



MAFBNZ Investigation of Compliance and Monitoring of the Scion GM Field Test.

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References

Hazardous Substances and New Organisms Act: 1996

Environmental Risk Management Authority Decision – GMF99001 Amended 23 August 2007.

Containment Facilities for Plants: 2007 – MAFBNZ / ERMA New Zealand standard, 12 October 2007.

Supervision of Containment Facilities: 2005 – MAFBNZ standard, 1 February 2005.

Executive Summary

The Scion Field Test Containment Facility in Rotorua was allegedly broken into by anti-GM protestors between 12 – 14 January 2008. Police were called to the site as soon as the containment breach was discovered on January 14. Police collected a spade (and later a pruning saw) as evidence and investigations are still continuing. Scion advised MAFBNZ and ERMA New Zealand of the breach immediately and provided formal, written notification on January 15 2008.

MAFBNZ inspectors visited the site on January 16 to investigate the containment breach. Claims made by environmental lobby groups that the Scion field test was not being managed properly, or monitored adequately for compliance, were also investigated. On investigation, however, no evidence was found to support these claims.

The conclusions of this report are that the management of the field test is in accordance with the HSNO approval and additional controls, and the requirements of the MAFBNZ / ERMA New Zealand containment standard, and that the monitoring of the field test accords with the requirements of the MAF supervision standard. Following the unlawful break-in and access by unauthorised persons in January, Scion is reviewing its options for upgrading site security to improve restricted access to unauthorised persons.

1. Introduction

It is alleged that protestors broke into the Scion GM pine tree field test site between 12-14 January 2008. A deep hole was dug in the ground in front of the external perimeter wire netting fence, the fence was then cut, and the field test site accessed by crawling underneath the fence. The alarm on the high-voltage electric fence was not triggered. Once inside, 17 GM pine saplings and 2 non-GM saplings were cut off close to ground level and discarded on site. Scion staff matched each sapling with its stump and conducted a thorough examination to ensure that saplings were completely intact and no plant material was missing. MAFBNZ inspectors verified that the saplings were intact and no plant material was missing.

MAFBNZ also investigated the claims made by environmental lobby groups that the Scion field test was not being managed properly, or monitored adequately for compliance. These claims were made through articles in the Organic NZ magazine and press releases in the online news site Scoop. MAFBNZ encourages groups to contact MAF directly to report suspected breaches of HSNO controls or any suggestion that a major non-compliance has occurred, as MAF has the authority to schedule additional audits (See Section 5).

The specific claims investigated during this site visit were:

- one pine tree has been allowed to exceed the maximum allowed height of 5m;¹
- ERMA New Zealand has amended the HSNO controls to allow mulching of pine tree material on site;
- the continual evidence of rabbits inside the facility demonstrates a breach of containment;¹
- “an obvious hole in and under the fence [in November] which had been there for some time” implies that the “requirement for weekly fence inspection is not being met”;² and,
- MAF is not adequately monitoring the field test site.¹

The findings and conclusions are the subject of the remainder of this report.

2. Height of GM pine trees

It is claimed that one of the GM pine trees in the field test site had not been topped at the required 5m. Control 2.13 of the GMF99001 HSNO approval states:

2.13 *To facilitate detection and removal of reproductive structures, all genetically modified trees shall be trimmed to maintain a 2m lower “hedge” with a single leader growing to a height of 5m.*

Trees were last topped to 4.5m on 15 October 2007. During the previous scheduled MAFBNZ audit, paper records were checked and the height of pines were measured to verify these records.

¹ Scoop 14 January 2008 <http://www.scoop.co.nz/stories/SC0801/S00012.htm>

² Organic NZ – January/February 2008 issue. GE-tree trial breach. Page 8.

The height of all GM pine trees was verified on January 16 2008 as ranging between 4.5m and 4.8m, as measured against a fiberglass telescopic measuring pole. Topping is scheduled again within the next month to reduce the summer growth which the trees have put on since October.

Not all of the pine trees planted on the site are part of the GM field test. Some pine trees were planted as “fillers” prior to the establishment of the field test. One of these “filler” pines is growing in close proximity to the GM pines, and could mistakenly be concluded to be part of the GM trial itself. It has never been topped, and is now approaching 6m.



Photo 1: The telescopic measuring pole used to measure the height of GM pine trees.

3. Disposal of prunings

It has been claimed that ERMA New Zealand has amended the HSNO controls to allow mulching of pine tree material on site³. This is not the case. Tree material is required to be autoclaved or incinerated as per HSNO control 2.15 of GMF99001:

2.15 *All genetically modified trees no longer required shall be cut down and any biological material derived from genetically modified trees no longer required shall be removed from the trial site and disposed of by incineration or autoclaving on the Forest Research site in accordance with Section 7 of AS/NZS 2243.3:1995 and Section 4.4⁴ of MAF/ERMA standard 155.04.09 Containment Facilities for New Organisms (including GMOs) of plant species.*

ERMA New Zealand, MAFBNZ, and Scion have agreed that plant material is more practically incinerated on the field test site itself, and does not need to be transported to another location on the Forest Research campus for incineration.

MAFBNZ were advised during the site visit that an incident occurred in January 2008, where the GM tree prunings had been inadvertently mown over by the mowing contractor. The tree prunings from the previous October had been left to dry *in situ*, awaiting a fire permit. The operator subsequently raked the mown material into a pile the day after the containment breach occurred, and has spoken to the mowing contractor to ensure this doesn't occur again.

³ Scoop <http://www.scoop.co.nz/stories/PO0801/S00095.htm>

⁴ Now Section 8.2.5 of the amended Standard *Containment Facilities for Plants: 2007*

MAFBNZ issued a minor non-compliance to Scion following notification of this incident, and recommended that a separate area on site be designated for the drying of tree prunings to prevent future mower access. MAFBNZ graded this as a minor incident, because no serious biosecurity risk/threat has resulted, prunings have not been “disposed” of by mulching and incineration is still the intended final disposal method, and staff had taken measures to remedy the situation and ensure it would not occur again.

4. Site Security and Integrity of Containment

It is claimed that the ongoing evidence of rabbits on the field-test site represents a breach of containment. One publication stated that “an obvious hole in and under the fence [in November 2007] had been there for some time”, and showed a photograph depicting large “rabbit holes” outside the security fence.

4.1 Site security

The security fence surrounding the GM field test site restricts unauthorised access to the site. It comprises a 3m high-voltage electric fence, monitored by a security company 24 hours a day, and an outer wire netting fence which extends 2m below ground.

The security fence is not designed nor required to completely exclude small animals (eg. rabbits, rats, birds) from the site.

GMF99001

4.1 A fence shall be constructed to restrict unauthorised access to the trial site.

An inspection of the fence was undertaken to look for “holes in and under the fence”. No holes were found in the fence, apart from the access point created by protestors in January, which was repaired immediately the Police had concluded their site investigation. There was no evidence of extensive, deep burrowing in the ground in front of, or inside the fence, which could compromise the security of the site. Photographs were supplied to MAFBNZ by Steffan Browning of Soil & Health, which showed deeper holes in the ground in front of the wire netting fence, reportedly taken in November 2007. These are not typical of the rabbit holes observed during the site investigation in January, or depicted in photographs 2 and 3 (also provided by Steffan Browning). MAF is still investigating the cause of these holes, and has not ruled out the possibility these were man-made for publicity purposes.

Following the break-in incident, Scion are looking at various options to upgrade the security fence to improve the restricted access requirement.

There is no “requirement for a weekly fence inspection” in either the HSNO approval or the MAFBNZ / ERMA containment standard. However this is considered good practice and has been routinely carried out as part of the security monitoring and weekly tree inspections, though records are not kept separately.

4.2 Vermin control

The MAFBNZ / ERMA Containment Standard requires the facility to have an appropriate vermin control program in place.

155.04.09 Containment Facilities for Plants 2007:

8.6 *The organisation shall have an effective insect and rodent control program. Depending on the assigned physical containment level the manual shall describe how vermin such as rodents, birds and invertebrates are to be excluded (where such exclusion is relevant for the purposes of containment), how surveillance for their presence will be maintained and what control activities will be undertaken if detected.*

In an outdoor facility, it is accepted by ERMA New Zealand and MAF that it is not possible to exclude birds, insects, and small animals. Surveillance and control of rabbits in the field site has been focused on preventing herbivory damage to young tree saplings in the field. Poisoning and shooting have been used in the past to control numbers. The HSNO approval makes the point that the field test is to “study the organism in a realistic environment” (pg 5). This includes exposure to pest animals which occur naturally in the environment.

Furthermore, the purpose of containment facility controls are to prevent the spread of heritable plant material, eg. pollen and seeds, from the field test site. The HSNO approval states that “the reference to ‘heritable material arising from an organism’ does not refer to all biological material produced or shed by the organism, but to material that could be passed on” (page 6), or in other words, inherited. ERMA acknowledges that it would be impossible to contain all biological material such as pine needles within the field test site, and does not consider non-reproductive vegetative material to be heritable material. The risk assessment considered there is negligible risk from the spread of biological material by herbivores, and that it is unlikely that horizontal gene transfer of GM genes to gut bacteria of animals would occur, following consumption of genetically modified plant tissue (page 15).

Many rabbit scratchings and shallow holes were evident around the fence perimeter (see photographs below), and within the field test site. These were estimated variously to be 5-15cm deep.



Photos 2, 3: Rabbit holes and scratchings, typical of those seen during the site investigation.

5. MAFBNZ Monitoring of the Scion Field Test

The MAF Standard 154.03.01 *Supervision of Containment Facilities* requires the GM pine tree field test to be audited at the following frequency:

3.4.2.2. Perennial Plants (including trees)

On-site audits shall occur at a minimum frequency of twice per year unless otherwise agreed with ERMA New Zealand, and directed by Biosecurity New Zealand. Audits shall occur at an exact time of choosing by the inspector, during the following periods:

- *Planting/sowing/germination in the field,*
- *Flowering (or as agreed with ERMA New Zealand where reproductive structures are removed or bagged in advance),*
- *Ripening of reproductive structures,*
- *Final removal and destruction of plant material from the field test area.*

In addition, audits shall occur:

- *Post-harvest audits (at least one audit annually) for a duration of three years, unless otherwise agreed with ERMA New Zealand and directed by Biosecurity New Zealand.*
- *At any report of breach of HSNO controls or suggestion of a major non-compliance.*

At each site visit, the auditor conducts an assessment of the following:

3.4.3.7. Field Testing of Plants

- *the containment manual procedures are practiced,*
- *the structural and operational requirements of the standard are being maintained,*
- *any previous corrective action requests have been actioned,*
- *the plants in containment correlate with the register,*
- *the security requirements are being met, and in particular, field test containment facilities are secure (locked gates, fences intact and monitoring in place etc.),*
- *HSNO approvals are in compliance,*
- *all additional controls specified by the HSNO approval are being met.*

MAFBNZ schedules audits every six months for this facility. Records show that the monitoring and auditing of the facility is in agreement with the Supervision standard and requirements by the HSNO approval.