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# Suncor Inc. Mine Expansion: Baseline Forestry Report

May, 1996

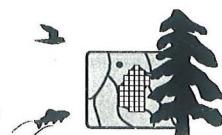
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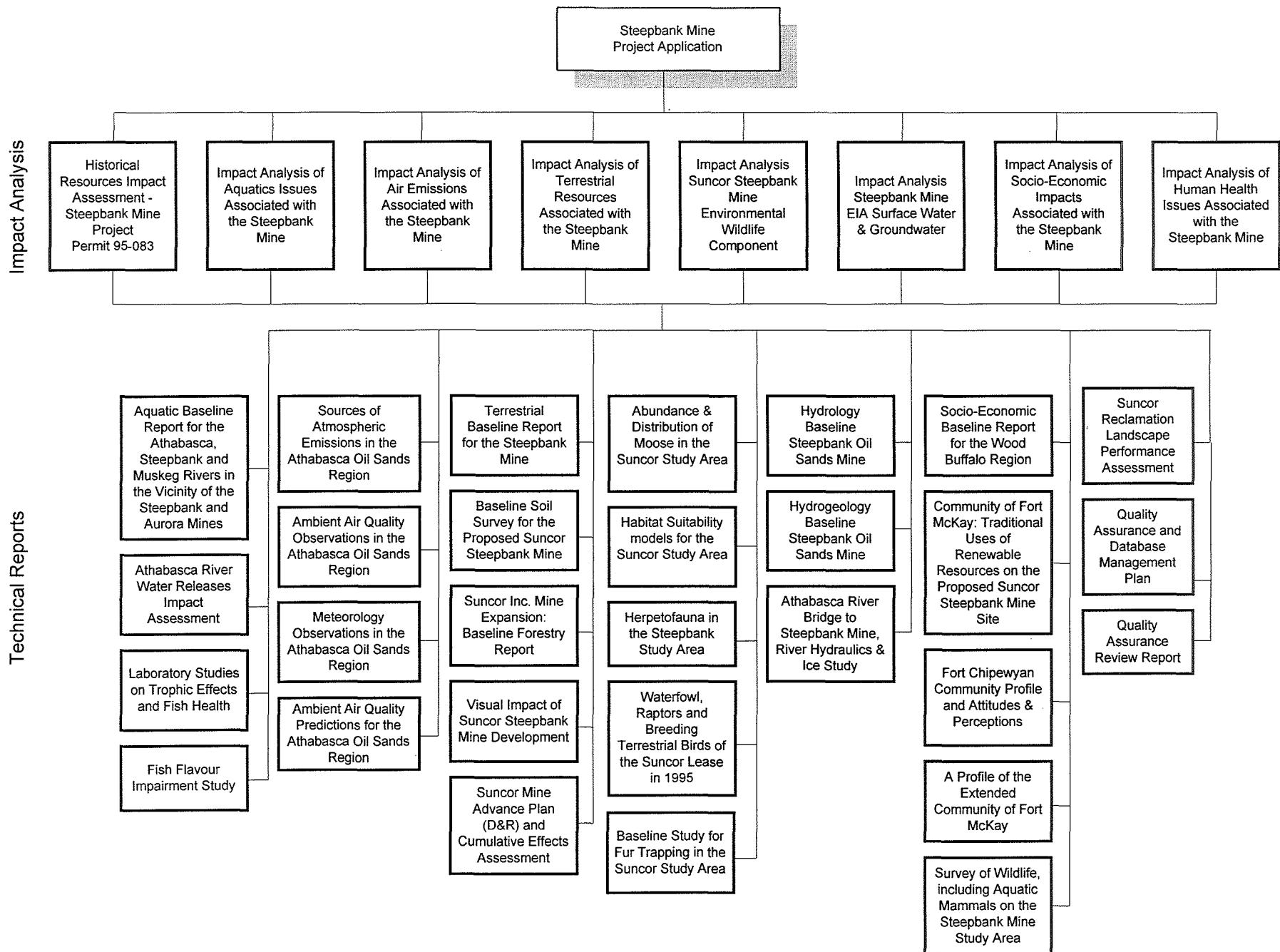
EnviResource  
Consulting Ltd.



**This report is one of a series of reports prepared for Suncor Inc. Oil Sands Group for the Environmental Impact Assessment for the development and operation of the Steepbank Mine, north of Fort McMurray, Alberta. These reports provided information and analysis in support of Suncor's application to the Alberta Energy Utilities Board and Alberta Environmental Protection to develop and operate the Steepbank Mine, and associated reclamation of the current mine (Lease 86/17) with Consolidated Tailings technology.**

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**SUNCOR INC. MINE EXPANSION:  
BASELINE FORESTRY REPORT**

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## **1.0 BACKGROUND**

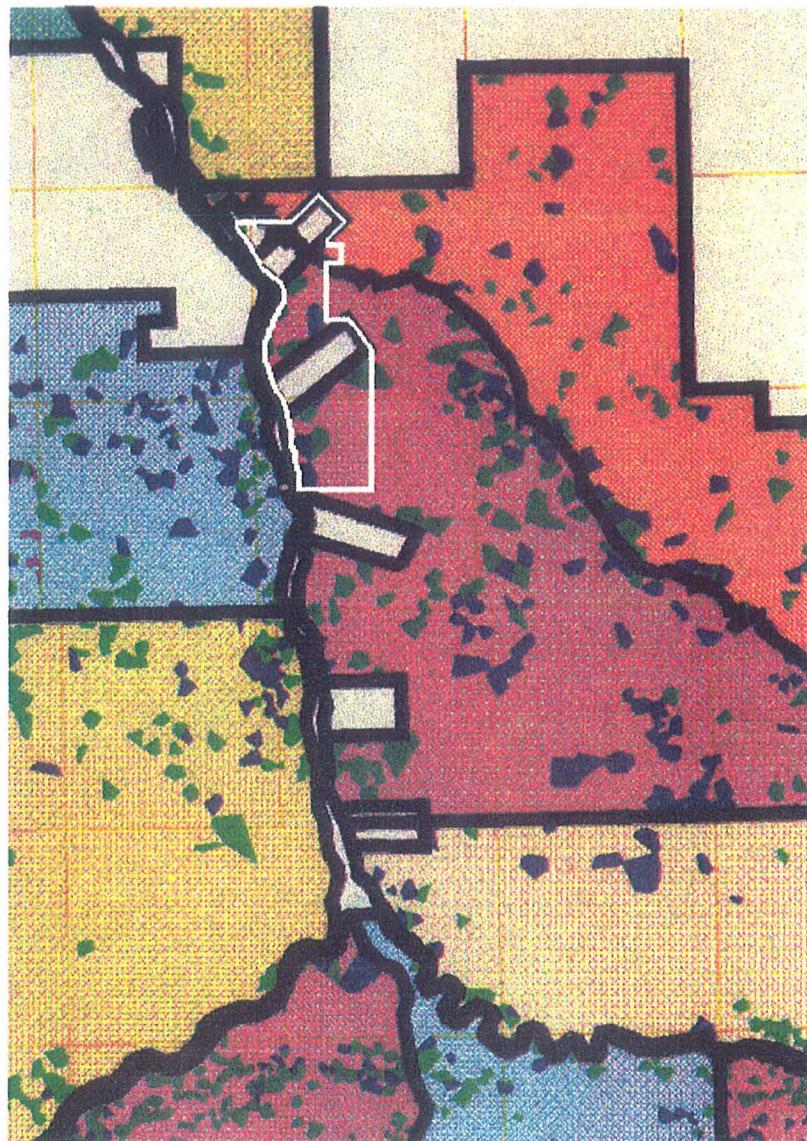
The baseline area occupies crown land within Forest Management Unit A5 (Figure 1) of the Athabasca Forest. Within the baseline area, the Alberta Government has granted Northlands Forest Products Ltd. the right to harvest coniferous timber under a timber quota disposition. Northlands holds coniferous quota Q5. Deciduous timber rights and some coniferous timber rights have been granted to Alberta Pacific Forest Industries Inc. under a Forest Management Agreement.

A timber quota is a commitment of timber volume using a 20-year renewable certificate with plan approval from the Alberta Forest Service. It grants the right to harvest a percent share of the annual allowable cut within a management unit. Each quota area supports approximately 40 years of harvest and is initially divided into four cut plan areas, each of which supports about 10 years of harvest.

A Forest Management Agreement gives the agreement holder the responsibility of managing the forests within their agreement area for commercial timber. Harvest scheduling and planning is completed by the agreement holder and is subject to an approved long term forest management plan and associated annual allowable cut calculation.

AlPac is currently in the process of preparing their long range harvest plan. In this plan, they have scheduled Forest Management Unit A5 for harvesting between 1998 and 2016. In the study area, they are working with Northlands to schedule timber extraction. Based on the old cut plan areas (these are to be revised in negotiation with AlPac), Northlands completed the first pass of the south half of the baseline area this winter. There has been no harvesting in the north half and Northlands has no immediate plans to harvest there.

Phase 3 forest cover maps for the townships comprising the study area were prepared in 1983 and 1984 by the Alberta Forest Service. The baseline area is part of Volume Sampling Region 8. Sample data used to calculate timber yields from this region were gathered mostly in the south end of the region near Lac La Biche and do not represent the yields in the Fort McMurray area. For this reason, it was necessary to update the forest cover maps to Alberta Vegetation Inventory standards and conduct a field sampling program to estimate timber yields.



Coniferous stands available for harvest



Deciduous stands available for harvest



Study area boundary

Figure 1. Timber supply in the study area (From Alberta Pacific Forest Industries Inc. 25 Year Timber Supply Assessment . 1995.).

In January of 1995, Seaway Project Management Ltd. completed a timber assessment of Fee Lots 1, 2, and 3 and Lease 97. The project concentrated on merchantable white spruce sites because there is a high probability that Northlands will salvage this timber. A field inventory was part of the project in which 27 sample plots were established in 9 stands dominated by merchantable white spruce. Only 5 of the stands sampled (15 plots) were located within our study area. The project also resulted in the completion of a salvage plan for coniferous timber outlining access restrictions, road requirements, and stream crossing requirements.

Alberta Forest Service guidelines for the assessment and reforestation of forest land disturbances (Bondy 1991) requires that an assessment of impact to forest resources by industrial users include the following information:

- an adequate cover type map at scale 1:20,000 based on the current Alberta Vegetation Inventory specifications
- identify productive, potentially productive and unproductive land base
- volume and area estimates by strata (cover group)
- an estimate of the growing stock that will be lost
- estimated timber volumes to be salvaged
- a reforestation or reclamation plan

In order to meet these requirements, it was necessary to supplement the salvage plan undertaken by Seaway.

## 2.0 METHODS

Phase 3 forest cover maps were updated to Alberta Vegetation Inventory standards using 1:10,000 scale black and white aerial photos taken in 1994. A field inventory program was implemented to supplement work done by Seaway Project Management (1995) and to verify the AVI mapping. Seaway established 15 sample plots in 5 stands dominated by merchantable white spruce within our study area. We established an additional 30 sample plots in 30 stands covering a variety of productive stand types.

Volumes were compiled by the Forest Measurement Division, Alberta Forest Service by plot. A 15/10 utilization standard was used for volume compilation. Calculated volumes were assigned to similar productive stand types and total volumes determined by strata. The total sample size of 45 plots in 35 stands is small for an area with the size and variability of the study area. However,

it was necessary only to have accurate volumes for stands to be salvaged. The remaining area required characterization to determine the amount of growing stock that would be lost to development. For timber types that were considered inadequately sampled, the volume calculations were supplemented using volume estimates for Volume Sampling Region 8 (Alberta Forest Service 1985).

## 3.0 RESULTS

### 3.1 Productivity

Most of the baseline area supports productive forest land of fair and medium quality. The forest resource in the study area should be considered of high quality relative to the available timber in the northern half of the Northeast Boreal Region. The forest cover map and associated data are found in Appendix A.

The area and volume of productive forest land and non-productive land is shown in Table 1. Volumes do not include deadwood, and should be considered high estimates. Many of the stands supporting the greatest volumes per hectare also had considerable rot content in the wood (especially hardwood species) due to age. Potentially productive land includes clearcuts, partial cuts and clearings that have the capability to grow productive forest, but do not support a forest cover type at the time of mapping. Approximately 20% of the area is coniferous dominated productive forest accounting for 9.7% of the calculated volume. The majority of productive land (28%) is mixedwood forest accounting for 49.8% of the productive volume. Approximately 17% of the area is deciduous dominated forest accounting for 40.5% of the productive volume. A further 1% of the study area is potentially productive and the remaining 34% is non-productive land composed primarily of various types of wetland complexes and water. Approximately 70% of the productive volume is found in 18 m or greater height classes.

The productive forest land base (3538.2 ha) is dominated by various species in the following proportion:

- aspen and balsam poplar - 44%
- black spruce - 31%
- white spruce - 19%
- jackpine - 3%
- tamarack - 3%

Table 1. Area (ha) and volume (100 m<sup>3</sup>) of forest cover types in the Suncor baseline area.

COVER TYPE GROUP	Site Index	HEIGHT CLASS									
		0 (0 - 6m)		1 (6.1 - 12m)		2 (12.1 - 18m)		3 (18.1 - 24m)		4 (24.1 - 30 m)	
		Area	Volume	Area	Volume	Area	Volume	Area	Volume	Area	Volume
Coniferous											
Predominantly white spruce	Fair							1.2	1.3	5.3	11.1
	Medium									24.8	70.7
Predominantly black spruce	Fair			546.0	87.4						
	Medium			149.4	29.5	18.0	14.0				
	Good			160.9	47.1	60.9	6.8				
Predominantly jackpine	Fair			5.0	1.1						
Predominantly tamarack	Fair					50.5	31.2				
	Good					68.0	75.5				
Mixedwood											
Predominantly Deciduous	Fair			28.1	1.7	97.1	30.5	54.4	100.5		
	Medium					257.6	88.6	140.7	484.8		
	Good							33.8	29.8		30.0
Predominantly jackpine	Fair			11.8	1.0	1.8	1.7				
	Medium					66.1	154.7				
	Good					1.0	1.2				

COVER TYPE GROUP	Site Index	HEIGHT CLASS											
		0 (0 - 6m)		1 (6.1 - 12m)		2 (12.1 - 18m)		3 (18.1 - 24m)		4 (24.1 - 30 m)		5 (30 + m)	
		Area	Volume	Area	Volume	Area	Volume	Area	Volume	Area	Volume	Area	Volume
Predominantly black spruce	Fair			38.8	4.7	9.5	5.0						
	Medium			48.5	6.0								
	Good			47.7	6.4	6.2	3.1						
Predominantly white spruce	Fair					2.2	0.7	255.1	252.0	36.3	30.3		
	Medium			2.9	0.2	88.5	39.3	32.3	98.9	15.1	11.3		
	Good					77.9	40.5	106.2	100.4			26.5	236.3
Deciduous													
	Fair			23.2	3.5	125.5	244.6	10.3	6.5				
	Medium					238.7	218.8	30.7	39.5	4.8	6.2		
	Good							495.4	1050.2			3.5	7.8
Potentially Productive		62.6	0.0										
Subtotal		62.6	0.0	1062.3	188.6	1169.5	956.2	1160.1	2163.9	86.3	129.6	60	455.8
Non-productive (forested)		1185.0	0.0										
Non-productive (not forested)		690.1	0.0										
Water		50.6	0.0										
Total		1988.3	0.0	1062.3	188.6	1169.5	956.2	1160.1	2163.9	86.3	129.6	60	455.8

Stock tables (volume by age) for common species are found in Figures 2 through 7. Much of the productive volume is found in older age classes. The origins of much of the area are from either 1940 or 1840 fires. Only about 20% of the area supports volumes of greater than 100 m<sup>3</sup>/ha. Higher quality sites often show lower volumes per hectare than lower quality sites because the higher quality sites generally support older forests within the river valley which are becoming decadent.

### 3.2 Merchantability

There is some road network through the area already and some harvesting of softwood has been undertaken in winter 1994/95 and 1995/96 by Northlands. There are still some coniferous stands remaining that can be salvaged. In addition, there are a number of deciduous dominated stands that can be salvaged without much additional road construction. Table 2 lists the stands that can be salvaged (excluding merchantable stands on steep slopes and isolated stands) and the estimated merchantable volume associated with each. Information on coniferous stands is taken from Seaway (1995).

Table 2. Salvageable stands in the baseline area.

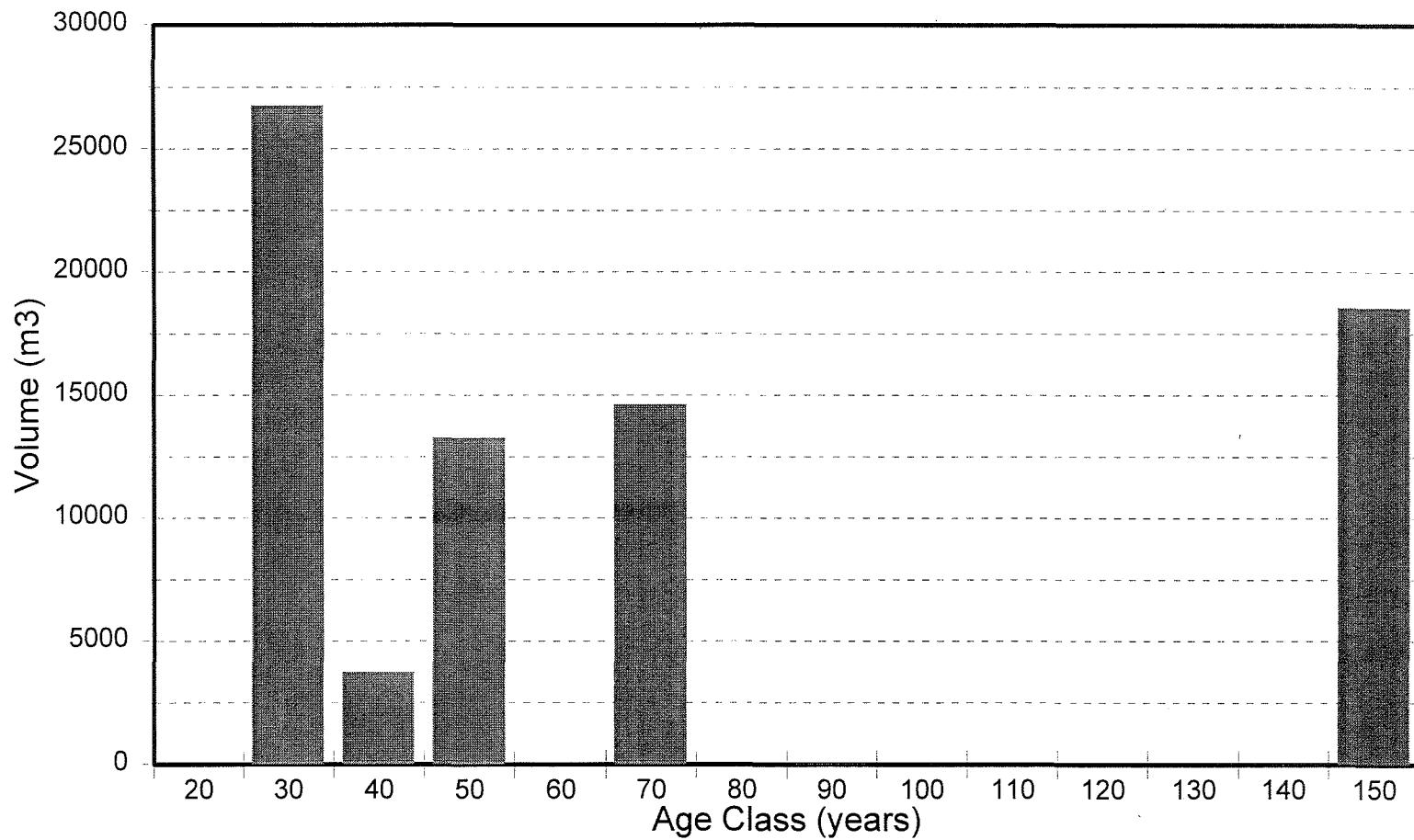
STAND #	FOREST COVER TYPE	SPECIES	VOLUME (m <sup>3</sup> )
10	mC15 Pj <sub>5</sub> Sw <sub>3</sub> Aw <sub>2</sub> 94 - M	white spruce	1700
		jackpine	2800
22	mB25Sw <sub>10</sub> - H4 84 - M mC19Aw5Sw5 - H6 84 - M	white spruce	1200
67	mC14Aw <sub>10</sub> 94 - M mA7Sw <sub>10</sub> 94 - F	aspen	9500
104	mC20Pb <sub>5</sub> Aw <sub>4</sub> Sw <sub>1</sub> 84 - M	balsam poplar	360
		aspen	290
105	mC25Sw <sub>8</sub> Aw <sub>1</sub> Pb <sub>1</sub> 84 - M	white spruce	400
		aspen	60
		balsam poplar	60
136	mC22Pb <sub>4</sub> Sw <sub>3</sub> Aw <sub>3</sub> 84 - M	balsam poplar	2500
		aspen	1900
		white spruce	250
137	mB33Pb <sub>10</sub> 84 - G mB22Sw <sub>6</sub> Aw <sub>2</sub> Bw <sub>2</sub> 90 - M	balsam poplar	21,000
139	dB15Pj <sub>9</sub> Aw <sub>1</sub> 94 - M	jackpine	1250
142	dB16Pj <sub>9</sub> Aw <sub>1</sub> 94 - G	jackpine	1200

STAND #	FOREST COVER TYPE	SPECIES	VOLUME (m <sup>3</sup> )
152	mC14Aw <sub>10</sub> 94 - M mA3Sw <sub>10</sub> 97 - M	aspen	7000
153	<u>mC14Aw<sub>6</sub>Sw<sub>1</sub> 94 - M</u> mA3Sw <sub>10</sub> 97 - M	aspen	970
		white spruce	25
154	mC20Aw <sub>6</sub> Sw <sub>4</sub> 94 - G	white spruce	2600
		aspen	170
155	wA25Sw <sub>10</sub> - H2 84 - M <u>w2SC<sub>7</sub> - U - H3</u> wHG - U - H5	white spruce	230
157	<u>wA25Sw<sub>10</sub> - H2 84 - M</u> <u>w2SC<sub>7</sub> - U - H3</u> wHG - U - H5	white spruce	870
158	mA20Sw <sub>5</sub> Aw <sub>5</sub> 84 - F mB14Sb <sub>10</sub> 84 - M	aspen	1800
		white spruce	1400
159	dC22Aw <sub>9</sub> Sw <sub>1</sub> 92 - M	aspen	20,000
		white spruce	280
160	mC22Aw <sub>10</sub> 92 - M	aspen	1700
163	<u>mB18Aw<sub>10</sub> 92 - M</u> mC10Sb <sub>10</sub> 92 - M	aspen	4200
165	dC22Aw <sub>6</sub> Sw <sub>4</sub> 92 - M	aspen	13,400
		white spruce	1100
170	<u>mC22Aw<sub>10</sub> - H9 92 - M</u> mC20Aw <sub>5</sub> Pb <sub>5</sub> - H1 92 - M	aspen	29,000
		balsam poplar	900
173	mC22Aw <sub>10</sub> 92 - M	aspen	600
177	<u>mB33Pb<sub>10</sub> 84 - G</u> mA22Sw <sub>8</sub> Bw <sub>2</sub> 84 - M	aspen	780
178	<u>mA40Sw<sub>10</sub> 84 - G</u> <u>mB30Pb<sub>10</sub> 84 - G</u> mA10Sw <sub>5</sub> Fb <sub>5</sub> 96 - G	white spruce	23,000
182	mC20Aw <sub>7</sub> Sw <sub>3</sub> 84 - M	aspen	900
		white spruce	50
184	<u>mC22Aw<sub>10</sub> - H5 92 - M</u> mC20Aw <sub>3</sub> Pb <sub>5</sub> - H5 92 - M	aspen	3100
		balsam poplar	740
185	mC22Aw <sub>10</sub> - H5 92 - M	aspen	2100
		white spruce	120
191	mC30Sw <sub>10</sub> 84 - M	white spruce	50

STAND #	FOREST COVER TYPE	SPECIES	VOLUME (m <sup>3</sup> )
193	<u>mC24Sw<sub>6</sub>Aw<sub>4</sub> 84 - M</u> mB9Sw <sub>10</sub> 95 - M	white spruce	1400
		aspen	1200
194	<u>mC30Sw<sub>10</sub> 84 - M</u> mC22Sw <sub>7</sub> Aw <sub>3</sub> 92 - M	white spruce	4300
195	<u>mC30Sw10 - H3 84 - M</u> <u>mC30Pb10 - H3 84 - G</u> w2SC7 - U - H4	white spruce	1500
		balsam poplar	600
		aspen	78,000
196	<u>mC22Aw<sub>10</sub> - H9 92 - M</u> mC20Aw <sub>4</sub> Pb <sub>4</sub> Sw <sub>2</sub> - H1 92 - M	balsam poplar	6000
		white spruce	400
		aspen	4000
197	<u>mC24Sw<sub>6</sub>Aw<sub>4</sub> 84 - M</u>	white spruce	4000
		aspen	1800
220	<u>mC24Sw<sub>6</sub>Aw<sub>4</sub> 84 - M</u> mB9Sw <sub>10</sub> 95 - M	white spruce	5200
		aspen	4400
230	<u>mD16Aw<sub>8</sub>Sw<sub>1</sub>Sb<sub>1</sub> 94 - M</u>	aspen	600
		white spruce	20
		black spruce	20

### 3.3 Understorey Regeneration

There is a considerable amount of white spruce and black spruce regeneration in the understorey of stands that originated after the 1840 fire. The majority (95% by area) of coniferous understorey is white spruce which ranges in age from 20 to 50 years. The remaining 5% is black spruce regeneration which falls into one age class at approximately 50 years. Figures 8 and 9 show the distribution of understorey regeneration by age class and site quality.



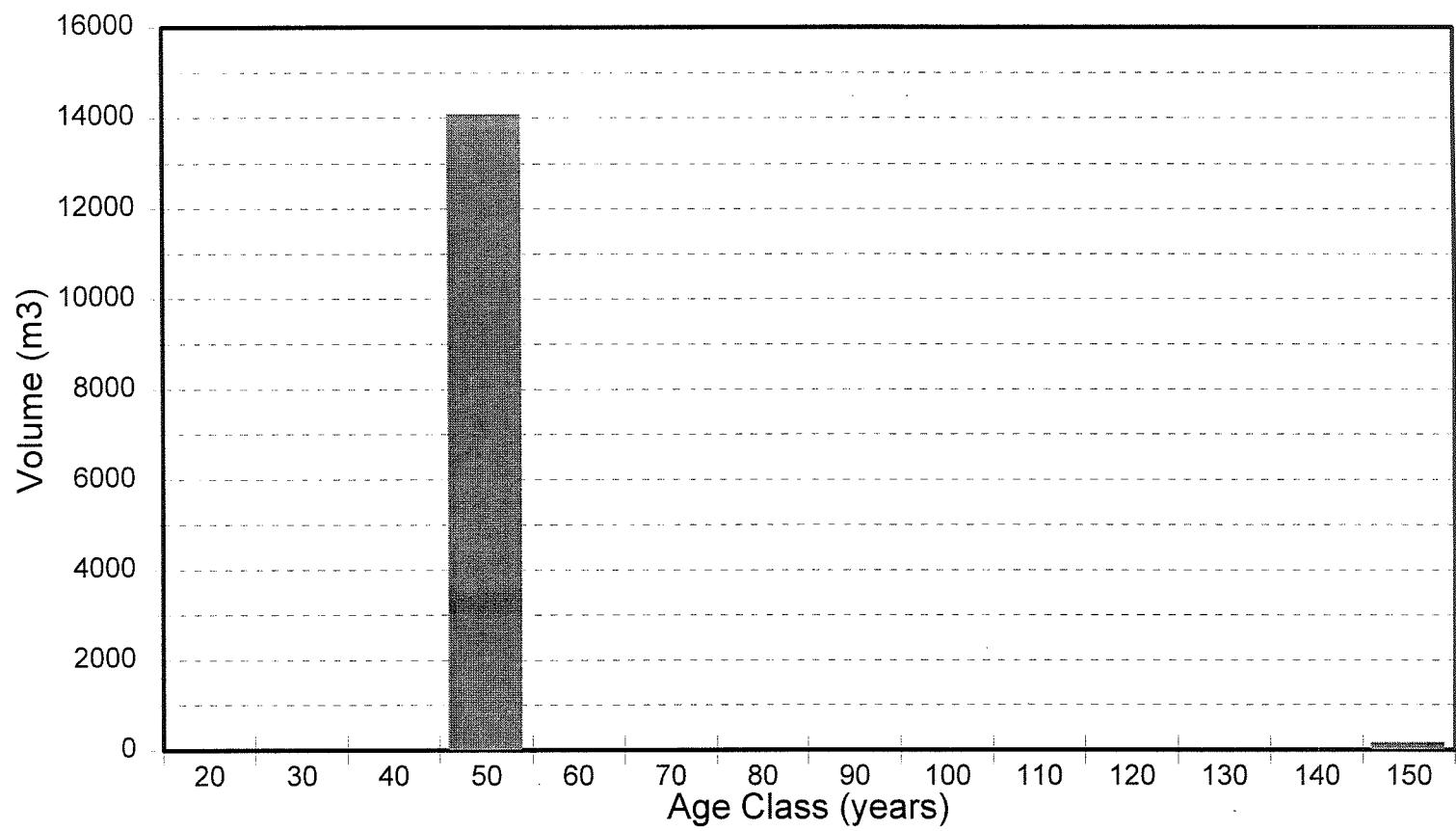
**Figure 2. White Spruce Stock Table**

Volume (Total ~ 77,000 m<sup>3</sup>)



Volume (Total ~ 24,000  $m^3$ )

**Figure 3. Black Spruce Stock Table**



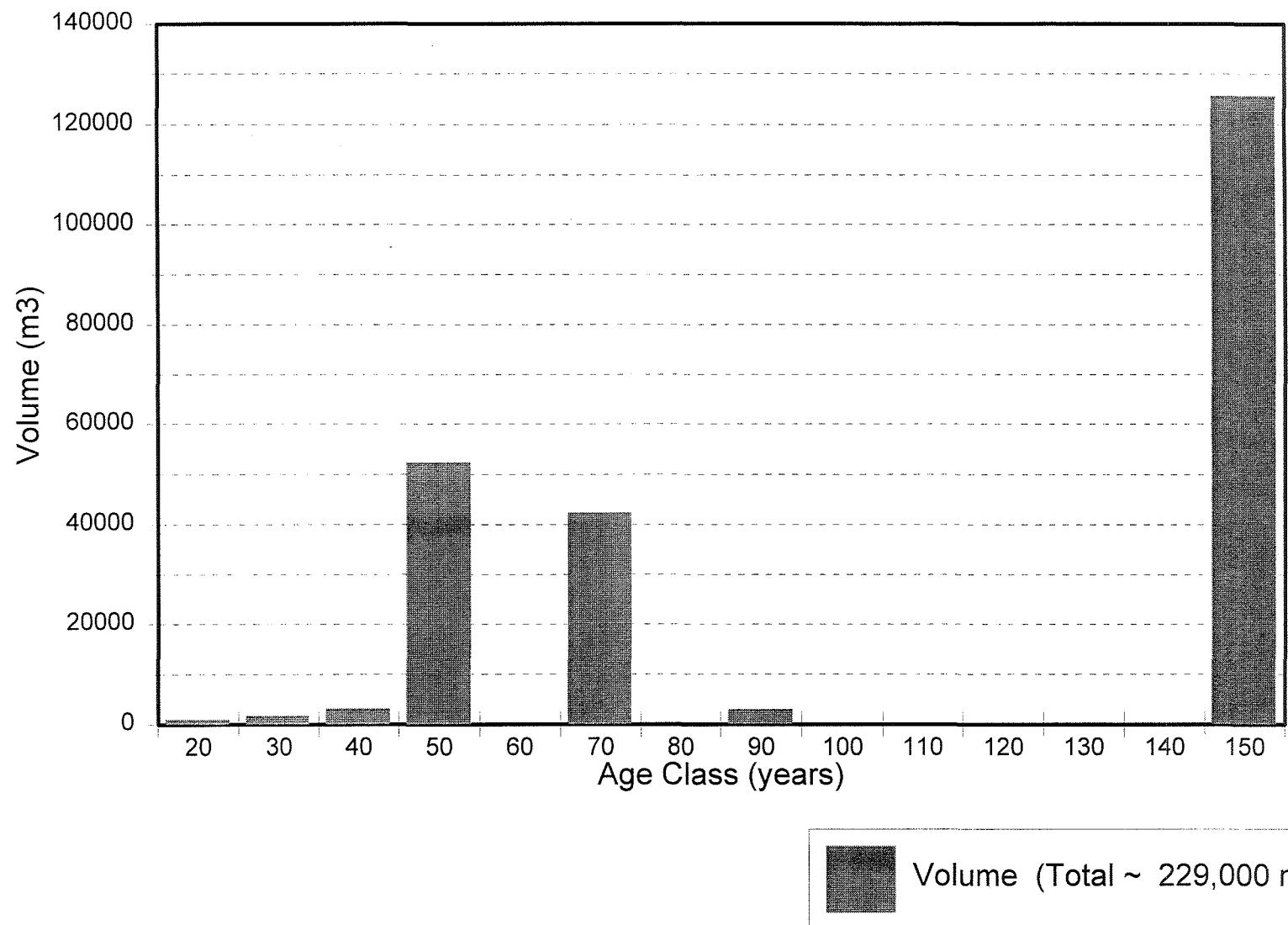
Volume (Total ~ 14,000 m<sup>3</sup>)

**Figure 4. Jackpine Stock Table**

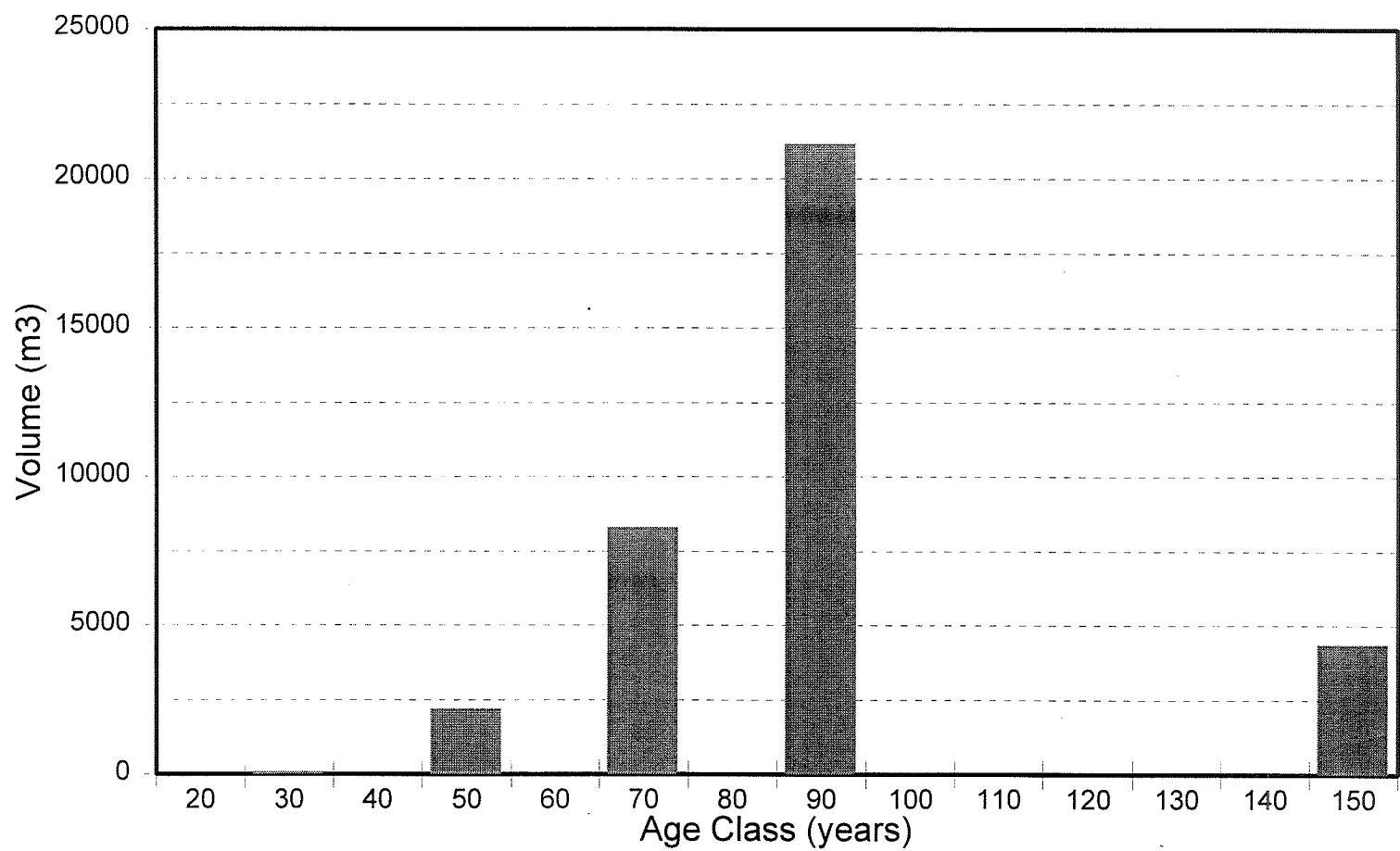


 Volume (Total ~ 9000 m<sup>3</sup>)

**Figure 5. Tamarack Stock Table**



**Figure 6. Aspen Stock Table**



Volume (Total ~ 36,000 m<sup>3</sup>)

**Figure 7. Balsam Poplar Stock Table**

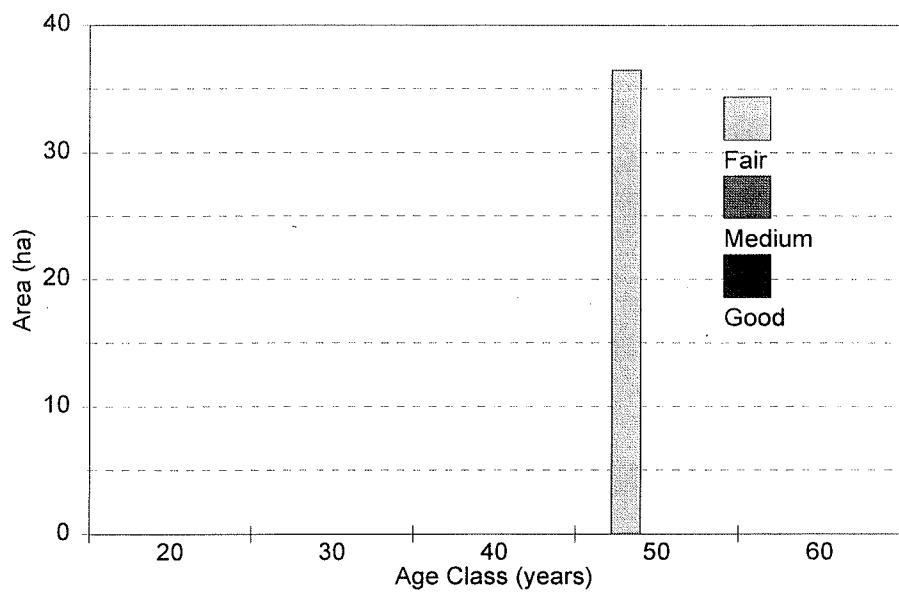


Figure 8. Black spruce understorey regeneration.

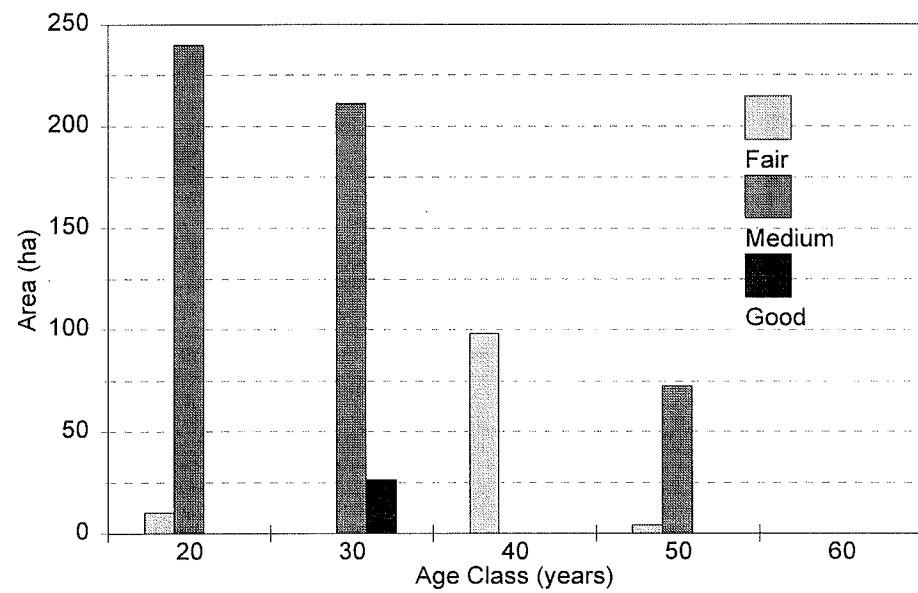


Figure 9. White spruce understorey regeneration.

## **4.0 LITERATURE CITED**

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- Alberta Pacific Forest Industries Inc. 1995. Detailed Forest Management Plan. 152 pp plus Appendices & Maps.
- Bondy, J.R. 1991. Alberta Forest Service Guidelines for the assessment and reforestation of forest land disturbances. Forest Land Use Branch. Alberta Forest Service. 15 pp.
- Seaway Project Management Ltd. 1995. Timber assessments: TWP 92 RGES 9 & 10 W4M, Fee Lots 1, 2, 3 and Lease 97. Prepared for Suncor Inc. Oil Sands Group.

**APPENDIX A: ALBERTA VEGETATION INVENTORY MAP AND  
DATABASE**

ID NUMBER	Area (ha)	Sw Vol	Sb Vol	Pj Vml	Lt Vol	Fb Vol	Aw Vol	Pb Vol	Bw Vol	Density	Height	Pj	Sw	Sb	Aw	Pb	Bw	Lt	Fb	COMPOSITION	siclass	Origin	
1	36.04	0.0	576.7	0.0	0.0	0.0	0.0	0.0	0.0	C	8		10							C	Sb	F	1940
2	20.37	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0											U			0
2	8.73	0.0	100.4	0.0	0.0	0.0	0.0	0.0	0.0	B	14		10							C	Sb	G	1940
3	16.62	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0											U			0
4	25.97	0.0	67.5	33.8	0.0	0.0	690.8	0.0	0.0	C	16	1	2	7						MW	Aw	M	1940
4	11.13	0.0	128.0	0.0	0.0	0.0	0.0	0.0	0.0	C	14		10							C	Sb	G	1940
5	8.30	0.0	29.9	7.5	0.0	0.0	157.6	0.0	0.0	B	14	1	4	5						MW	Aw	F	1940
6	68.03	0.0	3020.5	0.0	4530.8	0.0	0.0	0.0	0.0	C	14		4				6			C	Lt	G	1940
7	375.37	0.0	5405.4	0.0	600.6	0.0	0.0	0.0	0.0	B	7		9					1		C	Sb	F	1940
7	160.87	0.0	4633.2	0.0	0.0	0.0	80.4	0.0	0.0	C	12		9	1						C	Sb	G	1940
8	4.30	22.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	16		4	6						MW	Aw	M	1940
8	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	7		10							C	Sw	M	1960
9	13.37	0.0	34.8	0.0	0.0	0.0	406.4	0.0	0.0	D	16		2	8						MW	Aw	M	1940
9	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	7		10							C	Sw	M	1960
10	18.91	1679.1	0.0	2798.5	0.0	0.0	0.0	0.0	0.0	C	15	5	3	2						MW	Pj	M	1940
11	9.71	0.0	81.6	0.0	0.0	0.0	23.3	0.0	0.0	C	10		6	4						MW	Sb	M	1940
12	35.61	1111.1	0.0	0.0	0.0	0.0	149.6	99.7	49.9	C	16		4		3	2	1			MW	Sw	G	1940
13	4.56	0.0	91.3	0.0	0.0	0.0	0.0	0.0	0.0	D	10		10							C	Sb	M	1940
14	6.97	0.0	0.0	1443.6	0.0	0.0	0.0	0.0	0.0	B	14	7		3						MW	Pj	M	1940
14	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	2		10							C	Sw	M	1970
15	3.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										U			0	
16	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	7		10							C	Sw	M	1940
16	13.94	72.5	0.0	0.0	0.0	0.0	264.9	53.0	0.0	C	18		4	5	1					MW	Aw	M	1960
17	5.59	29.1	0.0	0.0	0.0	0.0	1082.2	216.4	0.0	C	18		4	5	1					MW	Aw	M	1940
17	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	7		10							C	Sw	M	1960
18	6.88	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										U			0	
19	3.38	9.1	0.0	0.0	0.0	0.0	89.9	0.0	0.0	D	14		3	7						MW	Aw	F	1940
19	3.38	158.2	0.0	0.0	0.0	0.0	9.5	9.5	0.0	C	16		6	2	2					MW	Sw	G	1940
20	1.96	79.8	0.0	0.0	0.0	0.0	14.1	0.0	0.0	A	15		7	3						MW	Sw	M	1940
20	0.84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										U			0	
21	11.64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	20		3	6	1					MW	Aw	U	1840
22	3.73	1171.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	25		10							C	Sw	M	1840
22	5.60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	19		5	5						MW	Sw	U	1840
23	199.47	0.0	0.0	0.0	0.0	0.0	15758.2	0.0	0.0	C	16			10						D	Aw	M	1940
23	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	7		10							C	Sw	M	1970
24	4.60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										U			0	
25	4.96	103.3	0.0	0.0	0.0	0.0	258.1	51.6	0.0	C	20		4	5	1					MW	Aw	G	1940
25	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	8		10							C	Sw	M	1960
26	19.91	1457.0	0.0	0.0	1092.8	0.0	31.8	0.0	15.9	D	19		4	2	1	3				MW	Sw	G	1940
26	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	9		10							C	Sw	M	1960
27	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	7		10							C	Sw	M	1960
27	21.76	0.0	0.0	0.0	0.0	0.0	4504.7	0.0	0.0	C	16			10						D	Aw	M	1940
28	4.34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										U			0	
29	4.10	5.3	0.0	0.0	0.0	0.0	77.9	62.3	0.0	C	16		1	5	4					MW	Aw	M	1940
30	2.16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										U			0	
31	5.72	14.9	0.0	0.0	0.0	0.0	130.4	43.5	0.0	C	18		2	6	2					MW	Aw	M	1940
32	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	7		10							C	Sw	M	1960
32	9.17	33.0	0.0	0.0	0.0	0.0	139.4	69.7	0.0	C	15		4	4	2					MW	Aw	F	1940
33	4.87	19.0	0.0	0.0	0.0	0.0	129.5	0.0	0.0	C	16		3	7						MW	Aw	M	1940
34	4.96	0.0	0.0	0.0	0.0	0.0	74.4	0.0	0.0	D	12			10						D	Aw	F	1940
35	14.01	54.6	0.0	0.0	0.0	0.0	266.2	106.5	0.0	C	16		3	5	2					MW	Aw	M	1940
36	1.08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										U			0	
37	5.89	0.0	57.7	0.0	0.0	0.0	10.6	0.0	0.0	C	10		7	3						MW	Sb	M	1940
37	3.92	0.0	0.0	0.0	0.0	0.0	58.9	0.0	0.0	C	14			10						D	Aw	F	1940
38	4.81	0.0	53.8	0.0	0.0	0.0	5.8	0.0	0.0	C	10		8	2						MW	Sb	M	1940
39	17.63	15.9	0.0	0.0	0.0	0.0	603.1	0.0	0.0	C	14		1	9						MW	Aw	F	1940
40	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	8		10							C	Sw	M	1940
40	12.05	188.0	0.0	0.0	0.0	0.0	877.3	0.0	0.0	B	20		3	7						MW	Aw	G	1960
41	3.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	10			10						D	Aw	U	0
41	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										U			1940	




86	2.70	7.0	0.0	0.0	0.0	0.0	82.2	0.0	0.0	C	16	2	8			MW	Aw	M	1940
87	6.31	37.9	88.3	0.0	0.0	0.0	0.0	0.0	0.0	C	10	3	7			C	Sb	M	1940
88	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						U			0	
88	1.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						U			0	
89	2.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						U			0	
89	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						U			0	
90	2.41	0.0	0.0	428.5	0.0	0.0	0.0	0.0	0.0	B	14	6	4			MW	Pj	M	1940
91	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	8	10				C	Sw	M	1940
91	11.85	867.3	0.0	0.0	0.0	0.0	28.4	28.4	0.0	C	20	4	3	3		MW	Sw	G	1960
92	11.29	36.1	108.4	0.0	0.0	0.0	18.1	0.0	0.0	C	12	2	6	2		MW	Sb	G	1940
93	33.01	0.0	386.2	0.0	0.0	0.0	9.9	0.0	0.0	B	8	9	1			MW	Sb	F	1940
94	1.32	0.0	14.8	0.0	0.0	0.0	1.6	0.0	0.0	C	10	8	2			MW	Sb	M	1940
95	14.53	1020.2	0.0	0.0	0.0	0.0	20.3	0.0	0.0	C	18	9	1			MW	Sw	G	1940
96	12.53	0.0	0.0	0.0	0.0	0.0	188.0	0.0	0.0	C	12		10			D	Aw	F	1940
97	0.96	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						U			0	
98	11.84	0.0	0.0	95.9	0.0	0.0	1.2	0.0	0.0	A	10	9	1			MW	Pj	F	1940
99	5.29	0.0	0.0	9.5	0.0	0.0	161.0	0.0	0.0	B	14	2	8			MW	Aw	F	1940
100	6.84	277.8	0.0	0.0	0.0	0.0	49.3	0.0	0.0	C	14	7	3			MW	Sw	M	1940
101	2.74	2.5	0.0	0.0	0.0	0.0	93.6	0.0	0.0	C	14	1	9			MW	Aw	F	1940
102	5.20	150.9	0.0	0.0	0.0	0.0	62.4	0.0	0.0	C	14	5	5			MW	Sw	M	1940
102	5.20	0.0	74.9	0.0	8.3	0.0	0.0	0.0	0.0	B	8		9			C	Sb	F	1940
103	1.65	0.0	0.0	0.0	0.0	0.0	307.9	34.2	0.0	C	14		9	1		D	Aw	F	1940
104	10.27	0.0	0.0	0.0	0.0	0.0	287.6	359.5	0.0	C	20	1	4	5		D	Pb	F	1840
105	6.95	406.2	0.0	0.0	0.0	0.0	66.1	66.1	0.0	C	25	8	1	1		MW	Sw	M	1840
106	2.20	35.2	0.0	0.0	0.0	0.0	22.0	11.0	0.0	C	18	4	4	2		MW	Sw	F	1840
107	31.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						U			0	
108	2.44	3.2	0.0	0.0	0.0	0.0	74.3	9.3	0.0	C	17	1	8	1		MW	Aw	M	1940
109	3.81	176.9	0.0	0.0	0.0	0.0	18.3	0.0	0.0	C	14	8	2			MW	Sw	M	1940
110	13.07	34.0	0.0	0.0	0.0	0.0	347.8	49.7	0.0	C	16	2	7	1		MW	Aw	M	1940
111	4.73	0.0	0.0	980.0	0.0	0.0	0.0	0.0	0.0	B	16	7	3			MW	Pj	M	1940
112	28.24	0.0	271.1	0.0	0.0	0.0	90.4	0.0	0.0	B	12		6	4		MW	Sb	G	1940
113	14.65	0.0	210.9	0.0	23.4	0.0	0.0	0.0	0.0	B	8	9				C	Sb	F	1940
113	21.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	5		10			C	Sb	U	1940
114	18.36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	6		10			C	Sb	U	1940
115	3.78	0.0	112.0	783.8	0.0	0.0	0.0	0.0	0.0	B	14	7	1	2		MW	Pj	M	1940
116	2.73	0.0	1.6	0.0	0.0	0.0	14.8	0.0	0.0	C	12		1	9		MW	Aw	F	1940
117	34.58	0.0	442.6	0.0	110.7	0.0	0.0	0.0	0.0	C	8	8				C	Sb	F	1940
117	23.05	0.0	69.2	0.0	0.0	0.0	69.2	0.0	0.0	B	12		5	5		MW	Aw	F	1940
118	26.95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	5		10			C	Sb	U	1940
118	11.55	0.0	166.3	0.0	18.5	0.0	0.0	0.0	0.0	B	8		9			C	Sb	F	1940
119	3.59	4.7	0.0	0.0	0.0	0.0	122.7	0.0	0.0	C	16	1	9			MW	Aw	M	1940
120	1.55	0.0	19.5	0.0	0.0	0.0	0.9	0.0	0.0	C	10		9	1		MW	Sb	M	1940
121	6.22	32.3	0.0	8.1	0.0	0.0	118.2	0.0	0.0	B	16	1	4	5		MW	Aw	M	1940
122	1.83	108.5	0.0	271.3	0.0	0.0	0.0	0.0	0.0	B	15	5	2	3		MW	Pj	M	1940
123	14.67	19.1	0.0	0.0	0.0	0.0	501.7	0.0	0.0	C	17	1	9			MW	Aw	M	1940
124	0.93	0.0	14.8	0.0	0.0	0.0	0.0	0.0	0.0	C	8		10			C	Sb	F	1940
125	2.69	0.0	0.0	637.6	0.0	0.0	0.0	0.0	0.0	B	14	8		2		MW	Pj	M	1940
126	7.61	13.7	0.0	0.0	0.0	0.0	231.3	0.0	0.0	C	14	2	8			MW	Aw	F	1940
127	8.13	0.0	91.1	13.0	0.0	0.0	13.0	0.0	0.0	C	12	1	7	2		MW	Sb	G	1940
128	1.20	41.8	0.0	0.0	0.0	0.0	11.5	0.0	0.0	C	15	6	4			MW	Sw	M	1940
129	2.75	150.2	0.0	0.0	0.0	0.0	11.6	0.0	0.0	C	16	7	3			MW	Sw	G	1940
130	3.64	14.2	0.0	0.0	0.0	0.0	83.1	13.9	0.0	C	16	3	6	1		MW	Aw	M	1940
131	6.64	15.3	61.1	0.0	0.0	0.0	0.0	0.0	0.0	D	17	2	8			C	Sb	G	1840
132	1.22	56.7	0.0	0.0	0.0	0.0	5.9	0.0	0.0	C	15	8	2			MW	Sw	M	1940
133	1.01	0.0	0.0	238.8	0.0	0.0	0.0	0.0	0.0	B	14	8	2			MW	Pj	M	1940
134	70.02	364.1	0.0	0.0	0.0	0.0	1596.5	0.0	0.0	C	18	4	6			MW	Aw	M	1940
135	59.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						U			0	
136	26.80	249.2	0.0	0.0	0.0	0.0	1897.3	2529.7	0.0	C	22	3	3	4		MW	Pb	F	1840
137	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	22	6	2	2		MW	Sw	F	1840
137	29.99	0.0	0.0	0.0	0.0	0.0	0.0	21173.4	0.0	B	33		10			MW	Pb	G	1900
138	12.53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						U			0	

139	4.71	0.0	0.0	1255.0	0.0	0.0	0.0	0.0	B	15	9	1		MW	Pj	M	1940	
140	16.29	0.0	0.0	0.0	0.0	0.0	0.0	0.0						W			1940	
141	10.14	52.7	0.0	0.0	0.0	0.0	231.2	0.0	C	16	4	6		MW	Aw	M	1940	
142	4.64	0.0	0.0	1235.5	0.0	0.0	0.0	0.0	B	16	9	1		MW	Pj	M	1940	
143	2.90	16.3	0.0	0.0	0.0	0.0	2.3	0.0	B	12	8	2		MW	Sw	M	1940	
144	1.38	0.0	0.0	325.6	0.0	0.0	0.0	0.0	B	16	8	2		MW	Pj	M	1940	
145	14.41	74.9	0.0	0.0	0.0	0.0	328.5	0.0	C	18	4	6		MW	Aw	M	1940	
146	3.62	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			1840		
147	7.19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	18	6	4		C	Sw	U	1840	
148	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			0		
148	31.16	2271.3	0.0	0.0	0.0	0.0	324.0	0.0	B	25	9	1		MW	Sw	F	1840	
149	0.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			0		
149	0.33	35.4	0.0	0.0	0.0	0.0	0.0	0.0	A	22	10			C	Sw	F	1840	
149	0.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			0		
150	5.12	331.6	0.0	0.0	0.0	0.0	106.4	0.0	C	25	8	2		MW	Sw	F	1840	
150	3.41	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			0		
151	5.20	416.2	0.0	0.0	0.0	0.0	58.7	0.0	C	22	9	1		MW	Sw	F	1940	
152	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	3	10			C	Sw	M	1970	
152	33.63	0.0	0.0	0.0	0.0	0.0	6961.5	0.0	C	14		10		D	Aw	F	1940	
153	28.38	25.5	0.0	0.0	0.0	0.0	970.6	0.0	C	14	1	9		MW	Aw	F	1970	
153	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	3	10			C	Sw	M	1940	
154	36.05	2639.1	0.0	0.0	0.0	0.0	173.1	0.0	C	20	4	6		MW	Sw	G	1840	
155	1.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			0		
155	1.12	235.7	0.0	0.0	0.0	0.0	0.0	0.0	A	25	10			C	Sw	F	1840	
155	2.79	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			0		
156	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	10	5			5	C	Sw	M	1840
156	8.12	593.0	0.0	0.0	0.0	0.0	0.0	0.0	C	30	10			MW	Sw	M	1960	
157	6.21	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			0		
157	10.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			0		
157	4.14	873.3	0.0	0.0	0.0	0.0	0.0	0.0	A	25	10			C	Sw	F	1840	
158	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	14		10		C	Sb	U	1840	
158	32.70	1455.3	0.0	0.0	0.0	0.0	1847.7	0.0	A	20	5	5		MW	Sw	F	1920	
159	51.49	278.0	0.0	0.0	0.0	0.0	20111.7	0.0	C	22	1	9		MW	Aw	M	1920	
160	8.08	0.0	0.0	0.0	0.0	0.0	1712.5	0.0	C	22		10		D	Aw	G	1940	
161	5.16	0.0	82.6	0.0	0.0	0.0	0.0	0.0	B	8	10			C	Sb	F	1920	
162	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	8		10		C	Sb	F	1940	
162	16.22	0.0	1264.9	0.0	0.0	0.0	0.0	0.0	C	14		10		C	Sb	M	1920	
163	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	10		10		C	Sb	F	1940	
163	20.26	0.0	0.0	0.0	0.0	0.0	4194.3	0.0	B	18		10		D	Aw	F	1920	
164	255.11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	3		10		C	Sb	U	1960	
164	109.33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	6		10		C	Sb	U	1920	
165	51.71	1116.9	0.0	0.0	0.0	0.0	13464.6	0.0	C	22	4	6		MW	Aw	M	1840	
166	0.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	14		10		C	Sb	U	0	
167	1.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			1840		
167	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0					W			0		
168	1.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	20	7	1	2	MW	Sw	U	1840	
169	2.57	137.4	0.0	0.0	0.0	0.0	58.2	58.2	C	22	6	2	2	MW	Sw	F	1920	
169	1.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			0		
170	14.81	0.0	0.0	0.0	0.0	0.0	955.1	955.1	C	20		5	5	D	Aw	M	1920	
170	133.27	0.0	0.0	0.0	0.0	0.0	28252.7	0.0	C	22		10		D	Aw	G	1840	
171	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			0		
171	11.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	12	8	2		MW	Sb	U	1840	
172	0.83	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			0		
172	0.55	59.9	0.0	0.0	0.0	0.0	0.0	0.0	A	22	10			C	Sw	F	1920	
172	1.39	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			0		
173	2.89	0.0	0.0	0.0	0.0	0.0	613.4	0.0	C	22		10		D	Aw	G	1840	
174	4.07	0.0	0.0	0.0	0.0	0.0	0.0	0.0					U			0		
174	9.49	106.3	372.0	0.0	0.0	0.0	17.1	0.0	C	18	2	7	1	MW	Sb	F	1840	
175	25.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	14	1	7	2	MW	Sb	U	1840	
176	20.68	0.0	128.2	0.0	1153.7	0.0	0.0	0.0	B	18		1		9	C	Lt	F	1840
177	3.52	0.0	0.0	0.0	0.0	0.0	0.0	784.1	B	33			10	D	Pb	G	1840	

177	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	22	8		2		MW	Sw	F	1840	
178	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	30		10			D	Pb	F	1840	
178	26.55	23628.1	0.0	0.0	0.0	0.0	0.0	0.0	A	40	10				MW	Sw	G	1960	
178	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	10	5				5	C	Sw	M	1840
179	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	9	10				C	Sw	U	0	
179	69.58	3715.5	0.0	0.0	0.0	0.0	0.0	3145.0	C	24	6	4			MW	Sw	F	1950	
180	15.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0							NF			0	
181	2.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0							U			1840	
182	5.48	51.0	0.0	0.0	0.0	0.0	0.0	906.0	C	20	3	7			MW	Aw	F	1920	
183	209.90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	6	10				C	Sb	U	1920	
184	8.91	0.0	0.0	0.0	0.0	0.0	741.3	741.3	C	20		5	5		D	Aw	M	1920	
184	8.91	0.0	0.0	0.0	0.0	0.0	0.0	2436.7	C	22		10			D	Aw	G	1840	
185	13.14	122.3	0.0	0.0	0.0	0.0	0.0	2171.5	C	22	3	7			MW	Aw	F	1920	
186	27.23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	6	10				C	Sb	U	0	
187	19.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0							NF			0	
188	13.54	0.0	0.0	0.0	0.0	0.0	0.0	0.0							NF			0	
189	2.32	0.0	0.0	0.0	0.0	0.0	0.0	0.0							NF			0	
190	15.44	0.0	0.0	0.0	0.0	0.0	0.0	0.0							U			0	
190	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0							W			0	
191	2.39	50.2	0.0	0.0	0.0	0.0	0.0	0.0	C	30	10				C	Sw	M	1840	
192	11.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0							U			1840	
193	27.55	1471.1	0.0	0.0	0.0	0.0	0.0	1245.2	C	24	6	4			MW	Sw	F	1840	
193	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	9	10				C	Sw	U	1950	
194	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	22	7	3			MW	Sw	G	1840	
194	13.87	4352.9	0.0	0.0	0.0	0.0	0.0	0.0	C	30	10				C	Sw	M	1920	
195	6.37	0.0	0.0	0.0	0.0	0.0	0.0	0.0							U			0	
195	4.78	0.0	0.0	0.0	0.0	0.0	0.0	616.1	C	30		10			D	Pb	M	1840	
195	4.78	1499.1	0.0	0.0	0.0	0.0	0.0	0.0	C	30	10				C	Sw	M	1840	
196	37.74	407.5	0.0	0.0	0.0	0.0	0.0	6550.8	6550.8	C	20	2	4	4		MW	Aw	M	1920
196	339.62	0.0	0.0	0.0	0.0	0.0	0.0	71998.4	C	22		10			D	Aw	G	1840	
197	19.80	3979.5	0.0	0.0	0.0	0.0	0.0	1845.2	C	24	6	4			MW	Sw	M	1920	
198	36.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	6	10				C	Sb	U	1940	
198	144.16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	3	10				C	Sb	U	1960	
199	4.97	0.0	0.0	114.3	0.0	0.0	0.0	0.0	A	12	10				C	Pj	F	1940	
199	4.97	0.0	79.5	0.0	0.0	0.0	0.0	0.0	B	8	10				C	Sb	F	1940	
200	21.80	0.0	392.4	0.0	43.6	0.0	0.0	0.0	B	9	9		1		C	Sb	M	1940	
200	32.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	4	10				C	Sb	U	1940	
201	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	10	6	4			C	Sw	F	1940	
201	4.16	120.6	96.5	0.0	0.0	10.0	0.0	0.0	C	14	5	4	1		MW	Sw	M	1940	
202	18.48	0.0	0.0	0.0	0.0	0.0	3059.8	765.0	B	14		8	2		D	Aw	F	1940	
203	3.84	0.0	0.0	0.0	0.0	0.0	0.0	0.0							U			1940	
203	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0							W			0	
204	2.52	0.0	0.0	373.3	0.0	0.0	0.0	0.0	B	16	5	5			MW	Pj	M	1940	
205	15.63	609.4	243.8	0.0	0.0	65.6	0.0	0.0	C	16	5	2	3		MW	Sw	G	1840	
206	22.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	B	14	3		7		C	Lt	U	0	
207	2.91	0.0	0.0	0.0	0.0	0.0	0.0	0.0							U			0	
208	71.39	0.0	0.0	0.0	0.0	0.0	0.0	0.0							U			0	
209	2.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0							U			0	
210	5.15	0.0	0.0	0.0	0.0	0.0	0.0	0.0							W			0	
211	21.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0							W			1940	
212	0.65	0.0	9.4	0.0	1.0	0.0	0.0	0.0	B	8	9		1		C	Sb	F	1940	
212	0.65	2.9	0.0	0.0	0.0	12.4	0.0	0.0	C	14	5	5			MW	Aw	F	1940	
213	34.28	994.1	397.6	0.0	0.0	246.8	0.0	0.0	B	16	5	2	3		MW	Sw	M	1940	
214	17.20	0.0	192.7	0.0	24.1	0.0	10.3	0.0	B	10	8	1	1		MW	Sb	M	1940	
215	4.41	0	0	0	0	0	0	0							U			0	
216	5.95	1793.66	0	0	0	0	138.6145	0	B	22	9	1			MW	Sw	M	1920	
216	8.92	0	0	0	0	0	2105.988	0	C	20		10			MW	Aw	F	1920	
217	10.83	0	0	0	0	0	0	0	C	6	9	1			MW	Sb	U	1920	
218	24.79	0	0	0	0	0	0	0	C	8	10				C	Sb	U	1920	
218	6.20	0	301.1596	0	0	0	11.15406	0	B	14	9	1			MW	Sb	G	1880	
219	6.57	1980.493	0	0	0	0	153.053	0	B	20	9	1			MW	Sw	M	1920	

219	4.38	0	0	0	0	0	564.9168	0	0	C	20		10		D	Aw	M	1920
220	0.00	0	0	0	0	0	0	0	B	9	10			C	Sw	F	1950	
220	98.31	5249.647	0	0	0	0	4443.522	0	0	C	24	6	4		MW	Sw	F	1840
221	68.81	0	0	0	0	0	0	0	0					U			0	
222	40.61	0	0	0	0	0	0	0	B	6	10			C	Sb	U	1920	
222	40.61	0	0	0	0	0	0	0	C	3	10			C	Sb	U	1960	
223	9.95	0	0	0	0	0	0	0	B	12	10			C	Sb	U	1900	
224	2.69	0	30.90694	0	0	0	0	0	B	14	10			C	Sb	G	1880	
224	2.69	0	0	0	0	0	0	0	B	6	10			C	Sb	U	1920	
224	1.34	0	0	0	0	0	0	0					U			0		
225	4.15	0	47.73052	0	0	0	0	0	B	14	10			C	Sb	G	1880	
225	6.23	0	0	0	0	0	0	0	B	6	10			C	Sb	U	1920	
226	7.53	0	150.6096	0	0	0	0	0	A	12	10			C	Sb	M	1880	
226	5.02	0	0	0	0	0	0	0	B	6	10			C	Sb	U	1920	
227	1.76	0	0	0	0	0	0	0	B	6	10			C	Sb	U	1920	
227	1.76	0	137.0366	0	0	0	0	0	B	14	10			C	Sb	M	1880	
227	0.88	0	0	0	0	0	0	0					U			0		
228	5.82	0	0	0	0	0	0	0					W			0		
228	5.82	0	0	0	0	0	0	0					U			0		
229	5.91	0	0	0	0	0	0	0	C	6	10			C	Sb	U	1920	
230	20.57	26.74334	26.74334	0	0	0	625.3827	0	0	D	16	1	1	8	MW	Aw	M	1940
231	2.63	0	0	0	0	0	0	0	C	6	10			C	Sb	U	1920	
232	105.74	0	2114.84	0	0	0	0	0	A	8	10			C	Sb	M	1940	
232	246.73	0	0	0	0	0	0	0					U			0		
233	1.16	0	0	0	0	0	0	0					U			0		
233	2.33	0	26.7835	0	0	0	0	0	B	14	10			C	Sb	G	1880	
233	2.33	0	0	0	0	0	0	0	B	6	10			C	Sb	U	1920	
234	10.80	0	0	0	0	0	0	0	B	6	10			C	Sb	U	1920	
234	21.60	0	248.4225	0	0	0	0	0	B	14	10			C	Sb	G	1880	
234	21.60	0	0	0	0	0	0	0					U			0		
235	29.80	0	0	0	0	0	0	0	B	8	10			C	Sb	U	1840	
235	29.80	0	369.5646	0	1478.259	0	0	0	A	18	2		8	C	Ti	F	1840	



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