

Appendix 4 Net Down Information

Contains:

- Memo regarding road width and landing size
- List of NSR polygons revised
- Terrain stability net down information
- WTP Patch calculations
- Unsalvaged Losses memorandum
- Revised Unsalvaged Losses memorandum

MANAGEMENT PLAN #3 MEMORANDUM

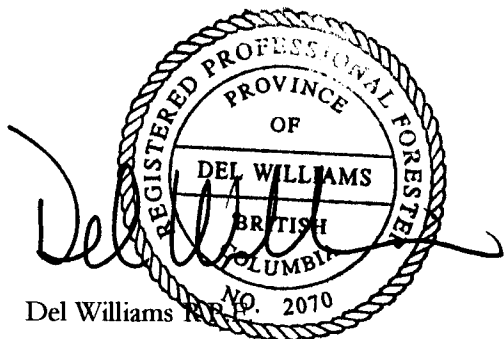
TO: INFORMATION PACKAGE REPORT
FROM: DEL WILLIAMS R.P.F.
SUBJECT: WILDLIFE TREE PATCHES
DATE: MARCH 21, 2000
CC:

An estimate of the amount of wildlife tree patch (WTP) area required is needed for the net down assumptions. There were three steps used to attain this and they are described below:

First, the Mature Forest Retention Areas (MFRA's) were buffered to 250 metres. Areas within the 250-metre buffer were assumed to obtain their WTP requirement from the MFRA's.

Second, the areas outside of the buffers were quantified.

Third, an estimate of the WTP percentage requirement on area outside of the buffers was derived. This proportion was obtained by using the February 2000 amendment to the *Landscape Unit Planning Guide*. The calculations are shown on the attached spreadsheet.



Del Williams R.P.F.

Wildlife Tree Retention Tables

(Duplicated from February 2000 amendment to *Landscape Unit Planning Guide*)
For TFL 56 -- March 2000

A	B	C	D	E		F		G
Landscape Unit	BEC Subzone	Crown Forested (NC+THLB)	THLB	%Subzone Available for Harvest	Total Hectares Logged	% THLB Harvested	%of THLB considered to be harvested without WTP's	Total Wildlife Tree Retention
R12	ICH mw3	2140	2060	96%	664	32%	26%	9%
	ICH wk1	8293	7309	88%	2126	29%	23%	8%
	ICH vk1	10831	7178	66%	1130	16%	13%	5%
	ESSF vc	17615	7360	42%	615	8%	7%	2%
R19	ICH wk1	3151	3148	100%	1967	62%	50%	11%
	ICH vk1	8921	7741	87%	2264	29%	23%	8%
	ESSF vc	8389	3539	42%	477	13%	11%	2%
		59340	38335	65%	9243	24%	19%	6%

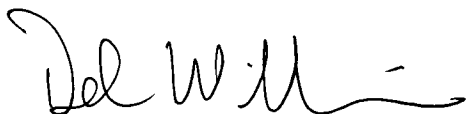
Note: 20% is used as the approximate amount of area harvested with WTP patches.
This is calculated as shown below:

New areas harvest under code rules which have WTP's:	920 hectares
	10%
Old areas harvested without official WTP's but with de facto WTP's (This is an estimate based upon a review of orthophotos -- old logging blocks with patches of mature timber left are estimated to represent at least 10% of the pre-code logging blocks)	10%

MANAGEMENT PLAN #3 MEMORANDUM

TO: INFORMATION PACKAGE REPORT
FROM: DEL WILLIAMS R.P.F.
SUBJECT: NSR POLYGON CHANGES
DATE: MONDAY, APRIL 10, 2000
CC:

Attached are spreadsheets listing the polygons that have been changed as a result of new survey data.


Del Williams R.P.F.

Changes to be made to forest cover database going into ATLAS

Survey data shows 300-700 ws sph

MAPSHEET	POLYGON	NF_DESCR	Area	Assign WS_STEMS
082M039	99	NSR	23.0	322
082M039	101	NSR	7.9	583
082M040	2100	NSR	11.2	667
082M048	227	NSR	28.0	650
082M058	96	NSR	21.0	672
082M058	441	NSR	10.6	491
082M060	805	NSR	4.0	457
082M068	32	NSR	16.4	295
082M068	181	NSR	32.1	467
082M068	250	NSR	16.8	588
082M068	320	NSR	28.4	356
082M068	420	NSR	3.7	333
082M068	531	NSR	58.7	468
082M068	533	NSR	4.2	382
082M068	569	NSR	11.4	314
082M068	806	NSR	3.8	382
082M068	2101	NSR	30.6	356
082M068	2103	NSR	3.7	467
082M068	2116	NSR	1.2	382
082M068	2120	NSR	9.4	382
082M068	2134	NSR	6.8	429
082M068	2142	NSR	2.9	356
082M069	365	NSR	3.0	567

338.9

Consider SR as survey data shows >700 ws sph.

MAPSHEET	POLYGON	NF_DESCR	Area	Delete NSR from NF field
082M038	4	NSR	6.5	Y
082M048	11	NSR	64.2	Y
082M048	43	NSR	31.0	Y
082M048	50	NSR	29.9	Y
082M048	96	NSR	2.0	Y
082M048	278	NSR	3.1	Y
082M049	18	NSR	3.6	Y
082M049	684	NSR	5.9	Y
082M058	593	NSR	3.5	Y
082M059	164	NSR	7.5	Y
082M068	180	NSR	3.1	Y
082M068	372	NSR	2.8	Y
082M068	750	NSR	4.6	Y
082M068	751	NSR	3.4	Y
082M068	2115	NSR	7.0	Y
082M068	2121	NSR	18.0	Y
082M068	2148	NSR	4.6	Y
082M068	2140	NSR	5.9	Y
082M049	11	NSR	1.3	Y

206.5

WS Stems
L93, P94 SBFEP no survey
+/- 700
>700
1007
1000
L93, P94 SBFEP no survey
1000
SBFEP no survey
1100
1010
886
1160
L92, P93 SBFEP no survey
L92, P93 SBFEP no survey
736
736
736
L92, P93 SBFEP no survey
1000

Leave all other NSR polys as is.

Map RemvNSR

082M038	4
082M048	11
082M048	43
082M048	50
082M048	96
082M048	278
082M049	18
082M049	684
082M058	593
082M059	164
082M068	180
082M068	372
082M068	750
082M068	751
082M068	2115
082M068	2121
082M068	2148
082M068	2140
082M049	11

polys to be converted to SR

Map	poly	New_WS
082M039	99	322
082M039	101	583
082M040	2100	667
082M048	227	650
082M058	96	672
082M058	441	491
082M060	805	457
082M068	32	295
082M068	181	467
082M068	250	588
082M068	320	356
082M068	420	333
082M068	531	468
082M068	533	382
082M068	569	314
082M068	806	382
082M068	2101	356
082M068	2103	467
082M068	2116	382
082M068	2120	382
082M068	2134	429
082M068	2142	356
082M069	365	567

Polys to have new ws stems # applied.

Del Williams

From: Cam Brown [cam_b@silvatech.bc.ca]
Sent: Wednesday, February 09, 2000 5:01 PM
To: Del Williams
Subject: Unstable



ESA-TSIL-2000op-forest
ed.xls Del,

Attached is a spreadsheet with the terrain stability numbers. I think it will fly as is. 45% of the forested TSIL D Unstable area will be out of the landbase (2052 ha). This consists of all of the overlap areas and the remaining TSIL D Unstable areas that fall within designated reserves. Only 104 ha of the 2052 ha will actually have an impact on the final THLB (ESA overlap not in reserves).

The data was summarized based on the forested landbase below operability in order to better reflect the potential impact on the THLB (unstable terrain would not cause non-forested areas to be netted out because they will already be removed).

So that ones done! I will finalize the GIS layer when you give me the ok.
Cam

Cam Brown, RPF
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Salmon Arm, BC V1E 4N2

Tel: (250) 832-7360
Fax: (250) 832-1939
Email:

Terrain Stability Landbase Summary

09-Jan-00

Polygon Group	Within Forested, 1999 Op (ha)	In Reserve (ha)	% in Reserve
Both Unstable and ESA1 Soils	255	152	59%
Only TSIL D Unstable	4354	1796	41%
TOTALS	4609	1948	42%

Terrain Stability Netdown Summary

NETDOWN:	ha
TSIL D / ESA Overlap (all)	255
Remaining TSIL D Unstable in Reserve	1796
GROSS NETDOWN AREA	2052
% of all TSIL D area	45%

Previous method of removing only ESA1 soils would have resulted in a gross forested netdown of 1538 ha.

Netdown Application:

100% netdown of the forested overlap of ESA1 soils and TSIL D Unstable.
41% netdown of the remaining forested TSIL D Unstable areas.
Total gross netdown of 2052 ha (45%) of forested TSIL D Unstable polygons.

Note: Removing only the forested ESA1 soils polygons would result in a gross netdown of 1538 ha.

MANAGEMENT PLAN #3 MEMORANDUM

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FROM: DEL WILLIAMS R.P.F.
SUBJECT: WILDLIFE TREE PATCHES
DATE: MARCH 21, 2000
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Del Williams R.P.F.

Wildlife Tree Retention Tables

(Duplicated from February 2000 amendment to *Landscape Unit Planning Guide*)

For TFL 56 -- March 2000

A	B	C	D	E		F		G
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		59340	38335	65%	9243	24%	19%	6%

MANAGEMENT PLAN #3 MEMORANDUM

TO: INFORMATION PACKAGE REPORT
FROM: DEL WILLIAMS R.P.F.
SUBJECT: UNSALVAGED LOSSES
DATE: MARCH 28, 2000
CC: CAM BROWN, SILVATECH CONSULTING LTD.

An estimate of unsalvaged losses is required in order to net down growth estimates on forest sites in TFL 56. In this memo, losses due to fire, windthrow, and pests are estimated. They are then reduced to account for the portion of the losses that are salvaged. A brief discussion of each loss category, and those potential categories not accounted for here, are presented below.

Fire: To calculate fire losses, information regarding wildfires was collected using the Ministry of Forests Protection Branch "Fire reporting system". Data from 1955 to 1999 was available and is summarized in the table below and fully displayed in the attachment. This data includes both wildfires and escaped burns.

Table 1. Fire losses

<i>Description</i>	<i>Area, proportion, or volume</i>
Average annual loss on entire forested landbase	55.7 hectares
Proportion of forested landbase that is in THLB	25.6%
Average annual loss on THLB	14.3 hectares
Rate of salvage	80%
Unsalvaged loss due to fire	2.9 hectares (1273 m ³) (0.0095% of THLB annually)

The Ministry of Forests data for the TSA suggests a loss of 29.5 hectares over a THLB of 67,667 ha (a loss rate of 0.044%). RCFC's estimated loss is 0.0095%, somewhat lower, reflecting a lower fire rate.

Windthrow: Windthrow losses are those losses caused by catastrophic windthrow events – not individual or small groups of trees, but patches or stands. Non-catastrophic events are accounted for through the growth curve formulation. Catastrophic events were "captured" by reviewing recent (1995 to 1999 inclusive) records for windthrow events in the TFL area. Annual overview flights are completed to check for windthrow, pest activities and road problems. Any windthrow events over 1/2 hectare would likely be spotted during these flights and other observations. Data is summarized in the table below and fully displayed in the attachment.

Table 2. Windthrow

<i>Description</i>	<i>Area, proportion, or volume</i>
Average annual loss on THLB	852 m ³
Rate of salvage	84%
Unsalvaged loss due to windthrow	136 m ³

The above table includes all known windthrown stands within the THLB and the actual harvest salvage rates. The Ministry of Forests, in their recent TSR, found windthrow losses on the TSA to be 341 m³. Considering their timber harvesting landbase is over twice as large as the TFL's, the numbers are roughly equivalent.

Pests: Pest loss estimates were obtained in the same way that the windthrow estimates were. Records and observations from annual overview flights and general observations were compiled (see attachment). Forest Insect and Disease Survey (FIDS) results were compared with the compilation to ensure that no observations were missed. Harvest data was used to quantify salvage rates.

Significant pest losses were observed for two species of insects – spruce bark beetle and hemlock looper. The hemlock looper historic cycle is longer than the time period surveyed, yet the time period chosen captured one of the epidemic cycles. Therefore, pest losses are likely overestimated slightly. Although many other pests inhabit the area, they are all considered to be at endemic levels and are accounted for in the growth curve compilation.

Table 3. Pest losses

<i>Description</i>	<i>Area, proportion, or volume</i>
Average annual loss on THLB	2987 m ³
Rate of salvage	85.4 %
Unsalvaged loss due to pests	367 m ³

The Ministry of Forests, in their recent TSR, found pest losses on the TSA to be 660 m³. Considering their landbase is over twice as large as the TFL's, the numbers are roughly equivalent.

Avalanche: There have been no significant avalanche losses. This is expected as the avalanches are usually confined to existing tracks. RCFC has observed no significant avalanche activity in harvested cutblocks on the TFL.

Armillaria: We have assumed losses to *Armillaria* to be endemic rather than catastrophic. *Armillaria* is widespread and can be found in a high proportion of TFL 56 stands. Observed mortality has been very light and dispersed. The growth curve data for the TFL captures such losses so no further deductions are needed.

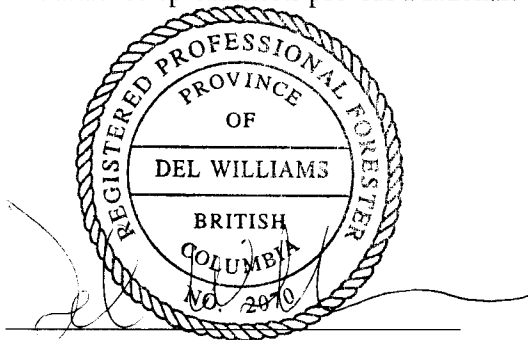
Summary:

Losses are summarized in the table below. .

Table 4. Summary

<i>Description</i>	<i>Annual unsalvaged volume</i>
Fire losses	1273 m ³
Windthrow	136 m ³
Pest	367 m ³
Other	0 m ³
Total	1776 m³

The attached spreadsheets provide a rationale and data for each of the loss categories above.



Del Williams R.P.F.

Fire Loss Information

Fire Loss Estimate for TFL 56

Information for Table 2 was obtained by querying the provincial forest fire database. The data includes all reported fires between the years 1955 to 1999. The fires are throughout the forested landbase on the TFL, but only those on the THLB will effect timber flows over time. As well, much of the timber is salvaged. A logic for "netting down" losses is presented in Table 1.

Table 1. Net Down of Fire Losses

Number of years data exists	44 years	(includes all years in database)
Number of fires	362 fires	(total fires in TFL 56 area in 1955-1999)
Total hectares burnt	2452.9 hectares	(includes all hectares shown as burnt in database)
Average size	6.8 hectares	
Average hectares per year	55.7 hectares	
Average number of fires per year	8.2 fires/year	
Total forest landbase	119748 hectares	(This is the total forested landbase in TFL 56)
Timber harvesting landbase (THLB)	30654 hectares	(This is the portion of the forested landbase that we will extract timber from)
% of forest landbase that is in THLB	25.6%	
Annual area of fires in THLB	14.3 hectares	(Since much of the forested area is outside of the THLB, not all fires should be counted towards unsalvaged losses -- only those that occur in the THLB should. I have assumed that the fires occur proportionately over the forested landscape and that we can simply count 25.6% of the burnt area)
Proportion of fire area salvaged	80.0%	(Most burnt areas in the TFL are salvaged)
Annual fire loss from THLB	2.9 hectares	(Unsalvaged burnt areas in the THLB that will be deducted)

Table 2. TFL 56 Fire Statistics

Fire Year	Zone	FireID	TimeStamp	Latitude	Longitude	Cause General	Current Size	Cause Specific	Responsible Group	Tenure
1955	0	266	23-Aug-55	51.463	-118.435	Lightning	1.2	Lightning		Tree Farm Licence
1956	0	139	20-Jul-56	51.597	-118.544	Lightning	0.1	Lightning		Tree Farm Licence
1956	0	342	09-Sep-56	51.405	-118.388	Lightning	1.6	Lightning		Tree Farm Licence
1957	0	96	02-Jun-57	51.376	-118.435	Lightning	0.1	Lightning		Tree Farm Licence
1960	0	219	13-Jul-60	51.405	-118.138	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1960	0	480	03-Aug-60	51.568	-118.591	Lightning	0.4	Lightning	Lightning	Tree Farm Licence
1960	0	464	23-Jul-60	51.347	-118.435	Lightning	6	Lightning	Lightning	Tree Farm Licence
1960	0	477	13-Jul-60	51.463	-118.185	Lightning	121.4	Lightning	Lightning	Tree Farm Licence
1960	0	215	13-Jul-60	51.539	-118.091	Lightning	121.4	Lightning	Lightning	Tree Farm Licence
1961	0	550	27-Aug-61	51.347	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1961	0	371	24-Jul-61	51.492	-118.591	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1961	0	427	02-Jul-61	51.51	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1961	0	292	15-Jul-61	51.568	-118.591	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1962	0	280	29-Jul-62	51.347	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1962	0	282	28-Jul-62	51.51	-118.232	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1962	0	314	28-Jul-62	51.597	-118.591	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1962	0	284	28-Jul-62	51.597	-118.341	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1963	0	350	12-Aug-63	51.318	-118.435	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1963	0	237	06-Aug-63	51.318	-118.185	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1963	0	138	07-Jul-63	51.376	-118.435	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1963	0	139	07-Jul-63	51.376	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1963	0	257	08-Aug-63	51.405	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1963	0	323	12-Aug-63	51.405	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1963	0	52	12-Jun-63	51.51	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1963	0	134	04-Jul-63	51.51	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1963	0	322	12-Aug-63	51.51	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1963	0	238	06-Aug-63	51.568	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1963	0	325	06-Aug-63	51.597	-118.591	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1963	0	491	11-Sep-63	51.626	-118.294	Lightning	2	Lightning	Lightning	Tree Farm Licence
1964	0	191	29-Jul-64	51.597	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1965	0	334	26-Jul-65	51.318	-118.482	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1965	0	338	26-Jul-65	51.318	-118.482	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1965	0	295	26-Jul-65	51.318	-118.435	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1965	0	362	26-Jul-65	51.318	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1965	0	400	07-Aug-65	51.318	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1965	0	340	26-Jul-65	51.318	-118.341	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1965	0	303	26-Jul-65	51.347	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1965	0	394	08-Aug-65	51.347	-118.138	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1965	0	302	26-Jul-65	51.376	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1965	0	335	26-Jul-65	51.434	-118.435	Lightning	0.1	Lightning	Lightning	Tree Farm Licence

1965	0	392	08-Aug-65	51.568	-118.591	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1965	0	112	01-Jul-65	51.626	-118.591	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1965	0	395	08-Aug-65	51.405	-118.435	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1965	0	301	26-Jul-65	51.434	-118.435	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1965	0	304	26-Jul-65	51.318	-118.482	Lightning	0.4	Lightning	Lightning	Tree Farm Licence
1965	0	333	27-Jul-65	51.405	-118.388	Lightning	0.4	Lightning	Lightning	Tree Farm Licence
1965	0	339	26-Jul-65	51.626	-118.185	Lightning	0.4	Lightning	Lightning	Tree Farm Licence
1966	0	238	03-Aug-66	51.626	-118.497	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1966	0	239	04-Aug-66	51.626	-118.497	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1967	0	829	23-Aug-67	51.318	-118.435	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1967	0	538	06-Aug-67	51.347	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1967	0	871	10-Sep-67	51.347	-118.435	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1967	0	872	10-Sep-67	51.51	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1967	0	830	26-Aug-67	51.318	-118.185	Lightning	0.3	Lightning	Lightning	Tree Farm Licence
1967	0	855	05-Aug-67	51.539	-118.091	Lightning	147.7	Lightning	Lightning	Tree Farm Licence
1968	0	365	04-Aug-68	51.492	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1968	0	319	04-Aug-68	51.539	-118.591	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1968	0	320	04-Aug-68	51.539	-118.591	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1968	0	332	11-Aug-68	51.597	-118.591	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1968	0	312	04-Aug-68	51.597	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1968	0	313	04-Aug-68	51.597	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1968	0	331	10-Aug-68	51.626	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1968	0	330	11-Aug-68	51.626	-118.482	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1969	0	141	20-Jun-69	51.376	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1969	0	295	04-Aug-69	51.434	-118.497	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1969	0	135	19-Jun-69	51.463	-118.482	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1969	0	140	20-Jun-69	51.463	-118.482	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1969	0	286	05-Aug-69	51.492	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1969	0	287	04-Aug-69	51.492	-118.497	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1969	0	229	29-Jul-69	51.597	-118.232	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1970	22	68	01-May-70	51.311	-118.306	Industrial	0.1	Hangover	Lightning	Tree Farm Licence
1970	22	705	24-Aug-70	51.369	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1970	22	676	24-Aug-70	51.376	-118.447	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1970	22	675	24-Aug-70	51.376	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1970	22	526	28-Jul-70	51.383	-118.447	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1970	22	678	24-Aug-70	51.434	-118.556	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1970	22	828	04-Jul-70	51.455	-118.482	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1970	22	221	04-Jul-70	51.484	-118.376	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1970	22	220	04-Jul-70	51.492	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1970	22	677	24-Aug-70	51.499	-118.364	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1970	22	684	24-Aug-70	51.499	-118.341	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1970	22	314	13-Jul-70	51.532	-118.435	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1970	22	748	31-Aug-70	51.304	-118.306	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1970	15	753	02-Sep-70	51.604	-118.317	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1970	22	218	04-Jul-70	51.463	-118.482	Lightning	0.3	Lightning	Lightning	Tree Farm Licence
1970	22	255	04-Jul-70	51.47	-118.4	Lightning	0.3	Lightning	Lightning	Tree Farm Licence
1970	22	775	31-Aug-70	51.51	-118.282	Lightning	0.3	Lightning	Lightning	Tree Farm Licence
1970	22	254	04-Jul-70	51.419	-118.544	Lightning	4.8	Lightning	Lightning	Tree Farm Licence
1970	15	212	04-Jul-70	51.575	-118.544	Lightning	59	Lightning	Lightning	Tree Farm Licence
1970	22	257	04-Jul-70	51.51	-118.306	Lightning	113.3	Lightning	Lightning	Tree Farm Licence
1970	22	256	04-Jul-70	51.51	-118.364	Lightning	294.6	Lightning	Lightning	Tree Farm Licence
1970	22	219	04-Jul-70	51.503	-118.4	Lightning	492	Lightning	Lightning	Tree Farm Licence
1971	22	176	23-Jul-71	51.333	-118.376	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	22	300	05-Aug-71	51.333	-118.244	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	22	86	22-Jun-71	51.383	-118.52	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	22	347	06-Aug-71	51.405	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	22	411	06-Aug-71	51.427	-118.4	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	22	412	06-Aug-71	51.427	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	22	177	23-Jul-71	51.441	-118.376	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	22	537	06-Aug-71	51.47	-118.244	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	22	536	06-Aug-71	51.503	-118.532	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	22	535	16-Aug-71	51.503	-118.114	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	22	433	06-Aug-71	51.532	-118.259	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	15	166	23-Aug-71	51.554	-118.591	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	15	167	23-Jul-71	51.554	-118.567	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	15	380	07-Aug-71	51.583	-118.341	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1971	22	175	23-Jul-71	51.318	-118.435	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1971	22	431	06-Aug-71	51.383	-118.482	Lightning	0.2	Lightning	Lightning	Tree Farm Licence

1971	22	432	06-Aug-71	51.383	-118.494	Lightning	0.4	Lightning	Lightning	Tree Farm Licence
1971	22	410	06-Aug-71	51.419	-118.388	Lightning	0.4	Lightning	Lightning	Tree Farm Licence
1971	22	413	06-Aug-71	51.441	-118.376	Lightning	0.4	Lightning	Lightning	Tree Farm Licence
1971	22	344	06-Aug-71	51.448	-118.376	Lightning	0.4	Lightning	Lightning	Tree Farm Licence
1971	22	189	23-Jul-71	51.499	-118.114	Lightning	0.8	Lightning	Lightning	Tree Farm Licence
1971	22	345	06-Aug-71	51.412	-118.161	Lightning	4	Lightning	Lightning	Tree Farm Licence
1971	15	48	01-May-71	51.597	-118.591	Industrial	4	Debris Burn - Industrial	Lightning	Tree Farm Licence
1971	15	381	06-Aug-71	51.619	-118.27	Lightning	196.6	Lightning	Lightning	Tree Farm Licence
1971	15	456	06-Aug-71	51.59	-118.02	Lightning	207.1	Lightning	Lightning	Tree Farm Licence
1971	22	414	06-Aug-71	51.525	-118.282	Lightning	207.6	Lightning	Lightning	Tree Farm Licence
1972	22	215	08-Aug-72	51.484	-118.364	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1972	22	70	30-May-72	51.499	-118.544	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1972	22	216	08-Aug-72	51.51	-118.411	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1972	15	295	14-Aug-72	51.59	-118.294	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1972	15	337	29-Aug-72	51.626	-118.482	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1973	22	471	09-Aug-73	51.412	-118.306	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1973	22	535	10-Aug-73	51.441	-118.232	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1973	22	121	22-Jun-73	51.448	-118.567	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1973	22	473	09-Aug-73	51.47	-118.138	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1973	22	122	22-Jun-73	51.484	-118.556	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1973	22	140	22-Jun-73	51.492	-118.591	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1973	22	472	09-Aug-73	51.525	-118.161	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1973	15	282	23-Jul-73	51.561	-118.567	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1973	15	424	09-Aug-73	51.568	-118.244	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1973	15	864	16-Sep-73	51.597	-118.447	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1973	22	578	16-Aug-73	51.347	-117.997	Lightning	0.4	Lightning	Lightning	Tree Farm Licence
1973	15	620	16-Aug-73	51.604	-118.447	Lightning	93.4	Lightning	Lightning	Tree Farm Licence
1974	22	212	15-Jul-74	51.412	-118.52	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1974	22	489	20-Aug-74	51.412	-118.52	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1974	22	139	22-Jun-74	51.419	-118.494	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1974	15	202	14-Jul-74	51.568	-118.458	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1974	15	205	15-Jul-74	51.59	-118.532	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1974	15	203	15-Jul-74	51.626	-118.47	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1975	22	188	11-Jul-75	51.311	-118.329	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1975	22	250	05-Aug-75	51.398	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1975	22	251	04-Aug-75	51.412	-118.52	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1975	22	249	05-Aug-75	51.412	-118.411	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1975	15	232	28-Jul-75	51.611	-118.579	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1977	22	462	22-Aug-77	51.39	-118.411	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1978	22	50	04-Aug-78	51.311	-118.126	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1978	22	32	04-Aug-78	51.325	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1978	22	33	04-Aug-78	51.333	-118.376	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1978	22	10	12-Sep-78	51.383	-118.4	Industrial	0.1	Hangover	Logging Crew	Tree Farm Licence
1978	22	14	29-Jun-78	51.405	-118.494	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1978	22	8	05-Jun-78	51.427	-118.447	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1978	22	9	05-Jun-78	51.427	-118.435	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1978	22	49	04-Aug-78	51.503	-118.294	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1978	15	22	04-Aug-78	51.597	-118.15	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1978	22	39	04-Aug-78	51.492	-118.259	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1979	22	21	07-Jul-79	51.34	-118.458	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1979	22	16	29-Jun-79	51.361	-118.494	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1979	22	42	02-Aug-79	51.434	-118.435	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1979	22	62	11-Aug-79	51.484	-118.185	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1979	22	43	02-Aug-79	51.503	-118.306	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1979	15	27	29-Jun-79	51.51	-118.52	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1979	22	56	11-Aug-79	51.518	-118.458	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1979	22	15	29-Jun-79	51.518	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1979	22	44	02-Aug-79	51.525	-118.173	Lightning	0.3	Lightning	Lightning	Tree Farm Licence
1979	22	14	29-Jun-79	51.477	-118.435	Lightning	1	Lightning	Lightning	Tree Farm Licence
1979	22	59	11-Aug-79	51.47	-118.161	Lightning	171	Lightning	Lightning	Tree Farm Licence
1980	4	35	22-Jul-80	51.311	-118.47	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1980	4	64	22-Jul-80	51.318	-118.497	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1980	4	33	22-Jul-80	51.325	-118.447	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1980	4	57	22-Jul-80	51.325	-118.364	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1980	4	34	22-Jul-80	51.39	-118.47	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1980	4	74	04-Aug-80	51.39	-118.282	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1980	4	32	22-Jul-80	51.398	-118.494	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1980	4	36	22-Jul-80	51.398	-118.423	Lightning	0.1	Lightning	Lightning	Tree Farm Licence

1980	4	37	22-Jul-80	51.405	-118.435	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1980	4	31	22-Jul-80	51.412	-118.509	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1980	4	11	15-Jun-80	51.419	-118.532	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1980	4	19	02-Jul-80	51.419	-118.47	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1980	4	12	15-Jun-80	51.441	-118.556	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1980	4	4	14-May-80	51.325	-118.329	Industrial	1.5	Debris Burn - Industrial	Maintenance	Tree Farm Licence R/W
1980	4	66	29-Jul-80	51.333	-118.411	Lightning	7	Lightning	Lightning	Tree Farm Licence
1981	4	73	19-Aug-81	51.347	-118.282	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	11	27-Jul-81	51.376	-118.458	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	10	27-Jul-81	51.405	-118.482	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	8	18-Jul-81	51.51	-118.423	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	14	27-Jul-81	51.59	-118.567	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	117	24-Aug-81	51.59	-118.458	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	58	19-Aug-81	51.6	-118.52	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	56	19-Aug-81	51.6	-118.208	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	78	19-Aug-81	51.6	-118.173	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	84	19-Aug-81	51.6	-118.126	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	133	26-Aug-81	51.607	-118.15	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	85	19-Aug-81	51.607	-118.126	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	83	19-Aug-81	51.614	-118.126	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	132	26-Aug-81	51.614	-118.114	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1981	4	139	14-Sep-81	51.619	-118.364	Industrial	0.1	P/B Hazard Reduction	Logging Crew	Tree Farm Licence
1981	4	66	19-Aug-81	51.532	-118.494	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1981	4	54	19-Aug-81	51.607	-118.52	Lightning	0.4	Lightning	Lightning	Tree Farm Licence
1981	4	88	24-Aug-81	51.304	-118.411	Lightning	0.8	Lightning	Lightning	Tree Farm Licence
1981	4	74	19-Aug-81	51.554	-118.388	Lightning	2	Lightning	Lightning	Tree Farm Licence
1981	4	120	24-Aug-81	51.333	-118.423	Lightning	30	Lightning	Lightning	Tree Farm Licence
1982	4	4	25-May-82	51.34	-118.4	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1982	4	32	29-Jul-82	51.35	-118.244	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1982	4	58	14-Sep-82	51.361	-118.423	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1982	4	21	25-Jun-82	51.398	-118.4	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1982	4	22	25-Jun-82	51.448	-118.532	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1982	4	43	30-Jul-82	51.503	-118.52	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1982	4	17	24-Jun-82	51.568	-118.591	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1982	4	13	18-Jun-82	51.619	-118.364	Industrial	0.1	Hangover	Logging Crew	Tree Farm Licence
1982	4	20	25-Jun-82	51.369	-118.47	Lightning	0.5	Lightning	Lightning	Tree Farm Licence
1982	4	10	11-Jun-82	51.518	-118.509	Industrial	0.5	PowerSaw/BrushSaw	Construction	Tree Farm Licence
1983	4	18	31-Jul-83	51.376	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1983	4	10	29-Jun-83	51.463	-118.579	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1983	4	29	08-Aug-83	51.525	-118.556	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1983	4	41	21-Sep-83	51.597	-118.4	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1983	4	23	02-Aug-83	51.604	-118.591	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1983	4	32	19-Aug-83	51.597	-118.247	Industrial	0.4	Heavy Equipment	Logging Crew	Tree Farm Licence
1983	4	19	31-Jul-83	51.361	-118.353	Lightning	0.5	Lightning	Lightning	Tree Farm Licence
1983	4	4	20-May-83	51.455	-118.458	Lightning	1	Lightning	Lightning	Tree Farm Licence
1984	4	35	05-Aug-84	51.35	-118.161	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	58	09-Aug-84	51.398	-118.482	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	68	10-Aug-84	51.463	-118.329	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	90	21-Aug-84	51.463	-118.208	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	57	09-Aug-84	51.518	-118.329	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	44	06-Aug-84	51.525	-118.388	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	49	09-Aug-84	51.554	-118.47	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	50	09-Aug-84	51.59	-118.494	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	56	09-Aug-84	51.597	-118.458	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	52	09-Aug-84	51.597	-118.27	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	53	09-Aug-84	51.604	-118.329	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	48	09-Aug-84	51.611	-118.435	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	54	09-Aug-84	51.611	-118.411	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	7	01-Apr-84	51.611	-118.376	Industrial	0.1	Debris Burn - Industrial	Logging Crew	Tree Farm Licence
1984	4	51	09-Aug-84	51.619	-118.482	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1984	4	36	05-Aug-84	51.311	-118.173	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1984	4	11	26-Jul-84	51.34	-118.185	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1984	4	85	20-Aug-84	51.354	-118.364	Industrial	0.2	Burning Vehicle	Employee	Tree Farm Licence
1984	4	28	05-Aug-84	51.59	-118.341	Lightning	0.3	Lightning	Lightning	Tree Farm Licence
1984	4	47	09-Aug-84	51.597	-118.306	Lightning	0.3	Lightning	Lightning	Tree Farm Licence
1984	4	3	07-May-84	51.361	-118.388	Industrial	0.7	Debris Burn - Industrial	Employee	Tree Farm Licence
1984	4	30	05-Aug-84	51.357	-118.091	Lightning	0.8	Lightning	Lightning	Tree Farm Licence
1984	4	59	09-Aug-84	51.503	-118.317	Lightning	1	Lightning	Lightning	Tree Farm Licence

1984	4	22	27-Jul-84	51.47	-118.161	Lightning	4	Lightning	Lightning	Tree Farm Licence
1985	4	91	04-Aug-85	51.311	-118.197	Lightning	0.1	Lightning	Military	Tree Farm Licence
1985	4	77	01-Aug-85	51.35	-118.294	Lightning	0.1	Lightning	Military	Tree Farm Licence
1985	4	94	05-Aug-85	51.364	-118.161	Lightning	0.1	Lightning	Military	Tree Farm Licence
1985	4	120	07-Aug-85	51.39	-118.556	Lightning	0.1	Lightning	Military	Tree Farm Licence
1985	4	106	07-Aug-85	51.39	-118.544	Lightning	0.1	Lightning	Military	Tree Farm Licence
1985	4	110	07-Aug-85	51.398	-118.482	Lightning	0.1	Lightning	Military	Tree Farm Licence
1985	4	85	03-Aug-85	51.441	-118.411	Lightning	0.1	Lightning	Military	Tree Farm Licence
1985	4	95	05-Aug-85	51.51	-118.556	Lightning	0.1	Lightning	Military	Tree Farm Licence
1985	4	92	05-Aug-85	51.51	-118.114	Lightning	0.1	Lightning	Military	Tree Farm Licence
1985	4	97	05-Aug-85	51.604	-118.341	Lightning	0.1	Lightning	Military	Tree Farm Licence
1985	4	103	06-Aug-85	51.614	-118.494	Lightning	0.1	Lightning	Military	Tree Farm Licence
1985	4	105	07-Aug-85	51.619	-118.579	Lightning	0.1	Lightning	Military	Tree Farm Licence
1985	4	84	01-Aug-85	51.398	-118.22	Lightning	0.2	Lightning	Military	Tree Farm Licence
1985	4	66	01-Aug-85	51.539	-118.532	Lightning	32.9	Lightning	Logging Crew	Tree Farm Licence
1985	4	46	04-Jul-85	51.372	-118.161	Lightning	47.5	Lightning	Logging Crew	Tree Farm Licence
1986	4	1	27-May-86	51.626	-118.579	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1987	4	8	04-Jun-87	51.518	-118.513	Lightning	0	Lightning	Lightning	Tree Farm Licence
1987	4	28	24-Jul-87	51.518	-118.485	Lightning	0	Lightning	Lightning	Tree Farm Licence
1987	4	15	05-Jun-87	51.58	-118.296	Lightning	0	Lightning	Lightning	Tree Farm Licence
1988	4	47	10-Sep-88	51.402	-118.458	nal	0	Campfire Escape	Fisher	Tree Farm Licence
1988	4	25	31-Jul-88	51.411	-118.358	Lightning	0	Lightning	Lightning	Tree Farm Licence
1988	4	45	25-Aug-88	51.563	-118.556	Lightning	0	Lightning	Lightning	Tree Farm Licence
1988	4	48	12-Sep-88	51.625	-118.138	Industrial	0	P/B Hazard Reduction	Employee	Tree Farm Licence
1988	4	43	27-Aug-88	51.616	-118.167	Industrial	0.4	P/B Hazard Reduction	Employee	Tree Farm Licence
1988	4	19	20-Jul-88	51.438	-118.399	Industrial	0.6	P/B Hazard Reduction	Employee	Tree Farm Licence
1988	4	2	15-Apr-88	51.625	-118.253	Industrial	14	Hangover	Logging Crew	Tree Farm Licence
1989	4	65	25-Jul-89	51.616	-118.512	Lightning	0	Lightning	Lightning	Tree Farm Licence
1989	4	69	27-Jul-89	51.375	-118.115	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	165	07-Aug-89	51.384	-118.115	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	123	30-Jul-89	51.464	-118.298	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	188	12-Aug-89	51.464	-118.026	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	122	30-Jul-89	51.473	-118.298	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	119	30-Jul-89	51.482	-118.241	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	108	30-Jul-89	51.491	-118.27	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	110	30-Jul-89	51.5	-118.27	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	111	30-Jul-89	51.518	-118.313	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	18	08-Jul-89	51.571	-118.555	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	114	29-Jul-89	51.58	-118.339	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	144	31-Jul-89	51.58	-118.31	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	115	29-Jul-89	51.589	-118.397	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	66	25-Jul-89	51.598	-118.512	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	68	27-Jul-89	51.598	-118.167	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	24	13-Jul-89	51.616	-118.512	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	163	01-Aug-89	51.616	-118.512	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	135	29-Jul-89	51.616	-118.138	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1989	4	34	01-Jan-89	51.625	-118.167	Industrial	0.1	Debris Burn - Industrial	Employee	Tree Farm Licence
1989	4	3	05-Jun-89	51.438	-118.456	Industrial	0.2	Smoker	Crew	Tree Farm Licence
1989	4	104	29-Jul-89	51.491	-118.341	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1989	4	6	05-Jun-89	51.464	-118.313	Lightning	0.3	Lightning	Lightning	Tree Farm Licence
1989	4	105	30-Jul-89	51.491	-118.356	Lightning	0.3	Lightning	Lightning	Tree Farm Licence
1989	4	195	15-Aug-89	51.5	-118.427	Lightning	0.3	Lightning	Lightning	Tree Farm Licence
1989	4	11	05-Jun-89	51.527	-118.313	Lightning	0.4	Lightning	Lightning	Tree Farm Licence
1989	4	107	29-Jul-89	51.5	-118.284	Lightning	1.5	Lightning	Lightning	Tree Farm Licence
1989	4	196	13-Sep-89	51.446	-118.37	Industrial	5	Debris Burn - Industrial	Logging Crew	Tree Farm Licence
1990	4	35	23-Jul-90	51.375	-118.315	Lightning	0	Lightning	Lightning	Tree Farm Licence
1990	4	43	23-Jul-90	51.446	-118.37	Lightning	0	Lightning	Lightning	Tree Farm Licence
1990	4	37	23-Jul-90	51.455	-118.356	Lightning	0	Lightning	Lightning	Tree Farm Licence
1990	4	36	23-Jul-90	51.563	-118.514	Lightning	0	Lightning	Lightning	Tree Farm Licence
1990	4	44	25-Jul-90	51.571	-118.54	Lightning	0	Lightning	Lightning	Tree Farm Licence
1990	4	91	14-Aug-90	51.571	-118.54	Lightning	0	Lightning	Lightning	Tree Farm Licence
1990	4	30	23-Jul-90	51.563	-118.514	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1990	4	81	13-Aug-90	51.598	-118.54	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1990	4	28	23-Jul-90	51.607	-118.454	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1990	4	39	23-Jul-90	51.625	-118.368	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1990	4	27	23-Jul-90	51.616	-118.583	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1990	4	52	07-Aug-90	51.625	-118.196	Lightning	2	Lightning	Lightning	Tree Farm Licence
1991	4	25	10-Aug-91	51.58	-118.583	Lightning	0.1	Lightning	Lightning	Tree Farm Licence

1991	4	5	26-Jul-91	51.625	-118.469	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1991	4	12	05-Aug-91	51.384	-118.115	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1991	4	1	28-May-91	51.438	-118.413	Industrial	2	P/B Hazard Reduction	Employee	Tree Farm Licence
1992	4	5	09-Jun-92	51.527	-118.07	Lightning	0	Lightning	Lightning	Tree Farm Licence
1992	4	30	21-Jul-92	51.393	-118.287	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1992	4	32	21-Jul-92	51.411	-118.372	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1992	4	33	21-Jul-92	51.411	-118.372	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1992	4	28	21-Jul-92	51.429	-118.399	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1992	4	95	16-Aug-92	51.438	-118.184	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1992	4	69	05-Aug-92	51.473	-118.47	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1992	4	68	05-Aug-92	51.518	-118.284	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1992	4	45	02-Aug-92	51.536	-117.972	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1992	4	73	05-Aug-92	51.598	-118.555	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1992	4	27	08-Jul-92	51.616	-118.526	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1993	4	7	25-May-93	51.563	-118.542	Lightning	0	Lightning	Lightning	Tree Farm Licence
1993	4	3	14-May-93	51.607	-118.512	Lightning	0	Lightning	Lightning	Tree Farm Licence
1993	4	2	14-May-93	51.616	-118.512	Lightning	0	Lightning	Lightning	Tree Farm Licence
1993	4	24	07-Aug-93	51.375	-118.086	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1993	4	30	10-Sep-93	51.589	-118.31	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1993	4	28	10-Sep-93	51.571	-118.296	Lightning	0.5	Lightning	Lightning	Tree Farm Licence
1993	4	33	12-Sep-93	51.616	-118.325	Lightning	3.5	Lightning	Lightning	Tree Farm Licence
1994	4	6	15-Jul-94	51.45	-118.417	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1994	4	123	16-Aug-94	51.491	-118.382	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1994	4	3	14-Jul-94	51.5	-118.467	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1994	4	65	03-Aug-94	51.517	-118.425	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1994	4	74	04-Aug-94	51.529	-118.5	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1994	4	112	06-Aug-94	51.533	-118.483	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1994	4	111	06-Aug-94	51.537	-118.488	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1994	4	139	10-Sep-94	51.54	-118.487	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1994	4	113	07-Aug-94	51.545	-118.35	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1994	4	101	05-Aug-94	51.573	-118.539	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1994	4	75	04-Aug-94	51.599	-118.554	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1994	4	17	03-Aug-94	51.604	-118.372	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1994	4	44	03-Aug-94	51.42	-118.408	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1994	4	124	16-Aug-94	51.59	-118.025	Lightning	0.5	Lightning	Lightning	Tree Farm Licence
1994	4	28	03-Aug-94	51.613	-118.349	Lightning	0.5	Lightning	Lightning	Tree Farm Licence
1994	4	138	10-Sep-94	51.549	-118.5	Lightning	1	Lightning	Lightning	Tree Farm Licence
1994	4	140	10-Sep-94	51.572	-118.257	Lightning	3	Lightning	Lightning	Tree Farm Licence
1996	4	36	11-Jul-96	51.417	-118.167	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1996	4	297	30-Aug-96	51.595	-118.298	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1996	4	32	09-Jul-96	51.604	-118.573	Lightning	0.3	Lightning	Lightning	Tree Farm Licence
1997	4	155	12-Aug-97	51.625	-118.249	Lightning	0	Lightning	Lightning	Tree Farm Licence
1998	4	350		51.428	-118.412	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1998	4	59		51.451	-118.436	Lightning	0.1	Lightning	Lightning	Tree Farm Licence R/W
1998	4	485		51.457	-118.14	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1998	4	486		51.457	-118.14	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1998	4	519		51.59	-118.559	Lightning	0.1	Lightning	Lightning	Tree Farm Licence
1998	4	401		51.39	-118.112	Lightning	0.2	Lightning	Lightning	Tree Farm Licence
1998	4	591		51.394	-118.162	Industrial	0.2	Permit Escape	Employee	Tree Farm Licence
1998	6	153		51.508	-118.182	Lightning		Lightning	Lightning	Tree Farm Licence R/W
1999	4	239	19-Aug-99	51.60407	-118.3777	Lightning	0.1	Lightning	Lightning	Tree Farm Licence R/W

Windthrow Loss Information

Windthrow Estimate for TFL 56

Includes all known catastrophic windthrow occurring between 1995 and 1999 inclusive.

Location		Volume Damage or Destroyed				Information source	
Name	Opening # or CP	Area (ha)	Gross Merch (m3/ha)	% Destroyed	Gross Loss (total m3)	% salvaged	Net Loss (total m3)
1995							
No known windthrow loss in 1995							
1996							
Sorcerer Creek	82M060-672	0.5	380	75%	143	0%	143
Walk-thru assessment							
1997							
Sorcerer Creek	CP172-1	10.8	294	5%	159	80%	32
SP amendment for CP 172-1, and original SP							
Sorcerer Creek	CP172-6	2.0	350	100%	700	90%	70
SP							
Sorcerer Creek	CP160-A	1.0	350	30%	105	0%	105
Walk-thru assessment							
Pass Creek	CP134-3	2.7	315	100%	851	90%	85
SP amendment and original SP							
Pass Creek	CP134-2	4.1	315	100%	1292	90%	129
SP amendment and original SP							
Goldstream	CP350-1	7.7	443	20%	682	95%	34
SP							
North Downie	CP152-1	4.5	366	20%	329	75%	82
SP amendment and original SP							
1998							
No known windthrow loss in 1998							
1999							
No known windthrow loss in 1999							
Total windthrow loss for 1995 to 1999 inclusive					4260		680
Average annual loss					852		136
84% salvage rate							

Windthrow observations are made annually through TFL overview flights and more frequently through observations made by RCFC field staff during the course of other duties. All observed patches of windthrow are noted and reviewed for salvage opportunities. All noted patches for the 1995 - 1999 period are listed above. It is unlikely any patches greater than 0.5 hectares in the operable landbase would escape detection. As can be seen in the table above, average annual losses are 852 m3 of which 84% is salvaged. Average annual unsalvaged loss is 136 m3.

Pest Loss Information

Pest Loss Estimate for TFL 56

Includes all known catastrophic pest loss occurring between 1994 and 1999 inclusive.

Location		Opening # or CP	Area (ha)	Volume Damage or Destroyed			Pest	Information source
Name	Gross Merch (m3/ha)			% Destroyed	Gross Loss (total m3)	% salvaged		
1993								
No known losses in 1993								0
1994								
	CP230-1	31.5	400	30%	3780	90%	Hw Looper	SP's
	CP240-1	1.4	400	25%	140	0%	Hw Looper	SP's
	CP240-2	3.9	400	25%	390	0%	Hw Looper	SP's
	82M048-91	8.3	300	20%	498	0%	Hw Looper	Inventory
	82M59-388	1.4	457	20%	128	0%	Hw Looper	Inventory
	82M59-386	6.0	474	15%	427	0%	Hw Looper	Inventory
	CP150-1	39.7	420	42%	7003	95%	Spruce bark beetle	SP's
	CP150-6	24.5	384	55%	5174	95%	Spruce bark beetle	SP's
1995								
No known losses in 1995								0
1996								
No known losses in 1996								0
1997								
No known losses in 1997								0
1998								
No known losses in 1998								0
1999								
No known losses in 1999								0
Total loss for 1993 to 1999 inclusive					17540			2569
Average annual loss					2506			367
								85.4% Salvage rate

Forest health observations are made annually through TFL overview flights and more frequently through observations made by RCFC field staff during the course of other duties. All observed pest incidences are noted and reviewed for salvage or treatment opportunities. All noted patches for the 1993 - 1999 period are listed above. It is unlikely any patches greater than 2 hectares in the operable landbase would escape detection. As can be seen in the table above, average annual losses are 2506m3 of which 85% is salvaged. Average annual unsalvaged loss is 367m3.

MANAGEMENT PLAN #3 MEMORANDUM

TO: INFORMATION PACKAGE REPORT
FROM: DEL WILLIAMS R.P.F.
SUBJECT: REVISED UNSALVAGED FIRE LOSSES
DATE: MONDAY, JULY 10, 2000
CC: CAM BROWN, SILVATECH CONSULTING LTD.

An estimate of unsalvaged losses is required in order to net down growth estimates on forest sites in TFL 56. This memo is an addendum to the memo dated March 28, 2000 in which all unsalvaged losses are quantified.

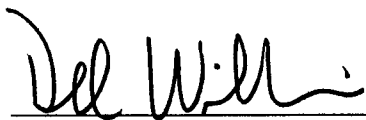
In this memo, losses due to fire are estimated – these are modified from our original estimate based on feedback received in the review of our draft Information Package. The original estimate included all fire statistics to 1955. In reality, fire losses are much different today than in the early years of the statistical records. Road access has improved and fire control is both more prompt and more efficient leading to fewer losses. Only the last two decades are used in the calculations below.

Fire: To calculate fire losses, information regarding wildfires was collected using the Ministry of Forests Protection Branch “Fire reporting system”. Data from 1955 to 1999 was available, the last 20 years is summarized in the table below and fully displayed in the attachment. This data includes both wildfires and escaped burns. Only the last 20 years is used because it best represents our level of fire suppression success.

Table 1. Fire losses

<i>Description</i>	<i>Area, proportion, or volume</i>
Average annual loss on entire forested landbase	17.8 hectares
Proportion of forested landbase that is in THLB	25.6%
Average annual loss on THLB	4.6 hectares
Rate of salvage	80%
Unsalvaged loss due to fire	0.9 hectares (452 m ³) (0.0003% of THLB annually)

The Ministry of Forests data for the TSA suggests a loss of 29.5 hectares over a THLB of 67,667 ha (a loss rate of 0.044%). RCFC's estimated loss is 0.0003%, somewhat lower, reflecting the lower fire rate in our climatically wetter portion of the district and our more developed network of roads (for salvage and control).



Del Williams R.P.F.



Fire Loss Estimate for TFL 56 (20 year)

Information for Table 2 was obtained by querying the provincial forest fire database. The data includes all reported fires between the years 1955 to 1999. The fires are throughout the forested landbase on the TFL, but only those on the THLB will effect timber flows over time. As well, much of the timber is salvaged. A logic for "netting down" losses is presented in Table 1.

Table 1. Net Down of Fire Losses

Number of years	20 years	(includes last 20 years in database)
Number of fires	206 fires	(total fires in TFL 56 area in 1979-1999)
Total hectares burnt	358.93 hectares	(includes all hectares shown as burnt in database)
Average size	1.7 hectares	
Average hectares per year	17.9 hectares	
Average number of fires per year	10.3 fires/year	
Total forest landbase	13748 hectares	(this is the total forested landbase in TFL 56)
Timber harvesting landbase (THLB)	30654 hectares	(This is the portion of the forested landbase that we will extract timber from)
% of forest landbase that is in THLB	25.6%	
Annual area of fires in THLB	4.6 hectares	(Since much of the forested area is outside of the THLB, not all fires should be counted towards unsalvaged losses - only those that occur in the THLB should)
Proportion of fire area salvaged	80.0%	(Most burnt areas in the TFL are salvaged)
Annual fire loss from THLB	0.9 hectares	(Unsalvaged burnt areas in the THLB that will be deducted)

Table 2. TFL 56 Fire Statistics (1979-1999)

Fire Year	Zone	FireID	TimeStamp	Latitude	Longitude	Current Size	Cause Specific	Responsible Group	Tenure
1979	22	21	07-Jul-79	51.3	-118.46	Lightning	0.1	Lightning	TFL
1979	22	16	29-Jun-79	51.4	-118.49	Lightning	0.1	Lightning	TFL
1979	22	42	02-Aug-79	51.4	-118.44	Lightning	0.1	Lightning	TFL
1979	22	62	11-Aug-79	51.5	-118.19	Lightning	0.1	Lightning	TFL
1979	22	43	02-Aug-79	51.5	-118.31	Lightning	0.1	Lightning	TFL
1979	15	27	29-Jun-79	51.5	-118.52	Lightning	0.1	Lightning	TFL
1979	22	56	11-Aug-79	51.5	-118.46	Lightning	0.1	Lightning	TFL
1979	22	15	29-Jun-79	51.5	-118.39	Lightning	0.1	Lightning	TFL
1979	22	44	02-Aug-79	51.5	-118.17	Lightning	0.3	Lightning	TFL
1979	22	14	29-Jun-79	51.5	-118.44	Lightning	1	Lightning	TFL
1979	22	59	11-Aug-79	51.5	-118.16	Lightning	171	Lightning	TFL
1980	4	35	22-Jul-80	51.3	-118.47	Lightning	0.1	Lightning	TFL
1980	4	64	22-Jul-80	51.3	-118.50	Lightning	0.1	Lightning	TFL
1980	4	33	22-Jul-80	51.3	-118.45	Lightning	0.1	Lightning	TFL
1980	4	57	22-Jul-80	51.3	-118.36	Lightning	0.1	Lightning	TFL
1980	4	34	22-Jul-80	51.4	-118.47	Lightning	0.1	Lightning	TFL
1980	4	74	04-Aug-80	51.4	-118.28	Lightning	0.1	Lightning	TFL
1980	4	32	22-Jul-80	51.4	-118.49	Lightning	0.1	Lightning	TFL
1980	4	36	22-Jul-80	51.4	-118.42	Lightning	0.1	Lightning	TFL
1980	4	37	22-Jul-80	51.4	-118.44	Lightning	0.1	Lightning	TFL
1980	4	31	22-Jul-80	51.4	-118.51	Lightning	0.1	Lightning	TFL
1980	4	11	15-Jun-80	51.4	-118.53	Lightning	0.1	Lightning	TFL
1980	4	19	02-Jul-80	51.4	-118.47	Lightning	0.1	Lightning	TFL
1980	4	12	15-Jun-80	51.4	-118.56	Lightning	0.1	Lightning	TFL
1980	4	4	14-May-80	51.3	-118.33	Industrial	1.5	Debris Burn - Industrial	TFL RW
1980	4	66	29-Jul-80	51.3	-118.41	Lightning	7	Lightning	TFL
1981	4	73	19-Aug-81	51.3	-118.28	Lightning	0.1	Lightning	TFL
1981	4	11	27-Jul-81	51.4	-118.46	Lightning	0.1	Lightning	TFL
1981	4	10	27-Jul-81	51.4	-118.48	Lightning	0.1	Lightning	TFL
1981	4	8	18-Jul-81	51.5	-118.42	Lightning	0.1	Lightning	TFL
1981	4	14	27-Jul-81	51.6	-118.57	Lightning	0.1	Lightning	TFL
1981	4	117	24-Aug-81	51.6	-118.46	Lightning	0.1	Lightning	TFL
1981	4	58	19-Aug-81	51.6	-118.52	Lightning	0.1	Lightning	TFL
1981	4	56	19-Aug-81	51.6	-118.21	Lightning	0.1	Lightning	TFL

1981	4	78	19-Aug-81	51.6	-118.17	Lightning	0.1	Lightning	Lightning	TFL
1981	4	84	19-Aug-81	51.6	-118.13	Lightning	0.1	Lightning	Lightning	TFL
1981	4	133	26-Aug-81	51.6	-118.15	Lightning	0.1	Lightning	Lightning	TFL
1981	4	85	19-Aug-81	51.6	-118.13	Lightning	0.1	Lightning	Lightning	TFL
1981	4	83	19-Aug-81	51.6	-118.13	Lightning	0.1	Lightning	Lightning	TFL
1981	4	132	26-Aug-81	51.6	-118.11	Lightning	0.1	Lightning	Lightning	TFL
1981	4	139	14-Sep-81	51.6	-118.36	Industrial	0.1	P/B Hazard Reduction	Logging Crew	TFL
1981	4	66	19-Aug-81	51.5	-118.49	Lightning	0.2	Lightning	Lightning	TFL
1981	4	54	19-Aug-81	51.6	-118.52	Lightning	0.4	Lightning	Lightning	TFL
1981	4	88	24-Aug-81	51.3	-118.41	Lightning	0.8	Lightning	Lightning	TFL
1981	4	74	19-Aug-81	51.6	-118.39	Lightning	2	Lightning	Lightning	TFL
1981	4	120	24-Aug-81	51.3	-118.42	Lightning	30	Lightning	Lightning	TFL
1982	4	4	25-May-82	51.3	-118.40	Lightning	0.1	Lightning	Lightning	TFL
1982	4	32	29-Jul-82	51.4	-118.24	Lightning	0.1	Lightning	Lightning	TFL
1982	4	58	14-Sep-82	51.4	-118.42	Lightning	0.1	Lightning	Lightning	TFL
1982	4	21	25-Jun-82	51.4	-118.40	Lightning	0.1	Lightning	Lightning	TFL
1982	4	22	25-Jun-82	51.4	-118.53	Lightning	0.1	Lightning	Lightning	TFL
1982	4	43	30-Jul-82	51.5	-118.52	Lightning	0.1	Lightning	Lightning	TFL
1982	4	17	24-Jun-82	51.6	-118.59	Lightning	0.1	Lightning	Lightning	TFL
1982	4	13	18-Jun-82	51.6	-118.36	Industrial	0.1	Hangover	Logging Crew	TFL
1982	4	20	25-Jun-82	51.4	-118.47	Lightning	0.5	Lightning	Lightning	TFL
1982	4	10	11-Jun-82	51.5	-118.51	Industrial	0.5	PowerSaw/BrushSaw	R/W Construction	TFL
1983	4	18	31-Jul-83	51.4	-118.39	Lightning	0.1	Lightning	Lightning	TFL
1983	4	10	29-Jun-83	51.5	-118.58	Lightning	0.1	Lightning	Lightning	TFL
1983	4	29	08-Aug-83	51.5	-118.56	Lightning	0.1	Lightning	Lightning	TFL
1983	4	41	21-Sep-83	51.6	-118.40	Lightning	0.1	Lightning	Lightning	TFL
1983	4	23	02-Aug-83	51.6	-118.59	Lightning	0.1	Lightning	Lightning	TFL
1983	4	32	19-Aug-83	51.6	-118.25	Industrial	0.4	Heavy Equipment	Logging Crew	TFL
1983	4	19	31-Jul-83	51.4	-118.35	Lightning	0.5	Lightning	Lightning	TFL
1983	4	4	20-May-83	51.5	-118.46	Lightning	1	Lightning	Lightning	TFL
1984	4	35	05-Aug-84	51.4	-118.16	Lightning	0.1	Lightning	Lightning	TFL
1984	4	58	09-Aug-84	51.4	-118.48	Lightning	0.1	Lightning	Lightning	TFL
1984	4	68	10-Aug-84	51.5	-118.33	Lightning	0.1	Lightning	Lightning	TFL
1984	4	90	21-Aug-84	51.5	-118.21	Lightning	0.1	Lightning	Lightning	TFL
1984	4	57	09-Aug-84	51.5	-118.33	Lightning	0.1	Lightning	Lightning	TFL
1984	4	44	06-Aug-84	51.5	-118.39	Lightning	0.1	Lightning	Lightning	TFL
1984	4	49	09-Aug-84	51.6	-118.47	Lightning	0.1	Lightning	Lightning	TFL
1984	4	50	09-Aug-84	51.6	-118.49	Lightning	0.1	Lightning	Lightning	TFL
1984	4	56	09-Aug-84	51.6	-118.46	Lightning	0.1	Lightning	Lightning	TFL
1984	4	52	09-Aug-84	51.6	-118.27	Lightning	0.1	Lightning	Lightning	TFL
1984	4	53	09-Aug-84	51.6	-118.33	Lightning	0.1	Lightning	Lightning	TFL
1984	4	48	09-Aug-84	51.6	-118.44	Lightning	0.1	Lightning	Lightning	TFL
1984	4	54	09-Aug-84	51.6	-118.41	Lightning	0.1	Lightning	Lightning	TFL
1984	4	7	01-Apr-84	51.6	-118.38	Industrial	0.1	Debris Burn - Industrial	Logging Crew	TFL
1984	4	51	09-Aug-84	51.6	-118.48	Lightning	0.1	Lightning	Lightning	TFL
1984	4	36	05-Aug-84	51.3	-118.17	Lightning	0.2	Lightning	Lightning	TFL
1984	4	11	26-Jul-84	51.3	-118.19	Lightning	0.2	Lightning	Lightning	TFL
1984	4	85	20-Aug-84	51.4	-118.36	Industrial	0.2	Burning Vehicle	Other Industrial	TFL
1984	4	28	05-Aug-84	51.6	-118.34	Lightning	0.3	Lightning	Employee	TFL
1984	4	47	09-Aug-84	51.6	-118.31	Lightning	0.3	Lightning	Lightning	TFL
1984	4	3	07-May-84	51.4	-118.39	Industrial	0.7	Debris Burn - Industrial	Other BC Gov't	TFL
1984	4	30	05-Aug-84	51.4	-118.09	Lightning	0.8	Lightning	Employee	TFL
1984	4	59	09-Aug-84	51.5	-118.32	Lightning	1	Lightning	Lightning	TFL
1984	4	22	27-Jul-84	51.5	-118.16	Lightning	4	Lightning	Lightning	TFL
1985	4	91	04-Aug-85	51.3	-118.20	Lightning	0.1	Lightning	Military	TFL
1985	4	77	01-Aug-85	51.4	-118.29	Lightning	0.1	Lightning	Military	TFL
1985	4	94	05-Aug-85	51.4	-118.16	Lightning	0.1	Lightning	Military	TFL
1985	4	120	07-Aug-85	51.4	-118.56	Lightning	0.1	Lightning	Military	TFL
1985	4	106	07-Aug-85	51.4	-118.54	Lightning	0.1	Lightning	Military	TFL
1985	4	110	07-Aug-85	51.4	-118.48	Lightning	0.1	Lightning	Military	TFL
1985	4	85	03-Aug-85	51.4	-118.41	Lightning	0.1	Lightning	Military	TFL
1985	4	95	05-Aug-85	51.5	-118.56	Lightning	0.1	Lightning	Military	TFL
1985	4	92	05-Aug-85	51.5	-118.11	Lightning	0.1	Lightning	Military	TFL

1985	4	97	05-Aug-85	51.6	-118.34	Lightning	0.1	Lightning	Military	TFL
1985	4	103	06-Aug-85	51.6	-118.49	Lightning	0.1	Lightning	Military	TFL
1985	4	105	07-Aug-85	51.6	-118.58	Lightning	0.1	Lightning	Military	TFL
1985	4	84	01-Aug-85	51.4	-118.22	Lightning	0.2	Lightning	Military	TFL
1985	4	66	01-Aug-85	51.5	-118.53	Lightning	32.9	Lightning	Logging Crew	TFL
1985	4	46	04-Jul-85	51.4	-118.16	Lightning	47.5	Lightning	Logging Crew	TFL
1986	4	1	27-May-86	51.6	-118.58	Lightning	0.1	Lightning	Lightning	TFL
1987	4	8	04-Jun-87	51.5	-118.51	Lightning	0	Lightning	Lightning	TFL
1987	4	28	24-Jul-87	51.5	-118.49	Lightning	0	Lightning	Lightning	TFL
1987	4	15	05-Jun-87	51.6	-118.30	Lightning	0	Lightning	Lightning	TFL
1988	4	47	10-Sep-88	51.4	-118.46	Recreational	0	Campfire Escape	Fisher	TFL
1988	4	25	31-Jul-88	51.4	-118.36	Lightning	0	Lightning	Lightning	TFL
1988	4	45	25-Aug-88	51.6	-118.56	Lightning	0	Lightning	Lightning	TFL
1988	4	48	12-Sep-88	51.6	-118.14	Industrial	0	P/B Hazard Reduction	Industrial Employee	TFL
1988	4	43	27-Aug-88	51.6	-118.17	Industrial	0.4	P/B Hazard Reduction	Industrial Employee	TFL
1988	4	19	20-Jul-88	51.4	-118.40	Industrial	0.6	P/B Hazard Reduction	Industrial Employee	TFL
1988	4	2	15-Apr-88	51.6	-118.25	Industrial	14	Hangover	Logging Crew	TFL
1989	4	65	25-Jul-89	51.6	-118.51	Lightning	0	Lightning	Lightning	TFL
1989	4	69	27-Jul-89	51.4	-118.12	Lightning	0.1	Lightning	Lightning	TFL
1989	4	165	07-Aug-89	51.4	-118.12	Lightning	0.1	Lightning	Lightning	TFL
1989	4	123	30-Jul-89	51.5	-118.30	Lightning	0.1	Lightning	Lightning	TFL
1989	4	188	12-Aug-89	51.5	-118.03	Lightning	0.1	Lightning	Lightning	TFL
1989	4	122	30-Jul-89	51.5	-118.30	Lightning	0.1	Lightning	Lightning	TFL
1989	4	119	30-Jul-89	51.5	-118.24	Lightning	0.1	Lightning	Lightning	TFL
1989	4	108	30-Jul-89	51.5	-118.27	Lightning	0.1	Lightning	Lightning	TFL
1989	4	110	30-Jul-89	51.5	-118.27	Lightning	0.1	Lightning	Lightning	TFL
1989	4	111	30-Jul-89	51.5	-118.31	Lightning	0.1	Lightning	Lightning	TFL
1989	4	18	08-Jul-89	51.6	-118.56	Lightning	0.1	Lightning	Lightning	TFL
1989	4	114	29-Jul-89	51.6	-118.34	Lightning	0.1	Lightning	Lightning	TFL
1989	4	144	31-Jul-89	51.6	-118.31	Lightning	0.1	Lightning	Lightning	TFL
1989	4	115	29-Jul-89	51.6	-118.40	Lightning	0.1	Lightning	Lightning	TFL
1989	4	66	25-Jul-89	51.6	-118.51	Lightning	0.1	Lightning	Lightning	TFL
1989	4	68	27-Jul-89	51.6	-118.17	Lightning	0.1	Lightning	Lightning	TFL
1989	4	24	13-Jul-89	51.6	-118.51	Lightning	0.1	Lightning	Lightning	TFL
1989	4	163	01-Aug-89	51.6	-118.51	Lightning	0.1	Lightning	Lightning	TFL
1989	4	135	29-Jul-89	51.6	-118.14	Lightning	0.1	Lightning	Lightning	TFL
1989	4	34	01-Jan-89	51.6	-118.17	Industrial	0.1	Debris Burn - Industrial	Industrial Employee	TFL
1989	4	3	05-Jun-89	51.4	-118.46	Industrial	0.2	Smoker	Forestry Crew	TFL
1989	4	104	29-Jul-89	51.5	-118.34	Lightning	0.2	Lightning	Lightning	TFL
1989	4	6	05-Jun-89	51.5	-118.31	Lightning	0.3	Lightning	Lightning	TFL
1989	4	105	30-Jul-89	51.5	-118.36	Lightning	0.3	Lightning	Lightning	TFL
1989	4	195	15-Aug-89	51.5	-118.43	Lightning	0.3	Lightning	Lightning	TFL
1989	4	11	05-Jun-89	51.5	-118.31	Lightning	0.4	Lightning	Lightning	TFL
1989	4	107	29-Jul-89	51.5	-118.28	Lightning	1.5	Lightning	Lightning	TFL
1989	4	196	13-Sep-89	51.4	-118.37	Industrial	5	Debris Burn - Industrial	Logging Crew	TFL
1990	4	35	23-Jul-90	51.4	-118.32	Lightning	0	Lightning	Lightning	TFL
1990	4	43	23-Jul-90	51.4	-118.37	Lightning	0	Lightning	Lightning	TFL
1990	4	37	23-Jul-90	51.5	-118.36	Lightning	0	Lightning	Lightning	TFL
1990	4	36	23-Jul-90	51.6	-118.51	Lightning	0	Lightning	Lightning	TFL
1990	4	44	25-Jul-90	51.6	-118.54	Lightning	0	Lightning	Lightning	TFL
1990	4	91	14-Aug-90	51.6	-118.54	Lightning	0	Lightning	Lightning	TFL
1990	4	30	23-Jul-90	51.6	-118.51	Lightning	0.1	Lightning	Lightning	TFL
1990	4	81	13-Aug-90	51.6	-118.54	Lightning	0.1	Lightning	Lightning	TFL
1990	4	28	23-Jul-90	51.6	-118.45	Lightning	0.1	Lightning	Lightning	TFL
1990	4	39	23-Jul-90	51.6	-118.37	Lightning	0.1	Lightning	Lightning	TFL
1990	4	27	23-Jul-90	51.6	-118.58	Lightning	0.2	Lightning	Lightning	TFL
1990	4	52	07-Aug-90	51.6	-118.20	Lightning	2	Lightning	Lightning	TFL
1991	4	25	10-Aug-91	51.6	-118.58	Lightning	0.1	Lightning	Lightning	TFL
1991	4	5	26-Jul-91	51.6	-118.47	Lightning	0.1	Lightning	Lightning	TFL
1991	4	12	05-Aug-91	51.4	-118.12	Lightning	0.2	Lightning	Lightning	TFL
1991	4	1	28-May-91	51.4	-118.41	Industrial	2	P/B Hazard Reduction	Industrial Employee	TFL
1992	4	5	09-Jun-92	51.5	-118.07	Lightning	0	Lightning	Lightning	TFL
1992	4	30	21-Jul-92	51.4	-118.29	Lightning	0.1	Lightning	Lightning	TFL
1992	4	32	21-Jul-92	51.4	-118.37	Lightning	0.1	Lightning	Lightning	TFL

1992	4	33	21-Jul-92	51.4	-118.37	Lightning	0.1	Lightning	Lightning	TFL
1992	4	28	21-Jul-92	51.4	-118.40	Lightning	0.1	Lightning	Lightning	TFL
1992	4	95	16-Aug-92	51.4	-118.18	Lightning	0.1	Lightning	Lightning	TFL
1992	4	69	05-Aug-92	51.5	-118.47	Lightning	0.1	Lightning	Lightning	TFL
1992	4	68	05-Aug-92	51.5	-118.28	Lightning	0.1	Lightning	Lightning	TFL
1992	4	45	02-Aug-92	51.5	-117.97	Lightning	0.1	Lightning	Lightning	TFL
1992	4	73	05-Aug-92	51.6	-118.56	Lightning	0.1	Lightning	Lightning	TFL
1992	4	27	08-Jul-92	51.6	-118.53	Lightning	0.1	Lightning	Lightning	TFL
1993	4	7	25-May-93	51.6	-118.54	Lightning	0	Lightning	Lightning	TFL
1993	4	3	14-May-93	51.6	-118.51	Lightning	0	Lightning	Lightning	TFL
1993	4	2	14-May-93	51.6	-118.51	Lightning	0	Lightning	Lightning	TFL
1993	4	24	07-Aug-93	51.4	-118.09	Lightning	0.1	Lightning	Lightning	TFL
1993	4	30	10-Sep-93	51.6	-118.31	Lightning	0.1	Lightning	Lightning	TFL
1993	4	28	10-Sep-93	51.6	-118.30	Lightning	0.5	Lightning	Lightning	TFL
1993	4	33	12-Sep-93	51.6	-118.33	Lightning	3.5	Lightning	Lightning	TFL
1994	4	6	15-Jul-94	51.5	-118.42	Lightning	0.1	Lightning	Lightning	TFL
1994	4	123	16-Aug-94	51.5	-118.38	Lightning	0.1	Lightning	Lightning	TFL
1994	4	3	14-Jul-94	51.5	-118.47	Lightning	0.1	Lightning	Lightning	TFL
1994	4	65	03-Aug-94	51.5	-118.43	Lightning	0.1	Lightning	Lightning	TFL
1994	4	74	04-Aug-94	51.5	-118.50	Lightning	0.1	Lightning	Lightning	TFL
1994	4	112	06-Aug-94	51.5	-118.48	Lightning	0.1	Lightning	Lightning	TFL
1994	4	111	06-Aug-94	51.5	-118.49	Lightning	0.1	Lightning	Lightning	TFL
1994	4	139	10-Sep-94	51.5	-118.49	Lightning	0.1	Lightning	Lightning	TFL
1994	4	113	07-Aug-94	51.5	-118.35	Lightning	0.1	Lightning	Lightning	TFL
1994	4	101	05-Aug-94	51.6	-118.54	Lightning	0.1	Lightning	Lightning	TFL
1994	4	75	04-Aug-94	51.6	-118.55	Lightning	0.1	Lightning	Lightning	TFL
1994	4	17	03-Aug-94	51.6	-118.37	Lightning	0.1	Lightning	Lightning	TFL
1994	4	44	03-Aug-94	51.4	-118.41	Lightning	0.2	Lightning	Lightning	TFL
1994	4	124	16-Aug-94	51.6	-118.03	Lightning	0.5	Lightning	Lightning	TFL
1994	4	28	03-Aug-94	51.6	-118.35	Lightning	0.5	Lightning	Lightning	TFL
1994	4	138	10-Sep-94	51.5	-118.50	Lightning	1	Lightning	Lightning	TFL
1994	4	140	10-Sep-94	51.6	-118.26	Lightning	3	Lightning	Lightning	TFL
1996	4	36	11-Jul-96	51.4	-118.17	Lightning	0.1	Lightning	Lightning	TFL
1996	4	297	30-Aug-96	51.6	-118.30	Lightning	0.1	Lightning	Lightning	TFL
1996	4	32	09-Jul-96	51.6	-118.57	Lightning	0.3	Lightning	Lightning	TFL
1997	4	155	12-Aug-97	51.6	-118.25	Lightning	0	Lightning	Lightning	TFL
1998	4	350		51.4	-118.41	Lightning	0.1	Lightning	Lightning	TFL
1998	4	59		51.5	-118.44	Lightning	0.1	Lightning	Lightning	TFL R/W
1998	4	485		51.5	-118.14	Lightning	0.1	Lightning	Lightning	TFL
1998	4	486		51.5	-118.14	Lightning	0.1	Lightning	Lightning	TFL
1998	4	519		51.6	-118.56	Lightning	0.1	Lightning	Lightning	TFL
1998	4	401		51.4	-118.11	Lightning	0.2	Lightning	Lightning	TFL
1998	4	591		51.4	-118.16	Industrial	0.2	Permit Escape	Industrial Employee	TFL
1998	6	153		51.5	-118.18	Lightning		Lightning	Lightning	TFL R/W
1999	4	239	19-Aug-99	51.6	-118.38	Lightning	0.1	Lightning	Lightning	TFL R/W