

**REPORT PREPARED FOR:
MATAKANA SAWMILL LIMITED**

**ADDITIONAL ENVIRONMENTAL
INVESTIGATION
MATAKANA SAWMILL
362 MATAKANA VALLEY ROAD,
MATAKANA**

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FIGURES

Figure 1 Site Layout and Location

APPENDICES

Appendix A 1990s Site Photograph

DISCLAIMER

No liability is assumed for misrepresentation of data or for items not visible, accessible or present at the time of the site investigations conducted by Groundwater and Environmental Services that may affect the validity and/or accuracy of the interpretation of environmental data.

Interpretations and conclusions presented herein are based on data presented in this report, information from others and experience on similar projects. The available data does not preclude the presence of materials at other locations at the site, which presently or in the future may be considered hazardous. Services in respect of this investigation have been performed in accordance with professional standards for investigations of contamination assessment. No guarantees are either expressed or implied.

This document and the information contained herein have been prepared for the use of Matakana Sawmill Limited. Any reliance on this report by any other party shall be at such party's sole risk.

1 Introduction

There has been a sawmill on the property at 362 Matakana Valley Road since 1947 and timber treatment has been carried out there since approximately 1950.

The previous environmental investigation work carried out at the property identified significant contamination by arsenic, copper and chromium around the area of the CCA treatment plant². Contamination in the area of the treatment plant at levels above the applicable industrial guidelines was subsequently remediated. The remediation and validation of the contamination removal was described in the validation report submitted to Auckland Regional Council (ARC)³.

Other areas of potential environmental concern at the sawmill property, raised by ARC, are addressed in this report.

1.1 Scope

This report addresses issues relating to the site raised by Auckland Regional Council (ARC). The activities undertaken for this report include:

- Discussion of issues relating to the site with ARC;
- A review of file information relating to the property held by Rodney District Council;
- Discussions with the family of the original sawmill owner about past site operations and practices, particularly relating to potential contamination; and
- A review of existing information relating to the potential for contamination at the property.

2 Information about the Site

2.1 Site Description

The Matakana sawmill is located at 362 Matakana Valley Road, approximately 2 km northwest of the intersection between Matakana Road, Leigh Road and Matakana Valley Road. The property is bounded on the western side by Matakana Valley Road and to the north and south by rural properties. The Matakana River runs along the eastern property boundary and flows towards the south.

The surrounding properties are predominantly rural in nature with the majority being farms. The property to the northeast, on the other side of Matakana River, houses a chicken farm.

² Groundwater & Environmental Services (September 2003). Soil Contamination Investigation, 362 Matakana Valley Road, Matakana. Report prepared for Kowhai Timber (1990) Limited.

³ Groundwater & Environmental Services (June 2005). Remediation and Validation Report. Treatment Plant Area. Kowhai Timber, 362 Matakana Valley Road, Matakana. Report prepared for Kowhai Timber (1990) Limited.

2.2 Local Site Geology and Hydrogeology

The geology of the immediate area of the site is dominated by terrace deposits, including silts and clays. Tauranga Group alluvial sediments overly alternating thick-bedded siltstones and sandstones of the Waitemata Group Pakiri Formation.

Information from a former owner, Gary Ryan, suggests that the site soils have very poor drainage, with significant ponding in depressions on the site common in both summer and winter. Large volumes of limestone fill had also been placed on the property since 1990 to reduce the amount of standing water and mud and to allow better use of the working areas.

The observations by Gary Ryan and the materials encountered during the site investigations and sampling confirm that the geologic materials beneath the site are likely to be relatively impermeable to water seepage and would be likely to restrict the movement of liquid contaminants through the ground.

2.3 Walkover Site Inspection

Walkover inspections of the property were carried out as part of the environmental investigations. During the inspections the property was checked for visual indications of contamination or potential causes of contamination. The layout of the property is shown on Figure 1.

Observations from the site walkover inspections are summarised below:

- The property had a number of buildings on it. The sawmill, workshop, drying sheds and a small house were located in the northern part of the property. CCA timber treatment, timber storage, planing, and sawdust collection buildings and offices occupied the southern part of the site;
- The CCA timber treatment plant, covered drying pad and treated timber storage area were located adjacent to Matakana Valley Road between two streams that flow towards Matakana River.
- Sawdust from the sawmill was present on the ground northeast of the mill building in the north of the property;
- Sawn, untreated timber was stored on the ground to the west of the workshop;
- There was an area west of the existing sawdust collection shed, where untreated sawdust was formerly discharged and collected. A significant quantity of old sawdust remains in this area however there does not appear to be any recent material;
- Timber drying buildings on the property are heated by electricity;
- There is an aboveground diesel tank next to the workshop;
- Large quantities of predominantly native logs were stored in the northern part of the property, particularly to the north and west of the mill; and
- There does not appear to be any treated timber stored anywhere around the property, outside of the CCA treatment plant area.

2.4 Information from Past Site Owners/Workers

2.4.1 Information from Garth Hodgetts

Garth Hodgetts is the son of the former mill owner Laurie Hodgetts.

Laurie Hodgetts developed the original sawmill in the 1940s and the Hodgetts family were involved in the mill until the mid-1980s. Garth Hodgetts worked at the mill from the 1960s onwards. A summary of the information provided by Garth Hodgetts is given below:

- The sawmill was originally developed by his father;
- The property was sold to Cashmore Brothers in the 1980s and was run on their behalf for a time by Peter Lobb. The property was subsequently purchased in 1990 by Gary Ryan (Kowhai Timbers (1990) Ltd), who owned and operated it until recently;
- The workshop located south of the current mill was originally a kiln;
- The storage of boric treated timber was in an area to the west of the workshop/kiln, between there and Matakana Valley Road. There was a concrete floor in the storage area;
- Boards for boric treatment went through the plant on the edge to reduce retention of liquid. Drips from the treated timber were collected in a tray underneath and recycled back into the treatment system;
- The boric treatment system was installed in the late 1960s;
- As far as he was aware, no PCP was used in treatment of timber at the site;
- Laurie Hodgetts was careful with the use, storage and handling of treatment chemicals and avoided discharging chemicals to ground around the treatment plants. Garth Hodgetts was not aware of any major chemical spills or leaks to ground during the time his family owned and operated the site;
- During the time of the site was leased by Peter Lobb, the CCA treatment plant was left unattended during a run and a pressure increase caused the eastern end of the treatment cylinder to blow off. This resulted in significant contamination in the area east of the treatment plant; and
- An underground diesel storage tank was located adjacent to Matakana Valley Road, west of the northern end of the sawmill. The underground tank was installed and owned by Atlantic Petroleum and ownership later passed to Mobil Oil (NZ) Ltd.

2.4.2 Information From Gary Ryan

Gary Ryan owned the property from 1990 until mid-2005 and traded under the name Kowhai Timbers (1990) Ltd. The following observations are compiled from a number of discussions with Gary Ryan over the course of investigations carried out at the property:

- The sawmill has historically processed native timbers (predominantly macrocarpa, swamp kauri and eucalypts) and the amount of treatment carried out is therefore limited. Limited amounts of non-native timber were also occasionally processed;
- CCA treatment in the pressure vessel the only form of timber treatment that the carried out at the property;

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- Treatment was carried out infrequently (roughly on a monthly basis) with most treatment carried out on exotic timbers milled on nearby properties;
- Treated timber was left in the pressure vessel overnight to allow most of the excess chemicals to remain in the treatment system. There was always time to allow the excess chemicals to drain off as demands on the treatment plant were low;
- Treatment chemicals were supplied by Koppers Hickson and all waste sludge was removed for disposal by them;
- The treated-timber drying pad was been bunded and covered with a roof in the period since Mr Ryan took over in 1990. Roof water from the treatment plant was collected in a water tank located immediately south of the treatment plant;
- Water collected in the sump in the drying pad was discharged to the treatment plant sump;
- The eastern end of the timber treatment pressure vessel has been repaired at some stage, prior to Mr Ryan's ownership, following an incident when the end blew off the vessel during use. There would have been significant discharge of treatment chemicals to ground during this incident. The vessel was repaired and extended slightly to accommodate longer lengths of timber.
- It was possible that former owners had emptied the sludge from the treatment plant sump onto the adjacent ground at the southeast of the plant;
- Discharge from the drying pad was also thought to end up on the ground south of the plant;
- There was a boric treatment spray tunnel and associated sump in the former sawmill however this was not in use when the site was purchased in 1990. The spray tunnel was approximately 2 m long by 0.6 m wide by 1.5 m high with a conveyor running through it. It was located at the southeast corner of the mill and had trays and a sump under the outlet to collect drips. The area where the spray tunnel was located is now within the new sawmill and is covered by a concrete pad;
- Relatives of the former owner/operator, Laurie Hodgetts, have stated that there was no PCP use at the site;
- Remediation of hydrocarbon contamination was carried out in 1996/97 by a contractor working for Mobil Oil (NZ) Limited (Mobil). The contractor removed an underground storage tank and removed contaminated soil from around a diesel tank and its engine in the sawmill and from immediately south of the treatment plant. The small amount of hydrocarbon contamination immediately south of the treatment plant was from discharges from the treatment plant pump and motor; and
- Sawdust from the planing building was formerly discharged to the southwest of the building and allowed to enter the Matakana River. Since taking over the property in 1990, a collection shed had been constructed to house sawdust from the planing building. The sawdust was sold to the public and none was deposited on the riverbank. The sawdust from the planing operations is untreated native timber.

2.5 Review of Rodney District Council File Information

The Rodney District Council file for the property contains consents for a number of the site buildings as listed below:

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- Treatment shed and extension to treatment shed;
- Planer shed and extension;
- Mill building;
- Drying shed;
- CCA treatment drip area;
- Maintenance building (concrete block building by the mill);
- Residential cottage;
- Site office;
- Site lunchroom; and
- Septic tank for dwelling.

The files did not contain direct information about potential contamination at the property.

2.6 Review of Auckland Regional Council Files

The ARC site file for the property (N108-30-0139) had been reviewed as part of the 2003 investigation.

A number of contamination-related issues were identified in the files and these are reproduced in the table below.

Type	Date	Summary
Site Visit	1/8/85	“Sawmill Products” – owner was Laurie Hodgetts.
ARWB Site Visit	19/12/90	Treatment plant used 2 times in last six months. Prior to new ownership it was used up to 3 times per week.
Sampling	17/12/91	Six samples taken.
Audit	29/7/96	Identified a number of issues including the CCA treatment plant, sawdust being pushed into the river, historic boric treatment at the mill site, and a complaint about mist emanating from the treatment plant.
Assessment	29/7/96	Exhaust from the pump motor causing oil contamination south of the treatment plant. Disused UST on site. CCA treatment at the site started in 1950. Pad outside treatment plant – CCA collected in a sump and recycled from the sump during treatment but discharged to ground when finished.
Note	3/3/97	Mobil contractor checked the UST to be removed. Oil contamination inside mill to be removed. Treatment pad to be roofed by June. No anti-sapstaining carried out – only boric treatment.
Letter	5/3/97	Kowhai Timber to ARC. Noted that the Mobil Contractor was a Mr Humphreys.
Pollution Complaint	29/9/97	Stated that waste was going down the river and a mist was coming from the pressure cylinder and drifting across the area. The council officer believed that the mist was likely to be the exhaust from the motor in the treatment plant.
Audit	7/11/00	Noted that owner was unaware of PCP use on site.

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		Plant age is given as approximately 45 years. Volume treated is 3.5 m³ per charge. CCA treatment used approximately 1 day per week. Gary Ryan is the only treatment plant operator. The original sawmill burnt down in 1997. Notes that the site is adjacent to the Matakana River Notes that the wife of the former owner (Mrs June Hodgetts) may have the old records from the plant. There is no record of prior environmental investigations. The drying pad had been bunded since the previous visit. Timber is stored in the vessel overnight to allow the treatment solution to drip into the vessel. Sludge from the process is collected for disposal by Hicksons. Samples were taken from the storage area and the southeast corner of the plant. All sawdust is now collected and sold The overflow from the treatment pad sump is recirculated to the treatment plant. Limestone has been used for extensive filling on the site.
Letter	4/4/01	Noted that a letter was to follow in mid-may with issues and actions to be taken.

2.7 Hydrocarbon Contamination Issues

Issues associated with actual and potential hydrocarbon contamination at the site have been dealt with previously in a 1997 report by Pattle Delamore Partners Limited (PDP)¹. The report by PDP was attached to the 2003 environmental investigation report as Appendix A.

An underground storage tank was previously located on the property, approximately 15 metres west of the northern side of the sawmill. The tank was located beside Matakana Valley Road. The former underground diesel storage tank was removed from the property on 9 April 1997. Two soil samples were collected from the tank pit by a Mobil engineer and analysed for total petroleum hydrocarbons (TPH). The TPH concentrations in both samples from the tank pit were below the analytical detection limits. The materials encountered in the tank pit were all clay and no groundwater was observed in the pit. It was inferred that similar geological conditions existed beneath the sawmill.

The PDP report noted that the groundwater flow direction is expected to be towards the northeast or east, in the direction of Matakana River. The river level was noted to be approximately 8 to 10 metres below the typical ground level around the sawmill. There were no known underground services in the vicinity of the sawmill that could act as preferential migration pathways for contamination to enter the river.

¹ Pattle Delamore Partners Limited, June 1997. Report on Site Reconnaissance, Kowhai Timbers, Matakana. Report prepared for Mobil Oil (NZ) Limited.

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During the tank removal, 13 cubic metres of hydrocarbon-impacted soil were excavated from around an aboveground storage tank and a diesel engine inside the sawmill. Reports indicated that the fuel pump on the diesel engine had been leaking over an extended period, which contributed to the hardcover residues in the ground. Soil was excavated down to a depth of 500 millimetres and taken off site for disposal. The excavation was subsequently backfilled with gravel and covered with concrete. A bund was constructed around the diesel tank and engine. A site visit conducted by PDP on 26 May 1997 showed no obvious hydrocarbon impacts on the ground surface outside of the bunded area. Soil samples were also taken from these areas and analysed for TPH. The analyses showed elevated to total petroleum hydrocarbon concentrations in the soil remaining within the sawmill. A PDP report on the remaining contamination concluded that there were no health risks associated with remaining hydrocarbon-contaminated soil in the vicinity of the former diesel engine and Mobil storage tank in the sawmill.

The report also noted that an earlier report on the removal of the underground diesel storage tank from the property found:

1. There was no residual hydrocarbon contamination beneath the tank.
2. No adverse environmental effects were anticipated from the remaining hydrocarbons in the soil; and
3. No additional investigation was recommended.

Despite repeated requests, Mobil Oil (NZ) Ltd was unable to provide the earlier report on the removal of the underground storage tank¹. The report was apparently not located during a search of the Mobil archives and no copies were held by Kowhai Timbers or Auckland Regional Council.

3 Review of Aerial Photographs

Historic aerial photographs of the property were located and reviewed as part of this investigation. The photographs included a set of low-level aerial is taken in the early 1990s for Gary Ryan of Kowhai Timbers (1990) Ltd. Additional, large-scale, photographs from 1989 and 1999 were also reviewed. A summary of visible items from the photographs is provided below. A copy of the oblique aerial photograph from the 1990s this attached in appendix A to this report.

1989 1:10,000:

- The surrounding land is predominantly rural;
- The mill and associated buildings are visible in the north of the site;
- The land surrounding the mill is unsealed and some stored timber is visible on the ground;
- The treatment plant is visible in the central part of the property with bare ground to the west and north of the plant. There also appears to be some bare ground to the east of plant;
- The planing shed, offices and two timber storage sheds are visible in the southern part of the property;

¹ Mobil Oil (NZ) Ltd, April 1997. Tank Removal Report, Kowhai Sawmill, Matakana Valley Road, Matakana.

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- The ground around the buildings on the southern part of the property is unsealed; and
- No indications of contamination of the ground at the sawmill site were visible in the aerial photograph.

Early 1990s (not dated):

- The layout of the former sawmill is clearly visible in the north of the property;
- Logs are stacked to the west and northwest of the mill site;
- Finished timber is stacked immediately south of the mill, on either side of the exit from the boric spray tunnel;
- There is a large amount of sawdust from the mill on the ground to the east of the building;
- A diesel fuel pump appears to be present on the western side of the northern part of the mill;
- There are two circular features on the ground surface next to Matakana Valley Road, at the assumed location of the underground diesel storage tank. These may be the filler and inspection caps for the tank;
- The rectangular workshop/kiln building is visible to the south of the mill;
- Sawn timber is stacked on the ground approximately halfway between the workshop and the road;
- Other visible buildings in this part of the site include the cottage to the southwest of the workshop and a large timber drying building southeast of the workshop;
- The yards and driveway areas in the northern two thirds of the site appear to be unsealed, with parts of the area appearing to be muddy;
- The CCA treatment plant is visible to the south of the cottage, between two stream gullies that discharge to the east to Matakana River;
- There is a concrete drying pad immediately west of the treatment plant and timber is stored on unsealed ground to the north and west of the pad;
- There is a small shed immediately south of the treatment plant;
- The southern part of the property contains an office adjacent to the road, the large planing shed north-east of the office, and two timber storage buildings;
- The driveways and yards are unsealed;
- There is a large amount of sawdust on the ground surface immediately southeast of the eastern end of the planing shed; and
- Surrounding land is rural and appears to be used to farming.

1999 1:10000:

- Surrounding properties are still predominantly rural;
- The layout of the majority of the site is similar to that observed in the earlier photographs;
- The original mill building is no longer on the site and there appears to just be a concrete pad at the mill location;
- Timber is stored in the yard to the north and west of the mill location and to the southeast of the workshop/kiln;
- A large new shed has been constructed in the southern part of the property, southeast of the planing shed; and

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- The treatment plant is similar layout to that observed in the earlier photographs.

4 Site Sampling

As part of the 2003 investigation of the property, soil samples were taken from the area next to the location of the former boric spray tunnel and beneath the boric-treated timber drying area.

A description of the sampling methodology is given in the 2003 report.

Soil Sample Descriptions

Location	Depth Range	Sample Number	Description
17	0-150	KTL03017	Former boric-treated timber storage area Composite sample of gravel and light to medium brown silty soil
18	0-150	KTL03018	East of mill and former sump location Medium gray, soft, silty clay with wood fragments and fibres. Gravel on ground surface

4.1 Summary of Analyses

The following table provides the analytical results from the two soil and water samples taken from the boric treatment and storage areas during the earlier investigation. None of the analytical results exceeded the relevant MFE guidelines for unpaved or paved (no management plan) industrial/commercial sites

Soil and Water Sample Analytical Results (mg/kg)

Sample Number	As	Cr(Total)	Cu	Cr(VI)	Boron	PCP	TCP
Soil Samples							
MFE Guidelines (industrial)	500	NL	NL	360	NL	570	-
MFE Guidelines (residential)	30	600	130	25	3(sol)	7	-
CCME Guidelines -	12	87	91	1.4	NL	7.6	-
ARC Background	0.4-12	3-125	20-90	-	<2-260	-	-
KTL03017	49	72	62	-	90	<0.05	<0.05
KTL03018	27	43	67	-	<20	0.13	<0.05

Notes:

1 All values reported in mg/kg dry weight.

Sample KTL03017 from the former storage area for boric treated timber showed a level of boron of 90 mg/kg. This concentration was within the normal range for volcanic-derived soils of the Auckland Region. Boron concentrations are not limited by the MFE industrial site guidelines and the low level measured here is therefore unlikely to have any significant effects on the health of site workers. PCP and TCP were not detected in this sample. Arsenic levels were elevated above the CCME guideline level but were well below the industrial guidelines.

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The sample KTL03018 was taken from east of the assumed location of the former sump beneath the sawmill. The arsenic, chromium and copper levels in this sample were below the MFE guidelines of industrial sites as well as being below the residential guidelines. Arsenic levels exceeded the CCME guideline value and the normal background range for Auckland soils however the chromium and copper levels were below both sets of guidelines.

No boron was detected in sample KTL03018 however there was some pentachlorophenol (PCP) detected. The PCP level was low and well within the guidelines for unpaved industrial sites and is therefore unlikely to have any significant effects on the health of site workers. No tetrachlorophenol (TCP) was detected in the sample.

5 Conclusions & Recommendations

The history of the sawmill site has been gathered from a number of sources. The available information suggests that potential environmental hazards at the property had been adequately assessed and that significant, undetected, contamination of the soils due to the storage used hydrocarbons, boric treatment, or CCA treatment is unlikely.

Contamination by timber treatment chemicals (arsenic, chromium and copper) was measured in soils from around the treatment plant. This contamination was subsequently remediated to below industrial guideline levels. No further CCA treatment is going to be carried out that the property and the treatment plant is currently being decommissioned.

Previous contamination resulting from the use and storage of diesel and oil at the property was remediated in 1997. An assessment of potential effects was carried out following the remediation and concluded that significant adverse effects were unlikely.

The samples taken near the former location of the boric spray tunnel and the boric-treated timber storage areas did not reveal any significant contamination above the industrial guidelines. A low concentration of PCP was however detected, indicating that some PCP may have been used on the site in the past despite there being no record of this. The location of the former boric spray tunnel is beneath the concrete floor in the present sawmill and any contamination of soils in this area would be unlikely to migrate to the nearby river.

Appendix A

1990s Aerial Photograph

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