



Date: January 23, 2003

**TO: Board Members - Parks and Recreation**  
**FROM: General Manager - Parks and Recreation**  
**SUBJECT: Children's Playgrounds and Exposure to Arsenic**

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## **INFORMATION**

**THAT the Board receive this report for information.**

## **POLICY**

Although there is no specific Board policy applicable to the use of pressure-treated wood in children's playgrounds, a basic principle entrenched in the planning, use and maintenance of Park Board facilities is ensuring the safety of all users and Park Board employees. Moreover, the equipment and structures in Park Board playgrounds meet Canadian Standards Association (CSA) standards at the time of installation.

## **BACKGROUND**

On January 15, 2003, a report entitled "Arsenic Lurks in Canadian Playgrounds: Is Your Child Safe?" was released by Environmental Defence Canada, a not-for-profit organization based in Toronto. The report, which can be found at <http://www.edcanada.org>, states: "In some Canadian playgrounds, children are at risk from an unlikely source: the very equipment they play on. Playground structures made from a type of pressure-treated wood are leaching high levels of arsenic. More than half of the playgrounds tested had arsenic levels above the federal safety guideline for soil." The story was picked up by Vancouver's two English daily newspapers.

Later that day, the Vancouver Coastal Health Authority issued a news release that stated "the public should not be overly alarmed about what this may mean in terms of exposure and potential health effects for their children" (see Appendix A).

This report provides background information so that the Board and the public have as good an understanding as possible of the issue at hand.

## DISCUSSION

The pressure-treated wood that is commonly found in existing children's playgrounds contains Chromated Copper Arsenate (CCA). This chemical is used as a preservative to provide a longer lasting wood product. Pressure-treated wood is also widely used in the construction of fences and decks attached to residential dwellings.

Research has shown that the pressure-treated wood gradually leaches arsenic as the wood ages. The arsenic can be found on the surface of the wood or in the ground near the playground equipment. The potential risk is that children using the playground may ingest arsenic in levels that may cause longer-term health problems. The methods of ingestion can be: a) children touching their mouths with their hands after touching the pressure-treated wood; or b) children inadvertently eating small amounts of soil or sand near the equipment as they play.

Although ingestion of arsenic can cause adverse health effects, it is impossible to provide an arsenic-free environment because arsenic is a chemical that naturally occurs in soil. This is one of the reasons why the Canadian Council of Ministers of the Environment, which publishes the "Canadian Environmental Quality Guidelines", has the following guideline for arsenic in soil: 12 parts per million. The Vancouver-Richmond Health Board's Environmental Health Branch notes that B.C. guideline is 100 parts per million.

### **The Report by Environmental Defence Canada**

Research conducted by Environmental Defence Canada involved the following: collecting and analyzing samples from 58 playgrounds in 7 Canadian cities. Three samples were taken in Vancouver: Moberly Park, Ross Park<sup>1</sup> and Sunset Park. The sampling was done in the fall of 2002.

"In each playground, approximately 500 grams of base material (sand/soil) were collected adjacent to a wooden pillar supporting the play structure (i.e. within half a metre of where the pillar entered the sand), at a depth of seven to 10 centimetres. (...) Because one sample was collected from each playground, the study did not measure variation in arsenic levels within the playground."

The results were as follows: 35 of the 58 playground soil samples (60%) had arsenic levels above the guideline of 12 parts per million (ppm). The three samples from Vancouver yielded the following results: the Moberly Park and Sunset Park playgrounds were above the guideline (51.3 ppm and 20.6 ppm respectively), and the Ross Park playground was below the guideline (6.4 ppm).

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<sup>1</sup> There is an error in the report: Environmental Defence Canada referred to a site as "Queen Mary", which is an elementary school at W. 6<sup>th</sup> Avenue and Trimble Street, even though the location was listed as E. 59<sup>th</sup> Avenue and Ross Street. A telephone conversation confirmed that the site was indeed Ross Park, which is located at E. 59<sup>th</sup> Avenue and Ross Street.

Environmental Defence Canada made a number of recommendations including: a) seal all of the pressure-treated wood found in all playgrounds; b) remove and replace the sand from all playgrounds containing pressure-treated wood; c) develop a plan to replace all existing playgrounds containing pressure-treated wood; and d) develop a public awareness campaign.

**The situation in Vancouver**

Although the Park Board is the main provider of children’s playgrounds in the City of Vancouver, it is not the only agency involved. The School Board and childcare centres are also important providers of children’s playgrounds.

There are currently 123 parks with children’s playgrounds. In these parks, there are 147 playgrounds, since some parks have more than one playground. In these playgrounds, there are 461 pieces of equipment (i.e. play structures, swings, trolley rides), leading to an average of 3 pieces of equipment per playground.

Staff have created three categories for analyzing the situation:

<b>Equipment made with no pressure-treated wood</b>	<b>Equipment made with some pressure-treated wood</b>	<b>Equipment made mostly with pressure-treated wood</b>
		
<p>Total number: 221</p>	<p>Total number: 144</p>	<p>Total number: 96</p>
<p>% of total: 48%</p>	<p>% of total: 31%</p>	<p>% of total: 21%</p>

Therefore, about half of the play equipment found in Park Board playgrounds has no pressure-treated wood, and about half has some or significant amounts of pressure-treated wood.

The type of play equipment is a major determinant in the percentage of equipment with pressure-treated wood: while about 90% of the swings in the playgrounds do not have pressure-treated wood, only 12% of the play structures do not have pressure-treated wood.

The age of the equipment is also a major determinant in the percentage of equipment with

pressure-treated wood: while 48% of the equipment installed more than 15 years ago was mostly built with pressure-treated wood, only 5% of the equipment installed in the last 15 years was mostly built with pressure-treated wood.

Even though half of the play equipment has no pressure-treated wood, 124 out of the 147 playgrounds (i.e. 84%) have at least one piece of equipment with pressure-treated wood, since the average playground has three pieces of play equipment. These sites are listed in Appendix B.

It should be noted that not all equipment with pressure-treated wood has been treated with CCA. Staff are not able at this time to precisely determine what proportion of the pressure-treated wood has been treated with CCA, although staff expect that the vast majority of the pressure-treated has CCA.

Since 1990, the Park Board has shifted away from using pressure-treated wood in children’s playgrounds. Since that date, newly-installed play equipment and older play equipment being replaced are mostly constructed with metal and plastic structures, although there are a number of new playgrounds where some pressure-treated wood was used. When a playground is scheduled to be replaced, staff organize a public meeting with parents living nearby to discuss the type of play equipment wanted and available.

The 2000-2002 and 2003-2005 Capital Plans both allocated \$400,000 toward the replacement of children’s playgrounds. The table below shows the playgrounds replaced in the last 3 years and planned to be replaced in the upcoming 3 years:

	<b>Completed in 2000-2002</b>	<b>Scheduled for 2003-2005</b>
<b>Playgrounds replaced</b>	Balaclava Park Burrard View Park Earles Park Falaise Park General Brock Park Glen Park Grays Park John Hendry Park Mount Pleasant Park New Brighton Park	Beaconsfield Park Cariboo Park Cedar Cottage Park Charleson Park China Creek South Park (possible) Delamont Park Heather Park Kensington Park Kerrisdale Centennial Park Killarney Park Kingscrest Park (possible) Pandora Park Portside Park Slocan Park Teaswamp Park Trafalgar Park

Given that a typical playground (consisting of usually three pieces of equipment) costs about \$30,000, this means that 12 to 15 playgrounds (i.e. 35 to 45 pieces of equipment) are replaced in a 3 year period. At this rate, replacing the 240 pieces of play equipment that have some or significant amounts of pressure-treated wood would take about 20 years.

Replacing equipment in existing playgrounds is not the only Park Board action affecting the amount and type of equipment found in playgrounds. There are a handful of new playgrounds added each year, most often when a new park is acquired, although there are a number of examples when playgrounds are added to existing parks. The table below shows the playgrounds added in the last 3 years and expected to be added in the upcoming 3 years:

	<b>Completed in 2000-2002</b>	<b>Scheduled for 2003-2005</b>
<b>Playgrounds added</b>	Arbutus Lands Park (11 <sup>th</sup> & Yew) Coal Harbour Comm. Centre Park Creekside Park (Science World) Gaston Park Granville Bridge Loop Park Riley Park	Collingwood Village Park David Lam Park (extension) George Wainborn Park Osler-Selkirk Park in Marpole Queen Elizabeth Park Strathcona Park

**Next steps**

In 2002, the Vancouver Coastal Health Authority initiated a detailed study of pressure-treated wood in children’s playgrounds within its jurisdiction. The Health Authority has been meeting with staff from Park Board, School Board and providers of childcare to plan a survey of CCA-treated playground equipment. “A scientifically defensible sampling and analysis program will begin in March and the results will be analyzed to determine whether exposures to arsenic exceed internationally-recognized levels and whether they pose an unacceptable risk.” Results of the study will be released to the public by the Medical Health Officer, as well as remediation measures, if needed.

In addition to the Health Authority report, staff will provide the Board with another information report, which will answer the following questions:

- what sealants can be used to stop or reduce the leaching of arsenic from pressure-treated wood?
- how much would it cost to seal the pressure-treated wood in Park Board playgrounds?
- how often would the sealant have to be reapplied?
- how much would it cost to remove the sand, soil or rubberized-material in playgrounds that have pressure-treated wood?
- how much additional money would have to be allocated to the children’s playground fund in the Capital Plan in order to accelerate the complete removal of pressure-treated wood?
- should a moratorium on the use of CCA pressure-treated wood in playgrounds be imposed?

Staff believe that an action plan should be developed in the context of the completed Health Authority study.

## **SUMMARY**

The Park Board has been aware of the possible harmful effect of pressure-treated wood on human health since 1990, and as a result, has significantly reduced the use of such wood in children's playgrounds: about half of the play equipment found in existing playgrounds has no pressure-treated wood. However, 124 out of the 147 playgrounds (i.e. 84%) have at least one piece of equipment with some pressure-treated wood.

The recent study by Environmental Defence Canada highlights the issue of pressure-treated wood. Additional technical information will be presented to the Board in an upcoming report, and a study by the Vancouver Coastal Health Authority will examine the issue in much greater detail for playgrounds in the Vancouver area. If needed, an action plan, including remediation measures, will be presented to the Board when the study is published.

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## APPENDIX B

### LIST OF PLAYGROUNDS IN VANCOUVER PARKS THAT HAVE AT LEAST ONE PIECE OF EQUIPMENT WITH PRESSURE-TREATED WOOD

Adanac Park	Falaise Park - central
Alice Townley Park	Foster Park
Almond Park	Fraser St. & 7 <sup>th</sup> Ave. park
Andy Livingstone Park - west of Carrall	Fraserview Park
Andy Livingstone Park - east of Carrall	Garden Park
Arbutus Lands Park - central	Gaston Park
Ash Park	General Brock Park
Balaclava Park - east	George Park
Balaclava Park - west	Glen Park
Barclay Heritage Square	Gordon Park
Beaconsfield Park	Grandview Park
Bobolink Park	Granville Park
Brewers Park	Granville Bridge Loop Park
Burrard View Park	Grimmett Park
Callister Park	Guelph Park
Cariboo Park	Hastings Community Centre
Carleton Park	Hastings Mills Park
Carolina Street playground	Hillcrest Park
Cartier Park	Humm Park
Cedar Cottage Park	John Hendry Park - east
Chaldecott Park	John Hendry Park - west
Champlain Community Centre	Jones Park
Champlain Heights Walkway - north	Kaslo Park
Champlain Heights Walkway - central	Kensington Park
Champlain Heights Walkway - south	Kerrisdale Centennial Park
Charleson Park	Killarney Park - east
China Creek North Park	Kingcrest Park
China Creek South Park	Kitsilano Park
Clark Park - east	Langara Golf Course - southeast
Clark Park - west	Locarno Park - Aberthau
Clinton Park	Locarno Park - Belmont
Collingwood Park	Maclean Park
Columbia Park	MacDonald Park
Connaught Park	Major Matthews Park
Creekside Park - north end	Maple Grove Park
Creekside Park - near Science World	Marpole Park
Delamont Park	McBride Park
Douglas Park	McSpadden Park

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Memorial South Park	Rupert Park
Memorial West Park	Salisbury Park
Moberly Park	Slocan Park
Mount Pleasant Park	Stanley Park - near Children's Farmyard
Nanaimo Park	Stanley Park - near Rose Garden
New Brighton Park	Strathcona Linear Park
Norquay Park	Sunnyside Park
Oak Park - east	Sunrise Park
Oppenheimer Park	Sunset Park
Oxford Park	Tatlow Park
Pandora Park	Teaswamp Park
Penticton Street playground	Tecumseh Park
Portside Park - east	Templeton Park
Portside Park - west	Thunderbird Park
Price Park	Tisdall Park
Prince Edward Park	Trafalgar Park
Quilchena Park	Victoria Park - northeast
Renfrew Community Park	Victoria Park - south
Riley Park Community Centre	W.C. Shelley Park
Riverfront Park - west	West Point Grey Park
Riverview Park	Westmount Park
Robson Park - north	William Mackie Park
Robson Park - south	Winona Park
Ross Park	Woodland Park