

# ***Hamilton's Fraser High School***

**Client 44443  
Case 231976**

***Complaint from Martin Elliott about  
Gypsy Moth Spray Programme***

***Final Report***

***Occupational Safety and Health Service  
James R Napier, Health and Safety Inspector  
25 November 2003***

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## 2 EVENT DETAILS

<b>Date of the Event</b>	28 October 2003
<b>Inspector Approving Scene Clearance</b>	N/A
<b>Employer</b>	Hamilton's Fraser High School
<b>Employer Address</b>	72 Ellicott Road, Hamilton
<b>Phone</b>	(07) 847-9044
<b>Fax</b>	(07) 847-9054
<b>Nature of Business</b>	Secondary education
<b>Victims</b>	190 staff and potentially some students
<b>Victim's Date of Birth</b>	N/A
<b>Victim Address</b>	N/A
<b>Extent of Injury</b>	N/A
<b>Site of Event</b>	72 Ellicott Road, Hamilton
<b>Brief Details of Event</b>	Martin Elliott, School Principal, concerned that significant numbers of staff were displaying adverse health effects as a result of spraying. Effects were substantially more pronounced than MAF had advised would be the case.

### 3 GLOSSARY OF TERMINOLOGY

<u>Term</u>	<u>Definition</u>
<b>Btk</b>	<i>Bacillus thuringiensis var. kurstaki</i> – a species of bacteria
<b>CAA</b>	Civil Aviation Authority
<b>Foray 48B</b>	A commercial product for the control of lepidopterous larvae. Consists of Btk ( <i>q.v.</i> ) mixed with fish meal, cornstarch and preservatives.
<b>MAF</b>	Ministry of Agriculture and Forestry
<b>MOE</b>	Ministry of Education

## 4 BACKGROUND

- 1.1 In October 2003 an aerial spray programme was commenced in South Western Hamilton with the aim of eradicating the Asian Gypsy Moth, a pest considered by MAF as a threat to New Zealand's Biosecurity. Further information on the pest and the eradication programme is provided in Appendix 1.
  
- 1.2 The complaint that is the subject of this investigation arose out of concern that systems to identify and manage individuals whose health had affected by the spray, had failed them.

## 5 SEQUENCE OF EVENTS

- 1.3 Between 8.45 and 9.30 am, 24<sup>th</sup> October The Waikato - Thames Regional Office of the Occupational Safety and Health Service received a phone call from Mr Elliott. He identified himself by name and advised that he was the Principal of Hamilton's Fraser High School. The call was taken by Health and Safety Inspector Murray Lindeman. Mr Elliott said he had been trying to contact OSH's Lyall Mortimer during the course of the week about the gypsy moth spray programme but he (Mr Mortimer) was unavailable. He said 'Wellington' suggested that he call Murray Lindeman.
- 1.4 Mr Lindeman explained that Mr Mortimer was our designated spokesperson and that all OSH communication on this issue was being managed through Wellington head office. Mr Lindeman advised that he would make enquires as to who was available to speak on the subject. He asked what the issues were and was advised that they were about the affects of the spray on about 15 of his staff, 5 or 6 of whom were so badly affected they had to leave the area. This meant he had to engage relief teachers for whom he was not being compensated. MAF had not been helpful and he was considering taking legal action against the medical staff who had interviewed those affected employees because they had misrepresented what his staff had told them. He indicated that he would use the OSH legislation to close the school on spray day.
- 1.5 Mr Lindeman obtained Mr Elliott's mobile contact number and said that OSH would contact him after he had made his enquires through head office. After failing to make contact with Mr Mortimer by landline or mobile and likewise Kathryn O'Sullivan (OSH Communications Advisor), Mr Lindeman called the office of the OSH Acting National Operations Manager, Keith Stewart, then his mobile, and explained the situation. It was agreed that Mr Stewart would arrange for someone to contact Mr Elliott. Mr Lindeman received phone calls later that day from Kathryn O'Sullivan and the Service Manager of the Waikato - Thames Regional Office of the Occupational Safety and Health Service, Mark Whatnall, confirming that had happened.
- 1.6 Investigation of the complaint was allocated to me, Health and Safety Inspector, James Robert Napier, on 6 November 2003.

- 1.7 Keith Stewart advised Mr Whatnall of the complaint, on 24<sup>th</sup> October. Mr Stewart indicated that Mr Elliott had expressed serious concerns over the welfare of a significant number of his staff, following episodes of aerial spraying. Specifically, Mr Elliott's concerns related to some 8 to 10 staff members who had manifested serious reactions and support systems had failed them. The support systems at issue were those provided by the medical services provided under contract to MAF. These services were set up to assist with the identification and appraisal of those individuals affected by the spray, with a view to implementing precautions to relieve symptoms and to guard against further exacerbation of adverse health effects. Mr Stewart advised that the concerns expressed by Mr Elliott should be handled by way of investigation, looking at the staff who were badly affected and the way their cases were handled. Shortly after, Mr Whatnall secured Dr Emrys' involvement, then spoke with Mr Elliott to confirm OSH's role in the investigation.
- 1.8 Mr Elliott's concern was that the diagnosis had often failed to acknowledge any link between the spray and the serious health complaints that staff were suffering from. It was perceived that medical consultations had trivialised or dismissed any notion that the spray was the culprit in situations where staff had presented with serious allergic reactions including skin sensitivities and respiratory problems. Specific information as to the extent of suffering indicated that some staff were very severely debilitated to the extent that they suffered extensive swelling and nausea in addition to skin and respiratory complaints.
- 1.9 The name of the medical unit that is engaged by MAF to provide or co-ordinate the medical consultations is Aeraqua. The Medical Director of Aeraqua who oversees the support processes for spraying operations is Dr Francesca Kelly. Dr Kelly undertook to meet with Dr Emrys following his consultations of 28<sup>th</sup> October. Dr Emrys findings (see Appendix 2) in regard to both the causal link and the foreseeability for this cohort of staff at Hamilton's Fraser High School made clear the need for further orientation of medical professionals assigned to such consultation work in Hamilton. Dr Emrys has included his comments and conclusions about consultation techniques in the context of the spray programme and the need for expansive questions that will encourage persons to volunteer information that may be relevant in assessing their individual risk of exposure.
- 1.10 Furthermore it was apparent that groupings of affected employees from a particular worksite would not necessarily be identified in the existing medical database and that improvements would be necessary to alert to a cluster of affected persons. Dr Kelly

acknowledged that there had been a disproportionately large number of people affected at the school and that the anomaly arose from the rare grouping of persons who experience rare food allergies. This is covered in Appendix 2.

- 1.11 On 28<sup>th</sup> October, Mr Whatnall and I met with Mr Martin Elliott directly after being apprised by Dr Emrys of the outcome of his medical interviews. Mr Elliott's main concern was for the health of his staff. He advised that although he is happy to allow them the time away from school during spraying, their absence has an impact upon the costs of running the school and that he has thus far had no success in getting financial support from either MAF or the Ministry of Education (MOE). Mr Whatnall agreed to advise Dr Francesca Kelly that on the basis of Dr Emrys' findings, the problem appears to be more pronounced than the information provided by MAF might suggest, at least at this particular workplace. Mr Whatnall also agreed to advise the Civil Aviation Authority (CAA), as the spray is applied by air. He did so by discussing the issues with Nicholas Matsas, who asked to be kept apprised of developments and indicated that CAA would keep a watching brief. Mr Elliott advised that all the staff who were seriously affected live outside the spray zone, and enter the spray zone in order to go to work – their exposure is therefore an employment issue.
- 1.12 As agreed, Mr Whatnall spoke to Dr Kelly by telephone on 28<sup>th</sup> October, and confirmed with her the issues, namely: (i) causative link between the spray and the reactions that could have been predicted and (ii) whether there were any additional practicable steps that ought to have been taken by MAF in response to the health concerns. Mr Whatnall also advised the following people of the investigation: Peter Thomson (MAF, Director of Forest Biosecurity), Catherine O'Sullivan (OSH Communications Advisor) and Robert Isbister (AgriQuality, General Manager, Painted Apple Moth Operations).
- 1.13 On 29<sup>th</sup> October, Mr Whatnall and I met with Mr Elliott at the school, along with Dr Kelly. During this meeting, Mr Elliott signalled the disruption that the spray programme is causing to the operation of the school. Spraying was due to begin at 9.00 a.m. on this particular day, but meteorological conditions delayed the start to 11 or 11.30 a.m. In fact, we heard during our meeting that spraying had been abandoned altogether. Mr Elliott had experienced difficulties obtaining relief teachers – there were only five in the whole of Hamilton who were both available and prepared to come in. This meant that existing staff had to cover for absent teachers by giving up their non-contact time at a critical time. Another problem faced by the school is that by the time spraying is cancelled on any

particular day (due, for example, to unfavourable weather conditions), relief staff, where available, have already arrived at the school and commenced duties. It is neither fair, nor practicable for them to be sent home. The same would apply to getting the staff who stayed away on medical advice, back to the school. Mr Elliott further advised that he had received two messages very close together, both contradictory in terms of whether or not the spraying would be proceeding on this particular day.

- 1.14 At the meeting Dr Kelly advised that she recognised that the fish allergy issue is real and extraordinary in terms of numbers of people affected. Dr Kelly advised that the health records they have been collecting did not make the link between the affected people and the school as a common workplace. She also advised that one teacher, despite being advised by MAF to stay away on spray days, decided to come in to work. She was told to go home and reported that she had come in because she did not want her absence to impact on the school. This was of special concern to Dr Kelly, who said that she needed to determine whether or not this teacher had understood the importance of the medical advice at the time she had been given it. Dr Kelly expressed concern about another patient who had seen a Hamilton East MAF doctor, and had felt “belittled” by this doctor. She also advised that one of the school staff had rare and “worrying” food asthma and that she must avoid contact with the spray. Dr Kelly advised that MAF had found it useful to have dedicated doctors, some of whom had come down from Auckland. She said that she would be changing the database to address the problems they have had in associating affected people with specific workplaces.
- 1.15 Mr Elliott advised the names of the local MOE personnel as Derek Devoy and John Tait and the National contact as Chris Collins at P O Box 1666 Wellington.
- 1.16 In the mid afternoon of 29<sup>th</sup> October, a meeting was held between Drs Kelly and Emrys, Mr Whatnall and myself. At that meeting it was agreed by the doctors that it is indeed extraordinary to have such a large cohort associated with a fish allergy. All were known to MAF, but the system in place failed to report that they all worked at the same place. It was also agreed that two individuals had to be closely monitored for the duration of the spray programme, during which they should stay away from the spray zone. There are also others whose asthma was considered to be under poor control. The problem was considered by the medical personnel to be a food allergy problem.

- 1.17 Later in the day, Mr Whatnall and I visited Mr Derek Devoy of the MOE and appraised him of the situation, stating that the situation that Mr Elliott finds himself in, with so many affected staff members, is extraordinary and real.
- 1.18 On 4<sup>th</sup> November 2003 I was asked by Mr Whatnall to set up a meeting with Mr Elliott for 5<sup>th</sup> November. This was duly done.
- 1.19 On 5<sup>th</sup> November, Mr Whatnall and I met with Mr Elliott at the school and advised him that (i) our investigation is essentially complete, and (ii) MAF systems have been extended to help associate affected individuals with specific workplaces, and (iii) that Dr Kelly has undertaken to improve orientation and medical consultation as steps to help ensure that people will actually volunteer information. Mr Elliott reported that Mr Isbister of AgriQuality has given an undertaking to ensure that all schools are sprayed before 8.00 a.m. for the remainder of the programme. Mr Elliott also reported that staff have experienced more positive responses from dealings with medical personnel and that he is personally happy with OSH's treatment of his concerns. He also advised that the MOE has agreed to pay sick leave for one of the more severely affected staff members. He asked that OSH and he work together to put systems in place for the future, bearing in mind that there will be future biosecurity issues to be addressed in similar ways.

## **6 CONTRIBUTING FACTORS**

- 1.20 Absence of particular fields that would identify the workplace and alert as to groupings of affected people in a particular workplace.
- 1.21 Related medical staff and difficulties in identifying the predisposition of individuals at the school to the spray.
- 1.22 Consequently inappropriate and detrimental exposure to spray for some employees at Hamilton's Fraser High School.

## 7 CONCLUSIONS

- 1.23 There has been an OSH investigation of MAF processes for the identification and management of those persons who have experienced adverse health effects as a result of the Asian Gypsy Moth programme.
- 1.24 Whilst the spray is essentially safe for public use, there are a few individuals who will experience allergies, respiratory problems or skin sensitivities as a result of exposure to the spray.
- 1.25 One Waikato school has reported a disproportionately high number of persons who have experienced irritant effects, exacerbation of their asthma and more serious problems associated with food allergies. Whilst not common, allergies to the food components put some individuals at risk. The school unfortunately has a number of these people with rare food allergies. A causal link between adverse health effects and occupational exposure to Foray 48B has been established in a number of staff members. OSH has carried out investigations to explore the adequacy of processes and systems for the management of persons experiencing allergic effects.
- 1.26 As a result of these investigations, systems have been extended to identify workplaces that have a grouping of affected employees.
- 1.27 The Medical Director has undertaken to improve orientation and monitoring of consultations that take place with people to ensure that health conditions are diagnosed and managed both promptly and thoroughly.
- 1.28 The investigation serves as a timely reminder for all practicable steps to be implemented to ensure safety and health within workplaces affected by an environmental programme. The effectiveness of monitoring health is dependant upon all concerns being reported to and comprehensively canvassed by medical practitioners.

## 8 SIGN OFF

Investigating Inspector: **James Robert Napier**

Signature: \_\_\_\_\_ Date: 25 November 2003

Peer consulted: **Clive MacGregor**

Signature: \_\_\_\_\_ Date: 25 November 2003

Manager: **Mark George Whatnall**

Signature: \_\_\_\_\_ Date: 25 November 2003

## **9 APPENDICES**

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## Appendix 1: INFORMATION ON SPRAY PROGRAMME

- The information provided below in sections 4.2 to 4.7 has been sourced from the following two publications produced by the Ministry of Agriculture and Forestry (MAF):
  - “Information about Gypsy Moth in Hamilton” – a 27 page booklet distributed by MAF to all householders in the spray zone in Hamilton.
  - “About the Btk Spray” – an Internet document produced by MAF, available from: <http://www.maf.govt.nz/biosecurity/pests-diseases/forests/white-spotted-tussock-moth/about-btk.htm>
- In March 2003 a single male Asian Gypsy Moth was caught in MAF’s early warning trapping system. The excellent condition of this moth led MAF experts to believe that it hatched in New Zealand from an egg mass that could have contained between 500 and 1000 eggs. MAF believe that the most likely reason that no more moths have been found is that the moth that was caught was found right at the end of the pest’s annual flight cycle.
- In large numbers the caterpillars infest trees, stripping them bare of foliage and exposing them to disease. In the United States, the **European** Gypsy Moth caterpillars eat through an average of 200,000 hectares of vegetation. Authorities in the USA believe the **Asian** Gypsy Moth to be a more serious pest than its European cousin.
- A programme of aerial spraying using Foray 48B was selected as one of a number of methods to be used in combination to eradicate the moth. The other methods include trapping, ground searching and treatment and vegetation control. MAF claim that Foray 48B has been used to successfully eradicate the white spotted tussock moth from eastern suburbs of Auckland in 1996 and 1997 and is currently proving effective in treating the painted apple moth in western suburbs of Auckland.
- Foray 48B contains the naturally occurring bacterium *Bacillus thuringiensis var. kurstaki* (Btk). Once the foliage has been eaten, a toxin in Btk is activated by the alkaline gut contents of the caterpillar, causing gut paralysis, leading to the death of the caterpillar.

- On 8<sup>th</sup> October the first of a maximum of 8 spray treatments took place. Foray 48B only works during the spring when the moth is in its caterpillar stage. Further aerial treatments are planned for approximately every seven days through to early December, but the period of treatment (not the number of treatments) may be extended if the pest is still in the caterpillar stage at that time. There will be a minimum of five days between applications. Actual treatments are planned to start as soon after daylight as weather permits, and will not take place during those times that children are most likely to be travelling to and from school.
- MAF gave an undertaking to update people by text messaging, the MAF website and the 0800 96 96 96 number set aside for the purpose.

## Appendix 2: DR GERAINT EMRYS' INVOLVEMENT

- In his capacity as Departmental Medical Practitioner for The Waikato - Thames Regional Office of the Occupational Safety and Health Service, Dr Geraint Emrys was approached by Service Manager Mark Whatnall on 24<sup>th</sup> October 2003 to speak with Mr Elliott about the number of teachers affected by the spray programme. In preparation he contacted Dr Dell Hood, Medical Officer of Health, Waikato and was advised of the details of the MAF appointed doctor (Dr Francesca Kelly) dealing with spray-related complaints.
- Dr Emrys contacted Dr Kelly, Public Health Physician and Director of the Spray Health Surveillance Programme. Dr Kelly was aware of the complaint raised by Mr Elliott, and advised that their records had not identified a high number of individuals from Hamilton's Fraser High School. Dr Kelly also advised that she had placed a nurse and local doctor into the school on previous spray days to log complaints.
- Dr Emrys contacted Lyall Mortimer (OSH Business Adviser - Construction Strategy and Health). Mr Mortimer was aware of Mr Elliott's complaint and indicated that he had already spoken with Mr Elliott. Mr Mortimer referred to the steps in place and whether they were reasonably practicable to manage the process. He also advised that only one case had apparently come to the attention of MAF, and it was not considered sufficient grounds to threaten to close the school – an action that Mr Elliott stated he was considering.
- Dr Emrys contacted Mr Elliott, who reported having concerns for up to 8 staff members. Dr Emrys agreed to visit the school on Tuesday 28<sup>th</sup> October to review the individuals concerned. Mr Elliott expressed gratitude that a doctor "impartial" to the MAF doctors would be carrying out an assessment on his staff.
- On Tuesday 28<sup>th</sup> October Dr Emrys visited the school and met with Mr Elliott, who showed him the results of questionnaires received from staff who had reported problems. There were about 35 staff members falling into this category. Dr Emrys was introduced to the staff at the morning staff meeting, and he spoke to a group of teachers present who had identified themselves as having had symptoms associated with the spray programme. He asked to see only those individuals whose symptoms amounted to more than "simple" irritation, and he subsequently conducted rapid interviews with 13 staff members (perhaps only half of those

listed) at the school medical centre. The following table of sample cases seen by Dr Emrys, summarise his findings:

<u>Number</u>	<u>Result</u>
2	Rare severe pre-existing allergy (food/fish) that would require them to remain away from the spray zone
5	Exacerbations of asthma
6	Symptoms of irritation or other varied health effects almost certainly caused by the spray

- Dr Emrys advised that at least 4 other staff members were absent, having been advised by MAF to stay away. Dr Emrys considered it likely that there were 6 extremely allergic individuals working in the same place, suffering extremely rare conditions that would be known to react to the spray components, however he did not get the full list or data from MAF. He also considered that most of the asthmatics' conditions could be effectively managed by their taking preventative treatment prior to the onset of spraying. He added that those staff members he saw appeared to suffer from symptoms previously recognised as being associated with the spray.
- Following his medical interviews, Dr Emrys briefly appraised Mr Whatnall and myself prior to our meeting with Mr Elliott. Dr Emrys then contacted Dr Kelly and discussed his findings. She expressed interest that the spray health recording system did not identify the people Dr Emrys was concerned about as working in the same establishment. The majority of those expressing health concerns were already known to MAF as having made contact with MAF prior to the start of the spray programme, or having been identified as a result of the MAF doctor/nurse visits on spray days.
- On Wednesday 29th October, Dr Emrys met with Dr Kelly at the Hamilton OSH office. Dr Kelly had that morning interviewed one of the school's staff members known to be very allergic. The staff member was advised to stay away from the spray zone for the duration of the programme. Drs Kelly and Emrys further discussed the individuals seen by Dr Emrys the day before. Dr Kelly noted that there were problems associated with data entry and the

identification of workplaces and that responses, where there were multiple individuals with spray problems at the same workplace, needed better identification and management. She also advised that there needed to be an improvement in the responses given to concerned individuals by the “MAF” doctors and nurses.