^{[49][50]} Because AhR is a transcription factor, abnormal activation may disrupt cell function by altering the transcription of genes. The concept of toxic equivalency factors (TEF) is based on the ability of a PCB to activate AhR.

However, not all effects may be mediated by the AhR receptor, and PCBs do not alter estrogen concentrations to the same degree as other ligands of the AhR receptor, such as PCDD and PCDF, possibly reflecting the reduced potency of PCBs to induce CYP1A1 and CYP1B1.^[51] Examples of other actions of PCBs include di-ortho-substituted non-coplanar PCBs interfering with intracellular signal transduction dependent on calcium; this may lead to neurotoxicity.^[52] Ortho-PCBs may disrupt thyroid hormone transport by binding to transthyretin.^[53]

Congeners that show estrogenic effects bind to the 17 β estradiol receptor. The resulting complex is allowed to enter the nucleus and bind to specific segments of DNA, where it regulates transcription of certain segments of DNA into mRNA. This transcription may not be regulated properly, since it is being controlled by PCBs and not estradiol.

[edit] Containment

Because of its difficult containment, many buildings (at least in the U.S.A.) with known high PCB dangers have been evacuated and shut down. In many states, including California, laws require any building with such dangers to be sealed and locked, with large warning signs on every entrance point indicating a PCB presence and also a notice to indicate the presence of chemicals known to cause cancer, health problems or reproductive harm^[citation needed]. Until a safe solution can be well established, many of these buildings remain undemolished and sealed. Some forms of containment other than building closure and lockdown are below.

Landfill – Large quantities of PCBs have been placed in landfill sites, mainly in the form of transformers and capacitors. Many municipal sites are not designed to contain these pollutants and PCBs are able to escape into the atmosphere or ground water. No emissions above background are seen if the landfill is designed correctly.