A Hot Commodity: Uranium and Containment in the Nuclear State

by

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Department of Geography
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Abstract

Since taking centre stage in the development of the atomic bomb, uranium has been enveloped in practices and discourses of secrecy and (in)security that are material and psychosocial. The physical properties of uranium, notably its radioactivity – invisible and imperceptible to ordinary senses – have been used to justify regimes of secrecy and security. Yet these properties also contribute to a political, material, and corporeal insecurity. Of note, the secrecy and security surrounding uranium, and the accompanying insecurity, did not end with the Cold War. These trappings of uranium have remained evident in the political economy of uranium refining in Canada, yet their repercussions have predominantly manifested at the local scale in the small communities, such as Port Hope, that host Canada’s nuclear facilities. In A Hot Commodity: Uranium and Containment in the Nuclear State, I analyze how the state-owned and operated Eldorado uranium refinery protected its own interests in the midst of the discovery that the refinery had contaminated the small town of Port Hope with radioactive waste. I assess how Eldorado strategically drew on its powers and privileges as a federal crown corporation to secure its own political and economic position while foreclosing dissent. In the midst of contestation over the waste, Eldorado undertook strategic measures to ensure its own legitimacy as the cornerstone of Canada’s national uranium industry so that the refinery could expand and intensify its operations in Port Hope despite being implicated in contaminating the town. As the
uranium refinery was owned and operated as a federal crown corporation between 1944 and 1988, this lens enables a historically grounded analysis of the relationship between the state and civil society, and how uneven power relations are maintained over long periods of time. My analysis of Eldorado shows how the nuclear state is conspicuously local – it was largely built through this one uranium refinery – and in many ways, this process transformed this community into a nuclear landscape characterized by dispossession, insecurity, anxiety, uncertainty, and sacrifice.
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Introduction

A Hot Commodity: Uranium and Containment in the Nuclear State

In his analysis of power and enclosure, E.P. Thompson argues that “historians have paid too much attention to revolutions and too little to the creation of stability.” Inspired by E.P. Thompson’s approach, in *A Hot Commodity: Uranium and Containment in the Nuclear State*, I analyze the stability of state power in spite of crisis. Specifically, I analyze how the state-owned and operated Eldorado uranium refinery protected its own interests in the midst of the discovery that the refinery had contaminated the small town of Port Hope with radioactive waste. I assess how Eldorado strategically drew on its powers and privileges as a federal crown corporation to secure its own political and economic position while foreclosing dissent. In the midst of contestation over the waste, Eldorado undertook strategic measures to ensure its own legitimacy as the cornerstone of Canada’s national uranium industry, so that the refinery could expand and intensify its operations in Port Hope despite being implicated in contaminating the town. This historically grounded research shows how uneven power relations between the state and civil society are maintained over long periods of time and may even intensify through crisis.

David Harvey argues that the state arises out of civil society and then places itself as separate from, and even above, civil society. In this dissertation, I provide a thick description of how the separation of the state from civil society is maintained and how this material and ideological separation provides the state with power it uses to secure its own interests. I take the approach that while “spectacular expressions of state power are everywhere,” in order to understand state power, or state “effects,” geographers must attend to the “mundane but frequently hidden, everyday world” of state practices, processes, and institutions. The state as a social relation and

See Appendix 1 for a list of Acronyms.

2 I use the term legitimacy to denote validity and discuss the theoretical basis of these terms in the next chapter.
4 Joe Painter, “Prosaic Geographies of Stateness,” *Political Geography* 25 (2006): 752, 770. Painter adds that an approach to studying the state through the everyday “disrupts the binary logic of state/non-state formulations,” which reify a separation between “the state” and “civil society.” Also see Alison Mountz, “Human Smuggling, the Transnational Imaginary, and the
state power as relational informs my analysis of how a uranium refinery, owned and operated as a federal crown corporation – a pivotal link in the nuclear state – intensified in the midst of crisis.

My analysis of the Eldorado uranium refinery through historic-geographic specificity demonstrates how power is exerted from multiple sites within the state and from among the social body. The refinery was an arm of the nuclear state in corporate form, a key component in a techno-political regime that built Canada into a leading supplier of uranium fuels for national and international markets. The term ‘nuclear state’ encapsulates the techno-political structure of the nuclear industry while acknowledging that certain states have fostered the industry as a nation-building project. I show how the nuclear state is conspicuously local – it was largely built through this one uranium refinery – and in many ways, this process transformed this community into a nuclear landscape characterized by dispossession, insecurity, anxiety, uncertainty, and sacrifice.

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Everyday Geographies of the Nation-State,” Antipode 35, no 3 (2003): 622-644. I further discuss the separation between ‘the state’ and ‘civil society’ and my approach to studying this boundary in the chapter, Literature Review and Theoretical Concepts.

5 David Kauzlarich and Ronald C. Kramer, Crimes of the American Nuclear State: At Home and Abroad (Boston: Northeastern University Press, 1998). They employ the term ‘American nuclear state’ to describe how nuclear weapons and national security were strategically used by the United States government as a nation-building project. Also see Gabrielle Hecht, The Radiance of France: Nuclear Power and National Identity After World War II (MIT Press: Cambridge, 1998). Hecht defines nuclear techno-political regimes as “linked sets of people, engineers and industrial practices, technological artifacts, political programs and institutional ideologies which act together to govern technological development and pursue techno-politics.” My analysis focuses on key elements of the nuclear techno-political regime in Canada: the Eldorado uranium refinery, the federal nuclear regulatory (AECB), and the provincial authorities with responsibilities for the Port Hope refinery.

6 These are conditions intrinsic to nuclear landscapes and I expand on the social relations that reproduce them in the next chapter, “Literature Review and Theoretical Concepts.” I use the term community to describe the geographic space and social body of the town of Port Hope, but not to denote homogeneity or cohesion, characteristics Mah describes as erroneously attributed to community. Rather, community is a dynamic and contested space. See Alice Mah, “Devastation But Also Home: Place Attachment in Areas of Industrial Decline,” Home Cultures 6, no. 3 (2009): 287-310.
The extensive radioactive contamination of Port Hope could have become a “crisis of authority” for the nuclear state. Instead, the refinery, as an integral component of the nuclear state, expanded and intensified. I analyze how the uranium refinery secured its legitimacy as a key arm of the nuclear state in spite of crisis. I use the dual concepts of enclosure and containment to investigate this outcome. The concepts of enclosure and containment offer a rich spatial lens through which to assess how power is secured over long periods of time through incremental processes within the state and among civil society. Enclosures are processes of dispossessions that not only separate people from territory, but also disrupt former social relations. Containment signifies an enclosing within and the holding back of something unwanted in order to bring particular outcomes into being, and foreclosing others. As I demonstrate in this dissertation, enclosures are a cumulative means of securing territory and resources. Enclosures are a social spatial ordering and a means of containment. I argue that enclosure and containment are related processes that work together to condense and consolidate power, and that they were integral to the ability of the uranium refinery and the nuclear state to expand in the midst of contestation.

Uranium: A Hot Commodity

In 1914, H.G. Wells penned a novel called The World Set Free, in which he pinpointed uranium as spurring the “material destiny” of human progress. Radioactivity signaled “the dawn of a new day in human living” in which “man would step from the pinnacle of this civilization to the beginning of the next…I saw the power of man reaching out among the stars.” Essentially,
Wells foreshadowed the atomic age in predicting that uranium would be central in the development of technologies of power that would mark an historical juncture. Since the dawning of the atomic age, uranium has been shrouded in an aura of mystique, as evident in the ongoing cultural fascination with all things atomic. Yet, on the ground, the “material destiny” of uranium has been much contested. Testing and deployment of atomic and nuclear bombs, development of mines, refining, and radioactive waste, have all had significant adverse ecological and social consequences. A contradiction and tension has developed around the professed promise and the actual uses of uranium.

Uranium ore is a radioactive substance that is mined and refined into key ingredients for nuclear weapons and nuclear energy. But commodities are not simply objects produced for sale on the market. Rather, all commodities are processes, and the process of transforming uranium into commodity form is highly political. The end of World War II and geopolitical tensions throughout the Cold War era are emblematic of the significance of uranium as a strategic and

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11 Karl Polanyi distinguishes between fictitious and real commodities. Real commodities mean that anything bought and sold must have been produced for sale on the market, but I emphasize that commodities cannot be separated from the contexts under which they are produced, sold, utilized and discarded – in this sense, commodities have a life cycle that does not end with the process of exchange. I think this is consistent with Polanyi’s overall definition. Karl Polanyi, *The Great Transformation: The Political and Economic Origins of our Times* (Boston: Beacon Press, 1944), 75, xxv. Drawing on Karl Marx, I also consider uranium as a fetishized commodity stemming from its relationship to atomic bombs and the Cold War, yet I do not undertake that analysis in this dissertation.
lucrative commodity.\textsuperscript{12} As uranium is used towards geopolitical technologies and ends, the state is tightly coupled with the production, distribution, use, storage, and disposal of uranium and its byproducts worldwide. Indeed, the production and use of uranium cannot be separated from the state, even though the relationship between the state and the uranium industry in Canada has shifted under processes of neoliberalism such as privatization.\textsuperscript{13} These trends are evident in Port Hope, where the uranium refinery has been a cornerstone since the late 1930s.

Since taking centre stage in the development of the atomic bomb, uranium has been enveloped in practices and discourses of secrecy and (in)security that are material and psychosocial. The physical properties of uranium, notably its radioactivity – invisible and imperceptible to ordinary senses – have been used to justify regimes of secrecy and security. Yet these properties also contribute to a political, material, and corporeal insecurity. Of note, the secrecy and security surrounding uranium, and the accompanying insecurity, did not end with the Cold War. These trappings of uranium have remained evident in the political economy of uranium refining in Canada, yet their repercussions have predominantly manifested at the local scale in the small communities, such as Port Hope, that host Canada’s nuclear facilities.\textsuperscript{14}

While Port Hope is the oldest nuclear town in Canada, there is a peculiar banality about the uranium refinery, its radioactive wastes, and the widespread contamination of the town. This banality includes the physical presence of the uranium refinery that, despite its eclipse of the town’s waterfront, is a drab, grey, and sprawling expanse of rather dull looking buildings. Even

\begin{footnotesize}
\textsuperscript{12} See for example, Matthew Farish, \textit{The Contours of America’s Cold War} (Minneapolis: University of Minnesota Press, 2010); Scott Kirsch, \textit{Proving Grounds: Project Plowshare and the Unrealized Dream of Nuclear Earthmoving} (New Jersey: Rutgers University Press, 2005); Masco, \textit{The Nuclear Borderlands}.

\textsuperscript{13} In commenting on how neoliberalism is a relatively recent reconfiguration of capitalism, Nik Heynen and Paul Robbins distinguish between neoliberalization as a process and neoliberalism as an object in order to stress the political process-oriented nature of neoliberal capitalism. Where neoliberalism is referenced in this dissertation it refers to a dynamic process that is recognized as a political and economic project of late capitalism. Nik Heynen and Paul Robbins, “The Neoliberalization of Nature: Governance, Privatization, Enclosure and Valuation,” \textit{Capitalism, Nature, Socialism} 16, no. 1 (2005): 5-8.

\textsuperscript{14} Blow and van Wyck describe the social and ecological impacts of Canada’s uranium industry, including Eldorado’s impact on the First Nations community of Deline, Northwest Territories. See Blow, \textit{Village of Widows}; van Wyck, \textit{The Highway of the Atom}.
\end{footnotesize}
the centrality of the refinery in local politics, despite all the decades of contestation – seems somehow just part of the social fabric. The refinery and radioactive waste appear as both the biggest issue and the biggest non-issue in town. On the one hand, a vocal minority of community members hotly contests the refinery and its waste, yet on the other, much heavier hand, the refinery continues to have widespread support from many community members, government and industry that posit the radioactive waste as benign and detractors as damaging to the viability of the town.15

There are popular expectations that all things nuclear lean towards the spectacular. With obvious roots in the phantasmagoria of the atomic bomb, the secrecy and spectacle of the atomic age has riddled popular culture ever since.16 Yet, on the face of it, uranium refineries are unspectacular spaces. Refining uranium into commodities and disposing of radioactive waste occur through everyday practices and ordinary people. The contaminated spaces that radioactivity inhabits are also everyday and ordinary: the harbour, beaches, parks, homes, and bodies. However, I argue in this dissertation that these non-spectacular spaces are necessarily banal: their mundane and

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15 Government health studies have concluded that the radioactive and other wastes (notably arsenic) in Port Hope are not a public health hazard: “no adverse health effects have occurred or are likely to occur in Port Hope, as a result of the operations of the nuclear industry in the community.” See the synthesis report Canadian Nuclear Safety Commission, Understanding Health Studies and Risk Assessments Conducted in the Port Hope Community from the 1950s to the Present (Ottawa: CNSC, 2009), 1. There are competing claims regarding the efficacy of the various health studies and whether or not the radioactive waste is a health hazard. Local citizens group Families Against Radiation Exposure (FARE) and the Port Hope Community Health Concerns Committee (PHCHCC) have advocated for independent, peer-reviewed studies. An analysis of these claims is beyond the scope of this dissertation. For an analysis of community issues pertaining to health, see Penny Sanger, Blind Faith: The Nuclear Industry in One Small Town (McGraw-Hill Ryerson, 1981).

16 See Farish, The Contours of America’s Cold War, for analysis on how secrecy and spectacle were embedded within American cold war culture; Also see Kirsch, Proving Grounds; Masco, The Nuclear Borderlands. Masco also describes a nuclear phantasmagoria, 13. I draw on Scott Kirsch’s analysis of spectacle and nuclear landscapes in which he notes, after Lefebvre, that images of the everyday are invested with the ability to make “the hideous ‘fascinating.’” Kirsch argues that representations of nuclear apocalypse are inserted into everyday life – as ideological representations with material implications for retaining dominant power relations. Kirsch draws on Guy Debord’s analysis of spectacle as “a social relationship between people mediated by images” that “mask political and economic reality,” and he stresses that the ideological power of spectacle is pervasive; indeed, “resisting the spectacle landscape (or its more banal, poisoned counterpart) [is] hard work.” See Scott Kirsch, “Watching the Bombs Go Off,” 230, 240-42; Henri Lefebvre, Critique of Everyday Life (London and New York: Verso, 2008 [1991]), 34.
uneventful qualities are integral to their reproduction. I break down events over the refinery and its radioactive waste into key threads of inquiry, not to prove or disprove their claims, but to trouble the sustained insistence by the refinery, the state, and industry proponents that there never was, nor ever will be, anything to worry about.

**Case Study: Spatial and Temporal Framing**

In 1932-33, Eldorado Gold Mines Limited, a private mining company owned by brothers Gilbert and Charles Labine, built and began operating a refinery on the shore of Lake Ontario in Port Hope to process radium from their Port Radium mine on Great Slave Lake in the Northwest Territories. In 1943, the company's name was changed to Eldorado Mining and Refining Limited. Due to the strategic importance of radioactive ore at the end of World War II, the Government of Canada expropriated Eldorado Mining and Refining Limited in 1944 and converted the company to a federal crown corporation. Radium production ceased in 1953 because of diminishing demand and the refinery subsequently focused on uranium processing and specialty products thereafter. In 1968, the name Eldorado Mining and Refining Limited was changed to Eldorado. The refinery continued to be owned and operated by the federal government until the crown corporation was privatized in 1988 through a merger with the Saskatchewan Mining Development Corporation, a provincial crown corporation, and privatized under the name of Cameco (Canadian Mining and Energy Corporation), now one of the world’s largest uranium producers. Since the 1930s, the uranium refinery has been the dominant industry in Port Hope, and, despite a legacy of mismanaged radioactive waste, has garnered substantial local support.

In many ways the uranium refinery in Port Hope could be seen as just another factory in another small company town. Yet its pivotal role in the Manhattan Project and the development of the atomic bomb, and position as a primary global supplier of nuclear fuel place this particular factory within a distinct historical, geographical and geopolitical context, one that facilitated

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18 See Appendix 2 for a timeline of key events and Appendix 3 for a chart of the Eldorado’s nuclear fuel products.
Canada becoming a leading nuclear state. At the end of World War II and throughout the Cold War, the uranium refinery in Port Hope was the strategic cornerstone in supplying processed uranium to the United States for wartime and military purposes, as well as a key supplier to Britain, before further expanding its international markets. Through Eldorado, the monopoly that the federal state built over uranium resources, processing and markets enabled Canada to position itself as a leading nuclear state with substantial political and economic stakes in the uranium industry. Under the triad of state ownership, operation and regulation, the crown corporation status of the refinery was instrumental in this process.

The Eldorado uranium refinery was owned and operated as a federal crown corporation between 1944 and 1988. In this dissertation, I focus on particular events surrounding the uranium refinery between 1975 and 1988, a period that brackets a key moment in the history of the refinery on several accounts. Where I draw on previous years, it is primarily to contextualize the legal and political arena and to illustrate patterns in the relationship of the refinery with other state agencies and with civil society. Similarly, where I extend past 1988, the year Eldorado was converted into a publicly traded enterprise, it is to assess how the conditions produced during the tenure of the crown corporation laid the foundations for uneven power relations that persist into the present. Indeed, the political context of the refinery’s early years shaped many of the conditions under which the refinery continued to operate, post-privatization. The year 1975 marked a watershed for Eldorado and the town of Port Hope when it became publicly known that a local elementary school, St Mary’s, had elevated levels of radioactivity. Subsequent investigations revealed that the town was widely contaminated with radioactive waste, sparking a decades long investigation involving the refinery, the public, state agencies and departments of the state, and the media that, in large part, is still ongoing. The widespread contamination of Port Hope emerged in multiple ways. First, the contamination stems, in part, from the activities of the uranium facility that operated on the town’s waterfront beginning in the early 1930s. Since then, the facility disposed of radioactive substances and other pollutants into designated Residue Areas. Over time contaminants leached into soil, surface and ground water. Yet the refinery also disposed of radioactive materials into a variety of locales across town, including ravines, public parks, beaches, and onto private residential properties. A substantial amount of the widespread radioactive contamination is attributable to a seemingly indiscriminate dispersal of radioactive
materials over a period of decades. These practices with radioactive waste occurred while the facility was owned and operated as a private enterprise and as a federal crown corporation.

In the midst of the ongoing discovery of radioactive waste, which eventually included hundreds of contaminated homes, Eldorado was also implicated in a further series of public hazards in Port Hope, including a raffinate spill into the harbour, a serious refinery fire, and unusually elevated air pollution levels in town. However, none of these accidents or events, big or small, had significant repercussions for the refinery. Rather, through these successive events, Eldorado spatially expanded its operations and intensified its socio-economic and political position. What could have become a crisis of legitimacy for the uranium refinery was transposed and put to work for the nuclear state. Through a series of political maneuvers, the refinery expanded its property holdings within Port Hope by acquiring key community lands and increased its productive capacity by building a new uranium hexafluoride (UF6) plant right on the town waterfront. As part of the expansion, Eldorado also acquired the West Beach park, an historic public use area consisting of a beach park, pavilion and ball diamond, for conversion by the crown corporation into industrial lands for the refinery. This intensification and spatial expansion of the refinery during a time of public and political scrutiny raises questions of how Eldorado expanded in the face of controversy.

Currently, Port Hope is home to the two most expensive contaminated sites in Canada. The largest clean up of toxic substances in Canadian history is being planned for the Port Hope area, scheduled to begin in 2014. Despite a decades-long search for a disposal site elsewhere, no willing alternative host community was ever found, and the radioactive waste is now slated to be

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stored at an engineered site in Port Hope, in perpetuity. This has yet to occur but the parameters are in place, and while they are largely beyond the scope of this dissertation, I draw on them to show how the uneven power relations between the refinery, the state and the town contributed to this outcome. Indeed, in many ways, not much has changed since 1975 except, of course, the expansion of the refinery. At present, the uranium refinery remains in operation on the town’s waterfront, a similar, albeit smaller contestation remains, and most of the radioactive waste remains in situ, slated to be moved, but to stay in the community to be managed and contained for the foreseeable future.

To analyze how the uranium refinery expanded and intensified in the midst of controversy over radioactive waste, I break down particular events into tactics and strategies to show how the refinery secured its dominant position in spite of its legacy of radioactive waste. I do not set out to determine whether the differing allegations of local citizens, the uranium refinery, the state, and the media are true or false. Rather I draw on these contestations to investigate the implications of the uneven power relationship between, and among, the state and civil society. This project focuses on events that occurred within a small community, yet its results raise broader implications pertaining to the abuse of state power and the sacrifice of civil society for a supposed greater good of capital and geopolitical gain.

Chapter Outline

In this dissertation, I adopt a multi-scalar analysis to show how it was not the radioactive waste, but the social and political response to it that was predominantly contained. Through this analysis, I demonstrate the interconnections between the production of the nuclear state and the production of the local community as a nuclear landscape, while foregrounding the uneven power relations between the state and civil society. Following a description of my methodological approach in this research, I provide a literature review of key works in political economy and nuclear landscapes to establish the theoretical framework for my analysis. Each subsequent chapter offers a historic-geographic lens into key mechanisms through which the legitimacy of the uranium refinery was tested, and through which they contained the social and political response to the radioactive waste. In each chapter, I dissect events that may, given the bigger picture, be otherwise dismissed as trivial, to reveal how events that appear minor are not
so at all. Rather, seemingly minor events contribute to, and even elide, systemic uneven power relations. As the radioactive contamination occurred over a period of decades, including while the refinery was owned and operated as a Canadian crown corporation, the state features prominently in my analysis. Throughout each chapter I provide empirically grounded insight into the material implications of state power that is without political, juridical, or civil recourse. The chapters function as discrete windows through which to view the unfolding and uneven outcomes of specific events: together they weave a telling tale of state power through the dispossession and sacrifice of a small community.

In the first empirical chapter, Chapter One, “Port Hope: Home of the Nuclear State,” I situate the radioactive waste in Port Hope as one stemming from a pattern of poor refinery operations and government oversight, then provide a history of the refinery as a crown corporation in order to make clear how the stakes and scales between the local community and the nuclear state are intertwined. I trace the growth of the Eldorado uranium refinery as an integral component of the nuclear state while demonstrating how the relationship between the refinery and the small community of Port Hope was born in uneven power relations. The nuclear state relied on the small town of Port Hope to be willing host to a national uranium industry. Yet as the Eldorado crown corporation was the town’s largest employer, the community relied on the state not only for the perceived economic viability of the town, but also to solve the radioactive waste crisis in Port Hope, one that the refinery had also caused. In Chapter Two: “The Good Corporate Citizen,” I show that the radioactive waste in Port Hope became a political ‘hot potato’ for the nuclear state. In this chapter, I analyze the interaction among Eldorado, the federal nuclear regulator the Atomic Energy Control Board (AECB), and provincial authorities in the aftermath of the discovery that the refinery had contaminated Port Hope, in order to reveal the priorities of the nuclear state in the immediate wake of crisis. I show how the refinery drew on its privileges as a federal crown corporation to delimit political responsibility, foreclose fiscal and legal liability, and contain dissent. The actions and priorities of the nuclear state reveal mechanisms of containment through which state power is consolidated in times of crisis.

I then analyze the contamination of the home and its everyday spaces and objects to better understand how Port Hope was transformed into a nuclear landscape through a myriad of
pathways. In Chapter Three, “The Home as Nuclear Space: A Pandora’s Box,” I demonstrate that the contamination of the home is a form of dispossession and a further means through which the characteristics endemic to nuclear landscapes became infused throughout everyday life. I also assess the interaction between the nuclear state and community members to reveal how the response of the social body to the contamination of the home was contained, in part, by rendering radioactivity as everyday and ordinary. In Chapter Four, “Black Wednesday: Radiation, Stigma, and Property Values,” I continue my focus on everyday spaces to analyze another form of containment. I reveal that the tension between radiation, stigma, and property values helped the nuclear state contain the community’s response to the contamination of the home. Indeed, I show that these fears were used to quell public response and contain dissent over the discovery that hundreds of homes, and the everyday objects within them, were contaminated with radioactive substances.

The transformation of Port Hope into a nuclear landscape also occurred through processes of enclosure and the contamination of public space. In the early 1980s, Eldorado spatially expanded its federal property holdings within Port Hope and increased its production capacity by building a new uranium hexafluoride plant on the town waterfront. On the pretext of needing the lands for the new refinery, Eldorado and Port Hope negotiated behind closed doors for the conveyance of the West Beach public park to the uranium refinery, a transaction that transformed public space into state space. In Chapter Five, “On the Beach,” I analyze these events to show how the crown corporation’s acquisition of the West Beach public park for the nuclear state was a process of enclosure and a dispossession of civil society enacted through extra-economic means of containment. Through a detailed analysis of this property transaction, I also show how public dissent to the loss of the West Beach was contained and the community galvanized into sacrificing this park for the nuclear state, and thus the town itself.

Eldorado also contained dissent within the state. Events stemming from the refinery’s contamination of the Port Hope harbour offer a rich lens through which to illustrate how the containment of challenge from within the state further legitimated Eldorado as a key arm of the nuclear state. In Chapter Six: “Failsafe: Immunity and the Autonomous Space of the Crown Corporation,” I analyze two court cases against Eldorado to demonstrate how crown agency
status enabled the refinery to contain the fallout of adverse events and thus maintain a dominant political position at multiple scales. I first recount a raffinate spill at the Eldorado uranium refinery and ensuing provincial criminal charges through a detailed analysis of the court decision and submissions of the parties. I then examine Eldorado’s crown corporation status through the decision of a second court case that also challenged its crown immunity through federal criminal charges of conspiracy. Both cases provide historically grounded insight into how blanket immunity functioned to separate Eldorado from the politico-juridical sphere and provide it with privileges not afforded to other state apparatuses, or to civil society. In effect, crown corporation status constituted a failsafe that cushioned the corporation from the deleterious consequences of its actions and enabled Eldorado to operate in a space of impunity.

After having examined the preceding events in Port Hope in fine detail, in Chapter Seven, “Them: The Nuclear State in Corporate Form,” I return to the creation of Eldorado as a crown corporation in order to contextualize its actions within the political and legal context of crown corporations in Canada. As a crown corporation, Eldorado enjoyed certain powers and privileges in the legal, political and public domains, and this status was used advantageously by the uranium refinery to minimize fallout and reap benefits, while providing a screen that strategically distanced the corporation from the state, and the state from the corporation. ‘Them’ refers to how Eldorado was held as separate from, and even above, civil society, yet I also reveal how Eldorado held itself above the state. In the concluding chapter, Chapter Eight, “Into Eternity,” I reflect on the implications of these events for the relationship between the state and civil society, that the nuclear state was culpable for the contamination of a small community through its corporate arm, the Eldorado uranium refinery. To do so, I further delve into how crown corporation status enabled a slippage between the state and the corporation. Eldorado had many faces: the employer, the factory, the crown corporation, the federal government, the community benefactor, neighbour, and the ‘good corporate citizen.’ These roles were also means by which the refinery contained the social and political response to the radioactive waste and reveal how embedded the nuclear state had become within the community. As the name “Into Eternity” suggests, the radioactive contamination of Port Hope is ongoing and the uneven power relations between the state and civil society that contributed to this outcome persist. In this concluding
chapter, I discuss how the ideological and material separation of the state and civil society is an essential condition to the production of nuclear landscapes, such as Port Hope.

**Conclusion**

As I demonstrate in each chapter to follow, uneven power relations are intrinsic to the production of nuclear landscapes such as Port Hope, and this dissertation is a contribution to the body of literature in social science on nuclear landscapes that aims to render visible the social relations that produce these spaces of dispossession, insecurity, anxiety, uncertainty, and sacrifice. My work also adds to the body of scholarly work in political geography and political economy that seeks to understand the material implications of state power and the distinction between ‘the state’ and ‘civil society.’ In this dissertation, I provide a thick description of how the state is held as separate from, and above, civil society and analyze how this separation is productive to the consolidation of power. My analysis of stability in spite of crisis through historical specificity is also a contribution to the political geographies of micro-history by showing not just why, but how, power is secured over long periods of time. This dissertation also has significance to the geographies of enclosure, as I demonstrate how uneven power relations are articulated through mechanisms of enclosure and containment, and show how these processes produce insecurity among civil society, while securing power for state and capitalist interests.
Methods

At first sight of the uranium refinery I was taken aback by its looming presence. The refinery dominates the town’s waterfront, a massive collection of buildings surrounded by chain link fencing. The site is strewn with machinery and there are rows upon rows of barrels holding toxic substances. Security cameras, mounted loudspeakers, and guard stations monitor the perimeter, and the refinery is enclosed, surrounded by fencing and locked gates. To the east of the refinery sits a mountaneous pile of what I later discovered was radioactive waste, simply covered by a black tarp held down by tires. A smokestack releases emissions from the processing of uranium into the air. Over time, I observed that these emissions often drifted eastwards along the lake with the prevailing west wind, but during three of my earliest trips to Port Hope I saw the emissions hover, enshrouding the refinery in a grey haze until it was barely visible, slowly drift to near ground level and rise westwards up the hill towards the cluster of little houses that face the refinery.

When I first envisioned doing doctoral field research in Port Hope I anticipated renting a room or a flat for an extended stay, but it was not only the high rental prices that discouraged any long-term visit. Within half an hour of my first research, my eyes itched, my throat hurt and I had a nasal drip at the back of my nose. On subsequent visits, these physical reactions continued, each time appearing within an hour of arriving. Some days there was a distinctive acrid smell. Admittedly, I became uncomfortable. I started to doubt whether I wanted to continue with this project. How do I research the widespread radioactive waste in Port Hope without exposing myself to potentially hazardous substances? So I faced a dilemma. Were my reactions psychosomatic or real physical responses to something in the town? Even if my physical reactions were real, I would never know what I was reacting to. All the state-authorized expertise stress that the radioactive waste is nothing to worry about. But then I questioned: why is the state planning to spend 1.2 billion dollars to clean up something that is nothing to worry about? I would not be researching this topic if I did not doubt the state’s assertion that there never was, is not, nor ever will be any adverse health or environmental effects associated with the uranium industry in Port Hope. While I cannot prove or disprove this position, I was driven to investigate the stakes that underpinned these assertions.
I soon remembered that in many regards what I was experiencing was characteristic of nuclear landscapes. The anxiety, uncertainty, and physical, psychosomatic or psychosocial characteristics of nuclear spaces have been well noted by other scholars, notably Matthew Farish, Scott Kirsch, Joseph Masco, Trevor Paglen, and Adriana Petryna. These aspects of nuclear spaces are part of what my doctoral research is trying to understand, and they relate to my objectives of analyzing how the nuclear state is built through the local scale, and how the local is also shaped by the nuclear state. In the end, I decided I could not avoid being uncomfortable altogether but I could minimize my time spent in the community, just in case. Accordingly, I altered my methodological approach to conducting interviews, community archives and library research in multiple day trips to Port Hope with accommodation in nearby Peterborough and Toronto. Throughout my fieldwork I kept a field journal to think through how the empirical data may relate to particular theoretical lenses of analysis. In this sense I endeavored to move back and forth between the concrete and the abstract on a continual basis, a practice that became its own means of analytical record keeping. While only elements of this practice made it into this final analysis, I found this methodological approach useful.

There is an extensive archive on the uranium refinery in Port Hope spanning over 80 years. However, this archive does not exist in one cohesive collection; rather it must be disinterred by piecing together corporate and government collections and fragments from numerous archives, libraries, persons, media, and other sources. My methodology for research and data collection therefore followed a mixed methods approach consisting of key informant interviews; public and regulatory records; secondary sources; local, regional and national media; legal records; and extensive archival research into municipal, provincial and state records. This combination of methodological approaches enabled a multi-scalar, lateral analysis of data collection that hinges together to allow the rich narration of key events. Gathering data through multiple sources pieced together how various stakeholders viewed or responded to the issues in Port Hope, and shed insight into the stakes involved in these positions. For example, a mixed methods approach allowed comparison of data on the refinery across multiple archives, and with other sources, such as media, interviews, and secondary sources. This type of cross-referencing enabled insight into the tactics and strategies employed by the state. Similarly, archival research, legal records and media sources triangulated data on the power and privileges of the refinery as a crown
corporation. Further, the combination of media newspapers, public correspondence to state agencies, and interviews lent insight into how community members responded to the refinery, the state, and each other in this contestation. Overall, a mixed methods approach corroborated evidence and key threads of inquiry, enriched the complexity of the narrative and analysis, and provided context to the refinery’s history and continuing operation.

**Site Visits**

Researching municipal records, local archives, and interviews involved site visits to Port Hope. While my research focuses primarily on the time period from 1975 to 1988, I attended several public meetings to observe the ongoing debate among the public, industry and state regulators on the issue of radioactive waste and the proposed clean up. Of particular note, in November 2010, I went to a controversial public meeting organized by local citizens on the Port Hope radioactive waste that featured a talk by the renowned anti-nuclear activist Helen Caldicott. This meeting was my first in-person view into the heated divide among the community about radioactive waste and the continued operation of the uranium refinery. Witnessing this fierce debate and reading of its aftermath in the media spurred my interest in considering how the refinery has affected relationships within the community, not just relationships between the state and civil society. This has contributed to my understanding of how strategies and tactics of containment are also articulated within civil society, and how the nuclear state is not only built through the community of Port Hope, but also shapes the community itself.

In one public information meeting held by the Port Hope Area Initiative, a federal government program tasked with cleaning up radioactive waste, I observed how their staff explained the waste and proposed clean up and witnessed at close hand a heated and lengthy interaction between staff of the federal Low Level Radioactive Waste Management Office (LLRWMO) and a member of the public. I talked with state authorities during these public meetings and visits to the federal nuclear regulatory offices in Port Hope. Attending these meetings helped me think through the dissertation problematic as one stemming from long-standing patterns in power relations. However I did not view community meetings in Port Hope as a way to factually represent everyday life in a small uranium refinery town nor as an anthropological analysis of its people, but as my own entry point into an aesthetic experience of this everyday nuclear space.
and a lens into how the refinery and radioactive waste are represented by industry to the public. Community meetings also helped frame the parameters of the conflict.

During visits to Port Hope for interviews, library, regulatory and archival research, I used the Port Hope library as a work base, and spent considerable time at the public East Beach and fishing areas, observing these public spaces directly adjacent to the uranium refinery and in the shadow of one of several massive mounds of radioactive waste stored under tarps. During each visit I drove around the perimeter of the refinery and among all the streets within an ever-expanding distance and took photographs to get a perspective of the refinery from different vantage points and under different wind and weather conditions. These expeditions gave me a sense of the proximal relationships between state and industrial space, notably federally controlled nuclear lands; private spaces such as homes; and public spaces such as parks and beaches. This method of inquiry helped me to reflect on how the presence of the refinery exceeds the refinery site. For example, while the physical infrastructure of the refinery is largely contained in the centre of the town’s waterfront, visible markers of the refinery (mounds of radioactive waste, radiation monitors, fences, and warning signs) are scattered in numerous locales across town, markers of the invisible remnants of the refinery’s legacy, its radioactive waste that inhabits these same spaces. This method of reflection added to my analysis of the effects of the refinery on the local community.

Interviews

Between March 2012 and the fall of 2013, I conducted 16 semi-structured in-person interviews with key informants in the Port Hope area and in Ottawa. Each interview was approximately 2-3 hours in length, digitally recorded and later transcribed by myself. In developing interview questions, I drew from Robert Del Tredici’s photo-documentary book *At Work in the Fields of the Bomb* in which he interviewed an array of people involved or affected by the atomic industry in the United States including atomic physicists, workers, and their widows. Reflecting on Tredici’s candid documentary style of open-ended interviewing aided in constructing an

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Interview Guide and approach to asking in situ follow up questions on controversial and sensitive issues that pivot on the effects of the nuclear industry.

This style of interview facilitated open-ended discussions about the refinery and radioactive waste. The interviews focused on gaining an understanding of the perspective of residents on the contamination of the town and the roles and responsibilities of the refinery and the state in this problem. Interviews also reflected on how the refinery has affected the community over time. As the refinery continues to operate in Port Hope, most interviewees made links between past events and current issues. As I pieced together this history of Eldorado through a multitude of sources, I wondered why more had not been written on the contamination of Port Hope, events that I see as significant moments in Canadian history. One person that I interviewed offered a partial answer:

*I can tell you ...maybe you’ll hear this [from others] who certainly know a lot of the unwritten history about things too, I’ll tell you there have been a lot of people that have come to Port Hope and you know tried to do things, be it writing books or documentaries ...and I don’t know what happens, but a lot of times it doesn’t end up following through, I don’t know if it’s because just, other things happened and it got dropped, or whether they got scared off doing it.*

In addition to my experience that researching radioactive waste carries a level of physical and psychosocial anxiety, the ongoing conflict in Port Hope added tension to conducting research in the community. As the radioactive waste is still largely in place, several interviewees also noted how the waste is an ongoing problem that continues to negatively affect the community.

Interview recruitment focused on community members who have been involved with or have expressed knowledge of the uranium refinery in Port Hope. The first interview was based on a contact made during a public meeting organized by Families Against Radiation Exposure that I attended in November 2010. Several further interviews were recruited using a snowball approach. I also sought out specific individuals based on their positions in the local community, government, industry, or media. Interview participants were all current or former residents of Port Hope and the breadth of their positions with regards to the uranium refinery included members of the citizen groups Families Against Radiation Exposure, Port Hope Community

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22 Interview #5: Anonymous, Port Hope resident.
Health Concerns Committee, former workers of the local uranium industry, family of former refinery workers, local media, and local politicians.

Each interviewee received a Project Description sheet and filled out an Informed Consent Form that requested interviewees choose between anonymity and the option that their identity may be disclosed in the dissertation and related publications. While most people were comfortable, or requested that their identities be disclosed, a few people chose to remain anonymous, citing fear of local backlash. While I originally intended to disclose identities where permitted, in most instances I have withheld identities by using the broad category of “Port Hope resident” to prevent adverse consequences against these persons, in what I now perceive as a vicious public realm in Port Hope on the topic of anything remotely related to the refinery. I found all interviews to be valuable for gaining insight into the tensions and contestation in Port Hope. Appearing in the text in italics, these interviews lend insight into how residents reflect on and remember this contestation, almost forty years later. As such, they breathe life into this story that is otherwise told from state archives and written public records.

In her research on the nuclear industry in La Hague, France, Francoise Zonabend observed that her presence as an “ostensibly impartial, neutral observer, constituted a source of provocation, both politically and psychologically.” The topic is not seen as a neutral one. Zonabend noted that even asking questions “puts you straight in the anti [nuclear] bracket every time.” In asking questions in Port Hope, I was generally perceived as “anti-nuclear,” even though I never raised the issue of “pro” or “anti” nuclear positions. These reactions indicated caution among residents to talk about the uranium refinery. Most interviewees asked me questions about my research and very specific questions about myself. I was asked: how old are you? Where did you get your credentials? Who is paying for your research? Where will the results be published? Are you independent from the media, industry and government? It quickly became clear that many people consented to be interviewed, in part, because of my autonomy as an academic researcher, which distinguished me from the media, industry, and government affiliated researchers. These

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questions further indicate that tension has developed in public debate of the refinery and radioactive waste, yet also indicate a skepticism regarding outsider inquiry.

The interview guide became just that, a guide, as people freely told their stories about the uranium refinery with little prompting. Questions focused on the following main themes: role of interviewee in relation to the refinery; concern over environmental and health effects; role of the refinery and the state; effect of the refinery on Port Hope. Interviews were an engaging process that revealed how community members view the refinery and how they consider its effects on their own lives as well as on the town. With the exception of one couple who took me on what they termed the ‘toxic tour’ of Port Hope with a Geiger counter, all interviews were conducted in the home of the interviewee at their own request. The ‘toxic tour’ was pivotal for pinpointing the multiple hot spots of radioactivity and shedding insight into the depth of community concern.

Being in the homes of people who are worried about the contamination of their community, homes and bodies was an intimate experience that caused me to reflect on my own position as an academic researcher. I appreciate the generosity of everyone who participated in this project and make special note of four interviews with former workers and a spouse of a former worker, all who suffer from serious, chronic health problems. These interviews were particularly challenging, yet their warmth and openness were most rewarding on a personal level. Everyone openly shared personal stories of loss, fear, anger, anxiety, and stigma that were attributed to the refinery and radiation, and their experience of being socially ostracized for their views, and even their illnesses. These tensions repeatedly surfaced and also influenced me to take a deeper analysis not only of the relationship between the state and civil society, but across the fabric of civil society. Being in private and public spaces of potential radioactivity also situated myself in nuclear spaces; indeed several interviewees commented that their homes, backyards, or neighbourhoods where we were conducting interviews contained radioactivity.

The act of transcribing interviews became an important method of revisiting the personal narratives and analyzing how these are interwoven with the nuclear state and the multi-scalar political economy of uranium. Issues raised during the interviews led me to investigate new
angles of research, notably the centrality of property. The interviews also started to demonstrate a degree of repetition. While recurring responses may be partially attributable to who I chose to interview, the interview guide, and my own line of inquiry, when analyzed along with media representation and other sources, these patterns and themes appear as dominant issues of concern at the local scale over a period of decades, particularly with regards to property values and stigma. I analyzed interview data through an iterative process of grouping responses by subject matter and key themes, while looking for patterns and anomalies. My data interpretation reflected on the context of the participant with respect to the refinery. Interviews proved an invaluable source for piecing together what is an incredibly long and complicated story. Analyzing the data became a means of linking responses with information from other sources, including media, public records and state records to assess how the refinery has affected the community over time.

Media

During a meeting at Concordia University, Peter van Wyck, author of *The Highway of the Atom*, generously gave me an extensive collection of newspaper articles from 1972 to 2002, totaling over 1200 pages. These newspaper articles are mainly from the local newspapers *Northumberland News* and the *Port Hope Evening Guide*, the regional newspaper *The Toronto Star*, and the national newspaper *The Globe and Mail*. Articles focus primarily on the uranium industry in Port Hope, with additional stories about the nuclear industry more broadly. As I later discovered, these newspaper articles were sourced from and are available at the Port Hope Library in bound volumes compiled by the Port Hope Community Health Concerns Committee. I also conducted further research for news sources since 2002, including microfiche at the Port Hope public library, online newspapers, and social media websites such as ‘Port Hope Politics.’ These additional sources were a lens into the refinery’s history in Port Hope, the contestation over radioactive waste, and more recent controversy over radioactive waste and the refinery. I also consulted documentary film and newsreels. While I had not planned to analyze media sources of this breadth and intensity, the newspaper and media archive proved to be an immense public record of the debate and its coverage at the local, regional and national scales and figure prominently in several chapters. Media analysis was valuable for piecing together the timeline of events, the many stakes involved, and for seeing patterns and recurring themes over a long time.
span. I organized the newspaper articles chronologically and coded articles by major themes. Excerpts from media stories appear throughout this analysis to supplement other data sources.

**Textual Analysis of Legal Documents**

While I did not set out to analyze the legal and political-economic context of crown corporations in great detail, this aspect evolved into a significant focal point of my dissertation research. Textual analysis of legal documents was a means to investigate the degree of power and privilege of Eldorado as a crown corporation. I focused my analysis on court cases in which Eldorado was a defendant, as well as court challenges pertaining to radioactive contamination that involved the uranium refinery. The following court cases were analyzed: *Regina v. Eldorado* (1981) and *Her Majesty the Queen. v. Eldorado Nuclear Limited and Uranium Canada* (1983) as these cases pivoted on the powers and privileges of Eldorado as a crown corporation. As *Regina v. Eldorado Nuclear Limited* also involved the contamination of the Port Hope harbour, I contacted the County Court of Northumberland in Port Hope where the case was heard to locate the Memorandum of Fact and Law and the Affidavits in order to assess how the state represented itself during this proceeding. These documents were finally obtained though Archives Ontario and were instrumental in assessing the tactics and strategies employed by Eldorado during court proceedings. These latter two cases contribute substantive empirical evidence to my analysis of the powers and privileges of crown corporations.

The cases *SEAP v. Atomic Energy Control Board and Eldorado Nuclear Limited* (1977) and *E.H.P. v. Canada* (1980) and were reviewed to shed insight into citizens concerns of radioactive contamination. Two court cases, *Sevidal et al v. Chopra et al* (1987) and *Heighington v. Ontario* (1987), centered on the contamination of Scarborough with radioactive waste, also historically linked to Eldorado in the 1940s, and were reviewed to compare how the response of the state in Scarborough differed from Port Hope. In summary, legal research added substantial weight to my analysis of the immunity and indemnity of the refinery as a crown corporation and its jurisdictional conflicts with the provincial state and other agents of the federal state, as well as tensions with the public. The majority of court decisions were accessed from the reference books at the Bora Laskin Law Library, University of Toronto. Interpretation and analysis of court cases was supplemented by secondary sources on the cases and a review of the relevant Acts and
Regulations cited in each court decision. This research helped me to follow the logic of the legal argument. Many Acts and Regulations were accessed through the online search engines of the Canadian Legal Information Institute (CanLii) and the Department of Justice Canada. Older Acts and Regulations not available online were located at the Bora Laskin Law Library.

Analysis of Regulatory Records

Secondary source research involved analysis of reports and documents on the refinery held in municipal or regulatory offices, including the Municipality of Port Hope and federal regulators. However, the local government offices in Port Hope were only marginally helpful and somewhat obstructionist. In conducting records searches for Eldorado at the Port Hope Planning Department and Municipality of Port Hope, I found the response from staff, with the exception of frontline clerks, to be guarded, cautious, and generally unhelpful. In fact, the Senior Planner at the Port Hope Planning Office never responded to my numerous emails, telephone calls, and in-person requests between July 2012 and July 2013 for access to former Official Plans of Port Hope and Hope Township documents that are legally public under the *Ontario Planning Act*. I requested these records to analyze the shifting spatiality of the crown corporation and federal lands in the Port Hope area over time. While Official Plans are the domain of the Planning Office, this office sent me to the Municipality of Port Hope administration office, who in turn sent me back to the Planning Office, who again sent me back to the Municipality of Port Hope administration office.

Notably, staff of the Planning Office acknowledged that they did have the former Official Plans, including the information pertaining to Eldorado that I was requesting, but that only the Senior Planner knew where these files were located. However, as he was unresponsive, both the Planning Department clerks and the Municipality of Port Hope staff indicated that I should submit a formal Freedom of Information request to access these public records, for a cost of $5 per request plus hourly research and photocopy fees. I submitted a formal Freedom of Information request to the Municipality of Port Hope to obtain documents that legally are supposed to be public and accessible. The Freedom of Information request included Official Plans of Port Hope and Hope Township dating from the first Official Plan in 1969 to 1988, the year Eldorado was privatized. In response, frontline staff expressed what appeared to be genuine
puzzlement about why anyone would want to see past Official Plans. The current plan replaces all former versions, so what is to be gained by viewing the past anyway, they asked? Indeed, what is to be gained, other than a spatial and temporal lens into the incremental expansion of a state owned and operated uranium refinery in a small town. I would be very surprised if this fact was lost on senior professional planners.

Despite apparently having the requested documents, the Planning Department did not respond to any Freedom of Information requests. In order to test the first response, I submitted a second Freedom of Information request that also went unanswered. In fact, the only department in the entire Municipality of Port Hope to respond was the Port Hope Archives. In the end, I pieced together this very telling picture of shifting refinery land use from other sources, notably by going up the government ladder and contacting the Regional Planning Office for Eastern Ontario, under the jurisdiction of the Minister of Housing and Municipal Affairs and conveying my deep concern for the lack of response from the local Port Hope office. I also accessed several planning records from Archives Ontario. To the Municipality of Port Hope, I also submitted a separate Freedom of Information request for records pertaining to the sale of the West Beach public park to Eldorado between 1978 and 1981, including all correspondence and decisions of the Port Hope Town Council and Port Hope Planning Board; documents that I obtained at a cost of $114.00. This latter evidence informs my analysis of the refinery takeover of this former public park. The lengthy process of obtaining these records also adds to my analysis of how community members may act as gatekeepers to withhold information on the Eldorado uranium refinery, further evidence of the volatility of these issues in Port Hope. In contrast, the Port Hope Library houses an extensive public archive pertaining to the regulatory files of Eldorado, and its successor Cameco, and staff were very generous in their knowledge of the collection. This library was useful for accessing the records on the regulatory process of the refinery expansion and in accessing local media sources that they hold in print and on microfiche.

The federal nuclear agencies, Canadian Nuclear Safety Commission (CNSC) and LLRWMO have extensive collections of regulatory records. Overall, dealing with the federal scale of the nuclear state in-person through its frontline agencies was also frustrating and required persistence. I reviewed the information publicly available at the Port Hope Area Initiative, the
federal office mandated with the proposed clean up of radioactive waste and the construction of a long-term storage waste containment facility in Port Hope. While an office for public information, I found staff to appear friendly on the surface, yet act cautious in the actual delivery of materials beyond the already prepared information intended for broad public consultation. In addition, I documented one instance where a staff member deliberately withheld information that I knew they were in possession of, and censored my access to materials without explanation. When I challenged them however, they released the materials.

I submitted Access to Information Requests to the Atomic Energy Control Limited LLRWMO in Port Hope for the complete radiological property files of the East Beach and West Beach, including the former John Street ball diamond and pavilion. I received both files, albeit with blackout restrictions. This information supplements media, interview and archival data on the long-term contamination of the waterfront and the acquisition of the public West Beach public park by the crown corporation for refinery expansion. The CNSC in Ottawa, successor agency to the AECB, holds online records of more recent regulatory processes and historical AECB reports. The reports from 1969-1989 helped to assess the views of the AECB on the refinery, notably jurisdictional issues between the refinery and the state, nuclear insurance and liability, and the regulatory process, insights which inform my analysis of crown corporations and state oversight, or lack thereof, of Eldorado.

To supplement this analysis I consulted government reports on regulatory oversight of crown corporations including the reports of the Auditor General from 1982 to 1996 that provided insight into state scrutiny of crown corporations, the AECB, federal contaminated sites, and Eldorado. Further, I reviewed the Hansard transcripts of the Ontario Legislative Assembly on the approval of refinery expansion in Port Hope. These transcripts also hold information on the contamination of Malvern, Scarborough with radioactive waste that I analyze in “Black Wednesday.” These documents supplement my analysis of the powers and privileges of Eldorado as a crown corporation, its dealings with other scales of the state, and refinery operations in Port Hope.
Archival Research

Researching the archive of the uranium industry and particularly a uranium refinery owned and operated by the federal state certainly traverses the terrain of security and concerns of the state.\textsuperscript{24} Ann Laura Stoler argues that state archives, while not monolithic, are “products of state machines… as technologies that reproduced those states themselves.”\textsuperscript{25} As I sought to understand the tactics and strategies employed by the state to deal with the radioactive waste, I approached archival research into state records with Stoler’s insight in mind, that the state had also produced the archive. I scrutinized files of Eldorado, and their government oversight bodies, notably the Minister of Energy, Mines and Resources, and AECB to excavate information on the internal state response to the radioactive waste, and to compare data among these federal state bodies.

Since the privatization of Eldorado in 1988, Library and Archives Canada has held “34 metres of textual documents, and thousands of maps and photographs,” yet restrictions on these files, until recently, made archival work “almost hopeless for researchers.”\textsuperscript{26} As lamented by van Wyck, and as experienced in my research, many files pertaining to Eldorado are closed entirely, others are subject to access restrictions and copyright by the Government of Canada, and accessing most requires lengthy Access to Information and Freedom of Information requests. van Wyck further commented that many Eldorado files have never been viewed as deeply entrenched bureaucratic inertia and confusing, contradictory public or private ownership restrictions have made it exceedingly difficult for researchers.

The combination of long wait times and uncertain results can make archival research into state records somewhat daunting. In approaching archival research I drew on Stoler’s observations that to “focus on the politics of knowledge is a methodological commitment to how history’s exclusions are secured and made,” and van Wyck’s caveats on the Eldorado archives, to turn

\textsuperscript{25} Stoler, \textit{Along the Archival Grain}, 28.
\textsuperscript{26} Peter van Wyck, \textit{The Highway of the Atom} (Montreal and Kingston: McGill-Queens University Press, 2010), 9.
these potential limitations, barriers, or obstacles into objects of analysis.\textsuperscript{27} As a major subject of this research is the nuclear state including the powers and privileges of a crown corporation, the methodological approach of archival research thus tended towards a state ethnography, in which the archive was also a site of research and possibly a form of containment: the archive allows access to certain information and encloses, withholds and delimits other information. For example, the closed files on the privatization of Eldorado, the restricted files on the indemnity of the Eldorado Board of Directors, and closed files of the AECB for certain years selectively disallowed access to state records. Moreover, the Access to Information process was lengthy and not guaranteed to result in full disclosures, as even open documents often had information blacked out. In many instances it was only the personal identifiers that were legally restricted, yet information such as legal advice to government was consistently redacted or missing. In analyzing state archives I paid attention to what issues were closed, what types of issues were blacked out, and what categories of data were open access, as a means to think through how the uranium refinery expanded in the midst of social and political controversy.

Despite barriers on access and transparency, the archive was not the monolithic obstacle that I expected based on van Wyck’s prior experience and my own assumptions. This is not to say that there may not be calculated restrictions or closed files for reasons of state secrecy and supposed security, but rather to note that I was, through various means, able to access extensive information from Library and Archives Canada and Archives Ontario on the Eldorado corporate records, related Minister correspondence, and records of the AECB through multiple sources. Through numerous Access to Information and Freedom of Information requests, I also gained access to formerly unseen documents, thereby lifting access restrictions for other researchers.

However, I do not view the archive as an entirely cohesive record, hegemonic entity, or as a necessarily purposeful transcription of state authority. While it may be these things in certain places and at certain times, I also read the archive for what was not necessarily intentional, and tried to follow an iterative process, remaining open to its contradictions, inconsistencies, and uncertainties. I looked for clues as to the cracks and fissures in the state operation of the refinery

\textsuperscript{27} Stoler, \textit{Along the Archival Grain}, 45.
from within, evidence that I suspected was much more difficult to obtain than evidence of dissent from without. This line of inquiry led me to closely examine internal state correspondence.

Stoler approaches the archive as “not simply accounts of actions or records of what people thought happened. They are records of uncertainty and doubt of how people imagined they could and might make the rubrics of rule correspond to a changing imperial world.” While explicitly framed in the context of the Dutch colonial archive, I found Stoler’s insights into the archive to be relevant to the methodological and theoretical engagement with archives that hold the records of the nuclear state. Archival research into state records on the uranium refinery proved invaluable for assessing the state perspectives, or state-to-state opinions on the issues in Port Hope from behind the scenes. The archive also held records that helped link the scales of the state with the stakes at play in the political economy of uranium processing in Canada. Indeed, the scales and the stakes are inextricably linked.

Given the length of time it took to access government records, archival research necessarily demanded the flexibility to conduct research as access restrictions allowed. At Archives Ontario and Library and Archives Canada, most materials pertaining to Eldorado and the state were coded as restricted access by law, and required Access to Information or Freedom of Information requests. In the end, through various means and sources, I accessed an extensive collection of records pertaining to Eldorado, the AECB, the federal Ministry of Energy, Mines and Resources, the Ontario Ministry of Health, the Ontario Ministry of Labour (Radiation Protection Services Branch), and Ontario Water Resources Branch of the Ontario Ministry of the Environment, and others noted in each archive section below.

Importantly, many record groupings of one agency or department also contained correspondence between other federal and provincial departments, the refinery, the community government of Port Hope, environmental organizations, and members of the public. I often accessed pertinent information about Port Hope, Eldorado, or the AECB, not from their own archives but from their correspondence with other parties, that are held in the records of other agencies. In many

instances, I accessed key evidence through the backdoor. Given the difficulties I often encountered gaining access to information directly from Port Hope and nuclear regulators, this surprising aspect of archival research was rewarding. In what follows, I briefly describe the archives that I consulted and the major records that proved relevant to this dissertation.

Library and Archives Canada

Library and Archives Canada holds a definitive set of state records that contain evidence of the political and economic planning that built the uranium refinery and behind the scenes state records of its radioactive waste. The files of Eldorado (RG 134) at Library and Archives Canada consist of 33.8 metres of textual documents and other materials dating from 1927-1982, and spanning the company’s different operations in uranium mining, production and sales. Most of the materials are subject to the access restriction Code 32: Restricted by Law, thus requiring Access To Information Requests (ATIP). As these files are immense in volume and scope, I focused my Eldorado archival requests on key subject areas: the legal context of the crown corporation including their indemnity and immunity; minutes of the Board of Directors; and Port Hope contamination and property files on the radioactive waste. While it would have been informative to see in-depth government records about the privatization of Eldorado, all files from 1986-1988 are closed and no access is permitted, as designated by the record creator Privatization and Regulatory Affairs.

Also at Library and Archives Canada are files of the AECB (RG 60) from 1947-1992 and my research focused on the Board meeting minutes and Board meeting documents from 1975-1990. Unfortunately, the years 1981-1983 are sealed and closed, and I note that this is the time period during which Eldorado established the new UF6 plant in Port Hope, was under scrutiny for the contamination of an area in Scarborough with radioactive waste, and was party to several court proceedings. Meeting minutes and documents of the AECB were also designated as Code 32: Restricted by Law, requiring Access to Information Requests The personal records of Alan Prince, the President of the AECB from 1975-1978, the most intense time period of radiological crisis in Port Hope, were also reviewed to assess the response of the Board to the refinery over time. Alan Prince donated these records to Library and Archives Canada and most files are categorized as open, unrestricted access. Board minutes and meeting documents of Eldorado and
the AECB were examined to analyze the priorities of both Boards over time in relation to the refinery and Port Hope, their reaction to the contamination of the town, and the internal reactions and official decisions regarding the accountability of Eldorado as a crown corporation.

Further, the files of the Deputy Minister of Energy, Mines and Resources (RG 1526), the federal Ministry responsible for Eldorado between 1966 and 1983, were also Code 90: Open Access. These records consist of informative correspondence internal to the Ministry, and between the Ministry and the AECB, Eldorado, and the public. I analyzed these files to assess the reaction of the federal state to the contamination of Port Hope, changes in oversight of Eldorado over time, and the role of the AECB as Eldorado sought to expand in the wake of controversy.

Archives Ontario

Archives Ontario holds an extensive collection of records pertaining to Eldorado due to the involvement of the provincial government in the investigation and cleanup of radioactive waste in the Port Hope area. The main records of interest were the Ministry and Deputy Minister of Environment (RG 12-45), the provincial Radiation Protection Services Branch pertaining to the radiological property surveys and radioactive waste in Port Hope (RG 7-128), and the Water Resources Branch of the Ontario Ministry of Environment files on the contamination of the Port Hope harbour (RG 12-88). Notably, these state files include correspondence among various provincial departments, as well as among the provincial government and the AECB, Eldorado, the Town of Port Hope, environmental organizations, and members of the public. I consulted these state records to document the multi-scalar interactions of the state, and the tensions and legal conflicts that played out behind the scenes between the provincial government, federal government and Eldorado, and their interactions with the public.

While Archives Ontario proved in the end to be an invaluable source of data, the majority of files in their collection pertaining to Eldorado, radioactivity, and uranium are subject to Freedom of Information and Privacy Protection Act access restrictions for 100 years. The process of accessing one set of records in particular shed insight into the management and control over state archives. On June 7, 2012, I submitted a formal Freedom of Information request for the Port Hope Radiological Inspection Files, consisting of 4.9 metres of textual documents detailing the
door-to-door radiological survey conducted by the AECB and OMH in Port Hope beginning in 1975 to ascertain the extent and severity of radioactive contamination. The files also contain results of the exterior gamma radiation surveys by Eldorado and the AECB.

On July 13, I received a letter stating that the Privacy Officer is taking a 30-day extension to the 30-day legislated review period due to the volume of material requested. Staff disclosed that to their knowledge, no one had requested these materials before. On August 17, I entered into a Research Agreement with Archives Ontario, a legal agreement that places restrictions on revealing personal information that could identify a member of the public, but not the identities of government persons and agencies, including through triangulation with media and other sources. I was also prohibited from contacting anyone based on information found in this archive. Archives Ontario also requested a copy of my final dissertation as a condition of access. This archive consists of approximately 4,000 individual property files, each containing radiological testing results [laboratory reports of radon gas and radon daughters], the external gamma radiation report, the letter(s) of results sent from the Ontario Ministry of Health, the Ontario Ministry of Labour, or the AECB notifications to the occupant, and the Report of Radiological Inspection from Eldorado personnel. Several files also contain reply correspondence from the public, or their legal representative, to the government.

Due to the volume of material in this archive, I started selectively analyzing documents related to a street widely reported by media and government to be a hot spot of radioactivity because of its proximity to a highly contaminated ravine that had been a dumping ground for radioactive waste. I subsequently followed leads to other contaminated properties. However, as I also found key information in a few randomly chosen files, I decided to further analyze the files in this extensive archive, to document instances pertaining to extensive contamination, public correspondence, and concern over property values. I analyzed these records to assess how the radioactive contamination affected the public and private spaces of the community, including their homes, beaches, and parks. I coded names and addresses by numbers that bear no factual or implied resemblance to actual names, persons, and addresses. Thus they appear herein as anonymous. To further help retain anonymity, persons are described in non-identifying terms such as “resident,” “community member,” or “Eldorado employee.” Similarly, the locations of individual homes are
characterized in general terms, such as by street name, or described as “in the vicinity” of a certain neighbourhood. This research informs my analysis of the nuclear state was built through the local scale, and of the community as a nuclear space. I also documented these files to analyze how the refinery and their regulator, the AECB, contained the widespread radioactive contamination of these spaces. An analysis of these files added considerable substance and weight to my analysis of the extent of contamination, and how state authorities and the crown corporation framed the problem of radioactive contamination internally, their state-to-state interactions, and how they communicated the results to the public.

Port Hope Archives

The Port Hope Archives, located in a house on Mill Street North in downtown Port Hope, hold various collections pertaining to Eldorado, including files donated by long-time Port Hope activist Pat Lawson, and regulatory records. The Port Hope Archives were consulted to track down Official Plans and regulatory files that could shed insight into the spatiality of the refinery over time. While not exhaustive, the Port Hope Archives has some former versions of the Official Plan and Amendments from the Municipality of Port Hope and Hope Township. Indeed, I had greater access to these public documents at the archives than from the Municipality itself.

Toronto Archives and University of Toronto

As Toronto Archives primarily houses files pertaining to the City of Toronto, they understandably have limited records on a crown corporation operating in another jurisdiction and on the uranium industry more generally, yet they do have a few records pertaining to the contamination of the Malvern area in Scarborough with radioactive waste. While I did not intend to research the Scarborough case in detail, it became apparent that this contentious situation is historically linked to the Port Hope uranium refinery in the 1940s. Furthermore, I became interested in the legal challenges resulting from these events, and conducted a brief analysis of how the state dealt with the radioactive waste problem in Scarborough, compared to the situation in Port Hope to gain insight into the tactics and strategies of the crown corporation in containing both controversies, and to help think through the stakes involved. In addition to online academic searches for scholars researching crown corporations, the University of Toronto libraries have
very good secondary literature on Canadian crown corporations. Robarts Library houses the Annual Reports of Eldorado, successive reports of the Auditor General, and a collection of uranium and nuclear energy policy reports that provided much of the context for the section on state policy and economic forecasts in the uranium industry between 1975-1988. These policy documents were analyzed to understand the political and economic context of crown corporations in Canada, and to give historical and geographic context and weight to my analysis of Eldorado as a federal crown corporation.

**Researching Containment**

In many ways, the methodology for this research was iterative, following key threads of inquiry, emerging themes and relentlessly tracking down the details to piece together a complex story. This approach has enabled an historically grounded analysis of the tactics and strategies employed by the state and by other parties to expand the refinery during a time period marked by social and political controversy. Researching how a state owned uranium refinery widely polluted a small town with radioactive waste, then expanded in its wake, has driven me to investigate the relationship between the state and civil society and to analyze how the boundary between the state and civil society, however false, is maintained. These methods have also brought together cogent information from diverse sources to enable a rich analysis into how the nuclear state was built through the local scale, and how, in many ways, this process also shaped the community into a nuclear space. This methodological approach has further brought into analytical focus how the concepts and material practices of enclosure and containment may shed light into these contestations.
Literature Review and Theoretical Concepts

Literature in political economy and nuclear landscapes provides a theoretical framework for analyzing how the state owned Eldorado uranium refinery expanded, despite being implicated in widely contaminating Port Hope. First, I provide a review of the state within Marxian political economy to demonstrate the inextricable links between the state and capital interests while foregrounding the uneven power relationship between the state and civil society. I then review key literature in nuclear landscapes to frame my critical analysis of the social relations that reproduce nuclear landscapes such as Port Hope, as spaces of dispossession, insecurity, anxiety, uncertainty, and sacrifice. In weaving together these bodies of literature, I use the concepts of enclosure and containment as an analytic lens. While these concepts are not always explicit in the literature in political economy and nuclear landscapes, they are implicitly connected to how and why power works in specific ways and the material effects of uneven power relations.

The State and Civil Society

As the government of Canada owned and operated the Eldorado uranium refinery as a federal crown corporation between 1944 and 1988, and held jurisdiction over the nuclear industry, the state figures prominently in this analysis. Yet I am interested in understanding not just the internal motivations of the state but the effects of state power, and how the refinery and its status as a crown corporation were productive to the interests of the nuclear state. ‘Nuclear states’ are techno-political regimes that foster the nuclear industry as a nation-building project.29 Gabrielle

29 For analysis of the American nuclear state and weaponry, see David Kauzlarich and Ronald C. Kramer, Crimes of the American Nuclear State: At Home and Abroad (Boston: Northeastern University Press, 1998). Joseph Masco terms the atomic weaponry program a nation-building project. See Joseph Masco, The Nuclear Borderlands: The Manhattan Project in Post-Cold War New Mexico (Princeton: Princeton University Press, 2006), 25. Gabrielle Hecht also argues that the nuclear techno-political regime in France was a nation-building project, yet aimed at producing a national image of technological exceptionalism in nuclear reactors and energy production. See Gabrielle Hecht, The Radiance of France: Nuclear Power and National Identity After World War II (MIT Press: Cambridge, 1998). In the next chapter, I address the uranium industry as a nation-building project for the purposes of asserting sovereignty over raw uranium resources and Eldorado’s role in building a national uranium industry. The Eldorado crown corporation was one of several World War II crown corporations created to exploit raw resources for a national economy situated in the capitalist mode of production. The Polymer crown
Hecht defines techno-politics as “the strategic practice of designing or using technology to constitute, embody or enact political goals.”

Timothy Mitchell furthers that techno-politics is:

always a technical body, an alloy that must emerge from a process of manufacture whose ingredients are both human and non-human, both intentional and not, and in which the intentional or the human is always somewhat overrun by the unintended. But it is a particular form of manufacturing, a certain way of organizing the amalgam of humans and nonhumans, things and ideas, so that the human, the intellectual, the realm of intentions and ideas seems to come first and to control and organize the nonhumans.

The state is inextricably linked to the nuclear industry, which is enclosed within a highly bureaucratized, hierarchical system, not only to facilitate the material production of nuclear technologies, but also to contain their ramifications, such as nuclear waste. In my analysis, the term ‘nuclear state’ identifies the techno-political structure of the nuclear industry that inextricably links the state with nuclear technology and its commodities. Nuclear state weds the political economy of uranium to the state owned refinery that was a key element in a strategic nation-building project used to secure a monopoly on uranium resources, while heightening Canada’s geopolitical and economic position on the international stage.

Several key works in political geography and political economy lend theoretical insight into the relationship between the nuclear state and civil society. I situate this dissertation within Marxian political economy’s insistence that the state and capitalism are mutually contingent, yet align most closely with those that seek to understand how it is not just capitalism, but also the state itself that is a social relation. I therefore draw on the work of Antonio Gramsci and Stuart Hall, along with insights from other writers in political economy to analyze, although variously termed, how the legitimacy of the state intensified in the midst of crisis, yet also for these authors
corporation that fabricated products from rubber, also initially nationalized for military purposes, is another example. I use the term nuclear state to encapsulate the relationship between the state and the nuclear industry, one that is characterized by hierarchical structure, but do so without imbuing the nuclear state as exceptional. Dealings in atomic and nuclear materials have historically been the prerogative of states, primarily because of the geopolitical significance of weaponry, however nuclearity does not equate with exceptionalism. Rather, in this dissertation, I take the view that nuclearity is unexceptional, and do so because framing nuclearity as exceptional elides the systemic power relations of its reproduction. See Blake Fitzpatrick, *Visibility and Invisibility in the Nuclear Era*, The Atomic Photographers Guild (Toronto: TPW, 2001).

attendance to social relations, and resistance, as an ever present aspect of everyday life. Finally, I
have taken theoretical and methodological inspiration from Whigs and Hunters: Origins of The
Black Act by E.P. Thompson. Thompson’s attention to historical specificity grounds the state,
power, and civil society in real people facing real, material circumstances, and this work sews
together seemingly disparate characters into a seamless web of violence, power, and capital in a
way that leaves no doubt regarding processes of enclosure and containment.

Analysis of the state in political economy includes debates about the structure (form) and
function of the state and its relationship to civil society. While Karl Marx is commonly thought
to have never explicitly developed a theory of the state, numerous theorists have formulated a
theory of the state and state power from his work. Marxian theorists have had fairly divisive
disagreements on the state and differ in how they perceive the form and function of the state (c.f.
Lenin and Luxemburg; Miliband and Poulantzas). The state is variously termed in structuralist,
functionalist, or instrumentalist positions and, often contradictorily, called a thing, an entity, an
instrument or tool of the bourgeoisie (e.g. Engels, Marx, Lenin, Luxemburg), a cold monster
(Nietzsche) a leviathan (Hobbes), a social relation (Poulantzas), a system (Jessop), an effect
(Foucault), and an idea (Abrams) yet the state and state power in Marxian theory are
predominantly viewed as enabling, mediating, or enforcing class relations in a capitalist
society. While Marxian scholars also differ on human agency, the state is seen as an integral
factor in the capitalist mode of production. Marxian theories position the state and capitalism as
having come into being together: the state and capitalism could not exist without each other. This
viewpoint counters liberal theories of the state, such as those by John Locke and Friedrich von

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33 See for example Vladimir Lenin, The State and Revolution, 1917; Rosa Luxemburg, The
Accumulation of Capital (London and New York: Routledge, 2003 [1913]); Ralph Miliband,
Nicos Poulantzas, Political Power and Social Classes (Norfolk: New Left Review, 1968);
Friedrich Engels, The Origin of the Family; David Harvey. “The Marixan Theory of the State,”
Nietzsche: Thus spake Zarathustra Vol. 11 (TN Foulis, 1911); Thomas Hobbes, Leviathan, 1651;
Bob Jessop, State Theory: Putting Capitalist States in their Place (Pennsylvania: University of
Pennsylvania Press, 1990); Michel Foucault, The Birth of Biopolitics: Lectures at the College de
Hayek that postulate capitalism as a natural evolution of social, economic and political life. Karl Polanyi debunks the liberal myth of a laissez faire market society to show the dependency of capitalism on state intervention.\textsuperscript{34} The inextricability of the state and capitalism is also shown by David Harvey to be “painfully constructed” and by E.P. Thompson as a political project enacted and enforced by political and economic elites through a long, and often violent history.\textsuperscript{35}

Drawing extensively on Marx and Engels, Harvey further discusses the state as a means of domination over and above civil society. The state developed within civil society, “arising out of society, but placing itself above it.”\textsuperscript{36} Here, the separation of the state and civil society that predominates within Marxian theories of the state is evident. However Antonio Gramsci, Henri Lefebvre and Nicos Poulantzas argue that this separation is, in actuality, false yet has been made to appear real by political and capital interests. Part of the function of the state is to obscure the interests of the dominant class, such that it appears the state functions in the best interest of all society.\textsuperscript{37} In this regard, Gramsci offers nuanced insight into how state dominance is maintained in part through hegemonic processes that lend the appearance that concessions will ameliorate class conflict, yet “stopping short of narrowly corporate economic interests” and thus maintains uneven social relations.\textsuperscript{38} Concessions aimed towards assisting the dominated, or non-elite, temporarily lessen societal contestations, but “cannot touch the essential.”\textsuperscript{39} Partial concessions do not fundamentally alter the inequitable relations of capitalism.

\textsuperscript{34} Karl Polanyi, \textit{The Great Transformation: The Political and Economic Origins of our Times} (Boston: Beacon Press, 1944).
\textsuperscript{35} Harvey, “The Marxian Theory of the State,” 87; Thompson, \textit{Whigs and Hunters}. E.P. Thompson is more explicit than Harvey in demonstrating these processes, as he historically documents how the capitalist mode of production was dependent upon enclosures and the intervention of political interests in the formation of a bourgeois class in England.
\textsuperscript{36} Harvey, “The Marxian Theory of the State,” 81. Here, Harvey is quoting a passage of Engels from \textit{The Origin of the Family}.
\textsuperscript{38} Gramsci, \textit{Selections from the Prison Notebooks}, 182.
\textsuperscript{39} Gramsci, \textit{Selections from the Prison Notebooks}, 161.
In the Marxian literature, the state is thought to achieve dominance over civil society through a multitude of institutions and apparatuses that concentrate power, including the political-juridical nexus of law that secures the legal foundations for capitalism, including the system of private property. Several theorists, notably Louis Althusser, Pierre Bourdieu, and Michel Foucault advocate that the repressive or dominating function of the state works through institutions and apparatuses such as the military, courts, police, schools, media, family, and the church, yet they differ in their view of human agency to effect or resist change.\(^\text{40}\) Adopting an anti-humanist view of state power, Bourdieu et al expand Max Weber’s definition of the state by adding “symbolic violence” to the state’s monopoly of the legitimate use of force in a given territory, and further Weber’s definition of territory to include “the totality of its population.”\(^\text{41}\) For Bourdieu et al, the state is a site of “meta-capital,” exercising physical and symbolic force over both territory and people. The addition of both symbolic force and population is more than semantic, for state power functions repressively through ideological mechanisms. What is noteworthy for this analysis, is their attention to what state power may enable, that is, the productive potential of the state to bring specific realities into being through coercive and ideological pathways, including the discursive and material elements of cultural, political and economic institutions.

Bourdieu et al also argue that a primary function of state power is to legitimate “truth” in a given society, what they term “a quasi-divine power.”\(^\text{42}\) They question why the “legitimacy of the state is not questioned,” particularly since the legitimacy of the state is legitimized by the state itself, a tautology attributed to the realm of ideology or the “tacit agreement over the meaning of the world.”\(^\text{43}\) The problem of legitimacy for Bourdieu et al is “the problem of why the established order is not problematic.”\(^\text{44}\) Philip Abrams also argues that the state participates in ideological

\(^{40}\) Louis Althusser, “Ideology and Ideological State Apparatuses (Notes Towards an Investigation),” in *Lenin and Philosophy and other Essays*, trans. Ben Brewster (New York: Monthly Review Press, 1971), 121-176. Louis Althusser is perhaps the most explicit anti-humanist theorist in his views of how the state and state power function within society through both repressive and ideological apparatuses. Althusser argues that the state embodies an entirely repressive function and serves to secure class relations while obscuring class struggle.


\(^{42}\) Bourdieu et al, “Rethinking the State,” 12.

\(^{43}\) Bourdieu et al, “Rethinking the State,” 15, 13.

\(^{44}\) Bourdieu et al, “Rethinking the State,” 15.
exercises of legitimation, but of things, that if known, would be “intolerable and unsupportable.” He furthers that analysis of the state must therefore attend to its institutions and the “legitimating of the illegitimate.” What the state really does is legitimate power.

Weber categorizes authority into three types of legitimate rule – traditional authority, charismatic authority, and rational-legal authority. The latter category describes Weber’s characterization of the modern democratic state. Rational-legal authority is a type of legitimate domination, an obedience to commands and direction given by those understood as authority figures. Weber’s concept of rational-legal authority is a useful starting point for theorizing how the Eldorado uranium refinery and the nuclear state maintained the validity of their authority within the state, and among civil society, even when implicated in harming the interests of both. The state does embody authority, including what Bourdieu terms “symbolic power,” and state institutions produce and work to enforce legal-rational institutions and norms, yet it seems problematic for Weber to equate legitimacy with domination or obedience. These typologies may reduce legitimacy to a dichotomy between the dominated and the dominant. I use the term legitimacy to explain not domination or obedience, but to denote validity. Gramsci argues that one means through which the state may lose its ability to “lead” is through a “crisis of authority” that threatens the legitimacy of the state. Understood in this sense, the term legitimacy helps to analyze how the validity of the nuclear state to continue to operate (and expand) its uranium refinery in the heart of a small community, despite the radioactive waste, was variously upheld –

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45 Abrams, “Notes on the Difficulty of Studying the State,” 76.
46 Abrams, “Notes on the Difficulty of Studying the State,” 76.
50 Nicos Poulantzas argues that Weber’s typology further reduces power to legitimacy. Political Power and Social Classes, 105, 118.
51 Gramsci, Selections from the Prison Notebooks, 275.
from within the state and among civil society. The issue of legitimacy that I address, to paraphrase Bourdieu et al, is: Why was the legitimacy of the nuclear state, and Eldorado’s pivotal role as its corporate arm, not problematic? Indeed, how was it strengthened in the midst of crisis?

Gramsci also pushes beyond the dichotomy between dominated and dominant by arguing that the state is “the entire complex of practical and theoretical activities with which the ruling class not only justifies and maintains dominance, but also manages to win the active consent of those over whom it rules.” The state is a combination of political and civil society, constituting a “hegemony protected by the armour of coercion.” Hegemony works through permeating all of political and social life and hegemonic processes take hold through the “lived domination and subordination” of everyday lives, yet is experienced as common reality, as common sense. The stability of political power is achieved through a continuously changing balance of force or the appearance of force (coercion) and consent, yet the state endeavors to ensure “that force will appear to be based on the consent of the majority.” Non-elites can overthrow the state through the formation and active resistance of political alliances. However, for lasting political change to take root, a counter-hegemony must first be established among civil society.

This does not mean that the legitimacy of the state was not challenged or questioned, and I concur with Joe Painter’s caveat that the legitimacy of the state (and its violences) is by no means always accepted. He further notes, “state violence is by no means always accepted as legitimate, and some non-state violence can achieve a degree of legitimacy.” I also agree with Painter that there may be a difference between legitimacy in principle and legitimacy in practice, that is, something may be reified as legitimate in practice, even if it is not accepted in principle. Joe Painter, “Prosaic Geographies of Stateness,” Political Geography 25 (2006): 752-774.

53 Gramsci, Selections from the Prison Notebooks, 244.
54 Gramsci, Selections from the Prison Notebooks, 263.
55 Raymond Williams, Marxism and Literature, Volume 1 (Oxford: Oxford University Press, 1977), 110. This theory differs from the Marxist definition of “class consciousness” in which the working classes are interpolated by repressive and ideological structures and lack agency (e.g. Althusser, Bourdieu, Foucault), a condition insightfully noted by Stuart Hall as “always attributed to others.” Stuart Hall, “Toad in the Garden: Thatcherism Among the Theorists,” in Marxism and the Interpretation of Culture, C. Nelson and L. Grossberg eds. (Chicago: University of Illinois Press, 1988), 44.
56 Gramsci, Selections from the Prison Notebooks, 80, fn. 49.
57 Gramsci, Selections from the Prison Notebooks, 233, 113. Counter-hegemony is what the dominant classes have to actively “work to control” in order to maintain a dominant position, yet an absolute hegemony is never established. Lasting political change can occur through what he
Gramsci’s concept of hegemony has been furthered by Raymond Williams and Stuart Hall who theorize how political and economic dominance over the majority by an elite minority is not only achieved but maintained for long periods of time. Williams terms hegemony as a “turning point in cultural theory” that pushes the boundaries of Marxian thought and expands the theories of domination or rule between states to focus on domination within states.\(^\text{58}\) Williams notes that the distinction between rule and hegemony is critical for understanding how political domination functions through both force and coercion. Hall adds that the long-standing persistence of neoliberal thought across the breadth of social classes cannot be explained solely through ideological forces.\(^\text{59}\) Hall argues that hegemony is first achieved outside the political sphere, in the realm of civil society, and as such, is an essential precondition for establishing and maintaining any sort of counter-hegemonic political change. Hall pushes Gramsci’s concept of hegemony and counter-hegemony as “criss-crossing the social body,” that is, dominance and resistance is articulated through the complex of social relations in civil society.\(^\text{60}\) Power permeates civil society, yet Hall locates power as condensed within a state-system of rule.\(^\text{61}\) While there are parallels between ideological theories of domination between Gramsci, Althusser, and Bourdieu, notably in how dominance is achieved through what Gramsci terms “educating consent,” in part, via state institutions and apparatuses, they differ sharply in how they envision human agency and resistance, and thus the potential to effect lasting political change.\(^\text{62}\) In terms of the attribution of agency, or lack thereof, within a society permeated by power relations, it seems only pertinent that theories of the state also attend to theories of power.

Foucault characterizes the centrality of the state in political thought as an enduring, yet elusive problematic but argues against locating the state or state-systems as the primary site of power struggle. He argues that there is no need for a singular theory of the state: indeed a theory of the

\(^{58}\) Williams, *Marxism and Literature*, 108.

\(^{59}\) Hall, “Toad in the Garden.”

\(^{60}\) Hall, “Toad in the Garden,” 53.


state “in and for itself” is not necessary or even productive. He notes: “I must do without a theory of the state, as one can and must forego an indigestible meal.” Further, he asserts that there is no “cold monster,” there does not exist a “political universal,” and no “autonomous source of power” against which society or a public sphere is held in perpetual opposition.

Foucault critiques what he terms a tendency towards “state phobia” that manifests as an irrational idea that “the state possesses in itself and through its own dynamism a sort of power of expansion, an intrinsic tendency to expand…to take over entirely…as its target, and its object, namely: civil society.” The resultant separation of political society, or the state with civil society in political theory is also deeply problematic for Foucault, who sees such delineations as counterproductive. Indeed, he “[rejects] the opposition between a power-wielding state that exercises its supremacy over a civil society deprived of such processes of power.”

Noting that the last concrete theory of the state was written by Thomas Hobbes in 1641, Foucault implicitly critiques Marxian theories of the state that describe the state as a centralized site of power. He terms it reductive to imbue the state with the simple function of upholding capitalist forces and relations of production, as this posits the state as a monolithic entity of power and therefore as the “target needing to be attacked and a privileged position needing to be occupied.” Rather, the state is “an effect” that “which at once both exists, but which does not yet exist enough.” The stakes in relegating the state with absolute and autonomous power are to ignore the effect of micro power relations that permeate all of society through techniques of discipline-normalization. Instead of an explicit categorization of the state, Foucault emphasizes a theory of governmentality to account for how populations are managed through techniques of security and discipline. In this sense, theories of the state as a tangible site or entity from which

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63 Foucault, The Birth of Biopolitics, 77.
64 Foucault, The Birth of Biopolitics, 76.
65 Foucault, The Birth of Biopolitics, 6, 77.
66 Foucault, The Birth of Biopolitics, 187.
68 Foucault, The Birth of Biopolitics, 91.
70 Foucault, The Birth of Biopolitics, 77, 4.
power is exercised over civil society is de-centered to focus on techniques and practices, what Foucault terms the “statization of society” and the “governmentalization of the state.”  

He states:

population comes to appear above all else as the ultimate end of government. In contrast to sovereignty, government has as its purpose not the act of government itself, but the welfare of the population … the population now represents more the end of government than the power of the sovereign; the population is the subject of needs, of aspirations, but it is also the object in the hands of the government, aware, vis-à-vis the government, of what it wants, but ignorant of what is being done to it.

Foucault characterizes government concerns as shifting from sovereignty to territory to population as a new art of government, one concerned not with absolute, direct rule, nor with territorial ambition, but with managing and controlling the people within its territory.

While Foucault states that the insertion of political economy into the sphere of government characterized this shift to population, quite frankly I did not understand the point – the why – of Foucault’s theory of the state and power until The Birth of Biopolitics was translated into English in 2008. In this work, he provides historical context and rationale by arguing that the shift from a state characterized by a sovereign Raison D’Etat in which state power and resources were targeted to the accumulation and protection of wealth and territory to an art of government concerned overwhelmingly with population was concurrent with the rise of liberalism. Thus, the three movements espoused in Governmentality – government, population, political economy – are inextricably linked in The Birth of Biopolitics to the development of a capitalist mode of production. In this work Foucault ponders how things which exist, yet do not exist, notably politics and the economy, come to be “inscribed in reality and fall under a regime of truth dividing the true and false.” Theorizing how liberalism came to dominate the political sphere through a new order of rationality that equates truth with economic truth lies at the heart of this work.

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71 Foucault, “Governmentality,” 103.
72 Foucault, “Governmentality,” 100.
73 Foucault, The Birth of Biopolitics, 243.
74 Foucault, The Birth of Biopolitics, 20.
Foucault’s theory of power has implications for civil society. Epitomized by the art of “least possible government,” liberalism defines the concurrent shift in emphasis from a “subject of right” to a “subject of interest” with implications for power relations between the subject and the state. The former juridical model of a subject of right entailed a consensual ceding of specific rights as a necessary prerequisite to the guarantee of other rights from the state. This entailed a limitation on the rights of the state over the individual. In contrast, he argues that a subject of interest is now homo-economicus, who embodies his own interest and his alone, and therefore needs to be free from state interference. In this regard, the power of the state is limited to that which exists outside the sphere of the market. The truth of good government then, becomes the truth of the market which has become the “site of veridiction.” As the target of governmental techniques of discipline and control, the population now consists of individual homo-economicus who are disciplined into a perpetual economic “game” wherein the role of the state is to ensure that “no one loses everything and can no longer play.” Here, the parallels with the Marxian theories of the state as providing the conditions for the capitalist mode of production become apparent.

While Marxian and Foucauldian literature may diverge on the structure or non-structure of the state as a site of power, it does appear that Foucault pinpoints the rationale and methods of governmental technique that target populations with tactics of securitization for the interest of capitalism. Further, in chronicling the rise of neoliberalism after World War II, Foucault exposes an inversion in social power relations from a society in which the “free market is defined by the state” to a state which is dominated and controlled by the free market. While Foucault overemphasizes the “free” character of the market (c.f. Polanyi), the point that the neoliberal state has become permeated by a market sensibility and logic is well taken. However, I do not find Foucault’s view that because the state is not a “cold monster” to substantiate his conclusion that a theory of the state is unnecessary. Regardless the specificities of its form (whether cold monster, entity, system, effect, or idea) the state, or its effect, is inextricably linked to capital, territory, and population, and therefore to power.

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The concept of power has been a central focus of Foucault’s work, most notably phrased as “the conduct of the conduct of men.” He reflects on how it has been received: “There have been some misunderstandings, or else I’ve explained myself badly. I’ve never claimed that power was going to explain everything. My problem was not to replace an economic explanation with an explanation in terms of power…For me, power is what needs to be explained …after all, isn’t the domination of reason just as general as the domination of the bourgeoisie?”

His concept of power incorporates the fundamental idea that power relations are inextricably tied to knowledge production. Foucault does not imbue the state with an autonomous power per se, yet his theories are compatible with the idea that state institutions deploy power and shape power relations in society through the production and dissemination of specific types and forms of knowledge. The performative, or symbolic power of knowledge production does not reduce knowledge to a discursive formation rather, the material effects of power relations are in part enabled through particular types of knowledge production. Writing before the translation of *The Birth of Biopolitics* into English, Lemke stressed the importance of this work in recognizing that governmentality offers a lens on neoliberalism as a “political project that aims to create a social reality that it suggests already exists.” The ideological implications of governmentality and its corollary biopower are stressed by Lemke to contribute to self-regulation of populations through techniques of discipline and security. Lemke notes that the state does still exist, yet has withdrawn as a tactic to shift responsibility for “social risks onto the domain of the individual.”

Geographers have analyzed the material and ideological implications of power in productive ways. David Scott emphasizes the importance of analyzing the rationalities, targets and means of power. While articulated as colonial power, there is broader relevance to power as an inclusive or exclusionary mechanism, and he focuses on forms of power that emerged with colonialism but work productively through the social fabric to bring “new forms of life into existence.” Techniques of government targeted at populations break down former societal systems and enact new ones in the vein of the colonizer. Scott credits Foucault’s work as having lasting importance.

77 Foucault, *The Birth of Biopolitics*, 186.
78 Foucault, “Interview with Ducio Trombadori,” 284, 286.
for moving past the antithetical divide between the state and civil society. According to Scott, power “arranges things artificially” such that “people who are following their own self-interest...will do as they ought.”

This concept of power offers a point of convergence with theories of how hegemony works through and across the social fabric of civil society, such that the legitimacy of the dominant, or elite, over long periods of time appears as common sense (c.f. Antonio Gramsci; Stuart Hall; Nicos Poulantzas; Raymond Williams). As argued by Scott, power materially constitutes and reconstitutes both populations and material spaces. In a sense, power works through the containment of former modes of social life, with the aim of their permanent dissolution. This theory of power has relevance beyond the colonial context for understanding how power is not just targeted at the dispossession of populations and territory (which are forms of enclosure and accumulation by dispossession) but at the very destruction and re-imagining of space.

To return to the separation between the state and civil society, Timothy Mitchell also pushes back against Foucault’s dismissal of the state as a concept in its own right. He argues that the state is not a monolithic entity but a “structural effect.”

In terming the Marxian tendency to separate the state from civil society as problematic, Mitchell acknowledges that this separation may exist, yet exists only as “an effect created,” one that is erected and maintained as a “mechanism of power.”

I concur with Mitchell that to dismiss the state altogether is problematic and with his observation that the separation between the state and civil society, however false, is a productive mechanism of power. Gramsci clarifies that the separation of the state from civil society is the root problem. He advocates for the dissolution of the “coercive element” of the state and the reintegration of the political and economic spheres into civil society. This entails an end to the

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84 Mitchell, “The Limits of the State,” 89, 90.
85 Gramsci, Selections from the Prison Notebooks, 259. He states: “but, in reality, only the social group that poses the end of the state and its own end as the target to be achieved can create an ethical state – i.e. one which tends to put an end to the internal divisions of the ruled, etc., and to create a technically and morally unitary social organization.”
86 Gramsci, Selections from the Prison Notebooks, 263.
Mitchell’s insights on the separation of the state from civil society as a mechanism of power are compatible with Gramsci’s call for a reintegration of the political (and the economic) into the social. The state is both constitutive of and constituted by a civil sphere, and the distinction or separation between the state and civil society, as advanced by Hall, Gramsci, Mitchell, Painter, and Williams, is a false barrier. This does not mean however, that this separation is not powerfully constituted, nor have material implications. The separation of the state and civil society and what this separation enables is what requires analysis. The task is to understand how this false distinction is created and upheld, and what the separation of the state from civil society, both literal and metaphoric, enables.

In this dissertation, attention to the convergence of theories on the state and power provides a contextual lens to better understand how stability is held over long periods of time, even through periods marked by social and political controversy. The corollaries between these works are well summarized by Bob Jessop:

… it seems that, while Marx seeks to explain the why of capital accumulation and state power, Foucault’s analyses of disciplinarity and governmentality try to explain the how of economic exploitation and political domination.

Theories of domination as materially and ideologically produced, and experienced as everyday common sense, stress that analysis should not focus on what the state is (as an object or thing),

87 Gramsci, Selections from the Prison Notebooks, 258. Gramsci’s focus is class relations. He argues that there can be no political equality without economic equality.
88 As a site for the condensation of power (see Stuart Hall), and a “pivotal function” to the capitalist mode of production, the state is often cited as a target for political opposition to seize and destroy and as a necessary step towards dismantling social inequalities. See Harvey, “The Marxian Theory of the State,” 81. As Marxian theorists differ over how a conquering and eventual withering away of the state can be achieved, and this is perhaps most famously explicated in the Lenin/Luxemburg debate, yet endures in more recent works. For example, Althusser argues that there is an important distinction between the state and state power, and he pinpoints the target of class struggle is state power, not the state itself. Thus, for Althusser, the seizing of state power could foresee a continuation of state apparatuses. The obvious challenge in this anti-humanist theorization is how to transform the existing “bourgeois” repressive and ideological state apparatuses into a public good, followed by their eventual dissolution – and the state along with them. See Althusser, “Ideology,” 141.
but on the effects of state power and the implications of uneven power relations. The state as a social relation and state power as relational informs my approach to analyzing how a uranium refinery, owned and operated as a federal crown corporation, intensified in the midst of crisis, and focuses my analysis on the separation of the state from civil society, and what this separation enables. I take inspiration from Joe Painter’s idea that the methodological approach to studying ‘the state’ through practice reveals the (often hidden) “internal workings of state institutions” of what he terms “stateness.”

Analyzing the effects of state power through historical specificity reveals the myriad of ways in which the legitimacy of Eldorado and the nuclear state was secured and their power consolidated, despite the shocking discovery that the refinery had contaminated the small town of Port Hope, transforming it into a nuclear landscape.

**Nuclear Landscapes**

Don Mitchell observes that landscape theory privileges the production of landscape with scant attention to its destruction. Destruction of landscapes transforms not just land, but social relations. As nuclear landscapes are characterized by the ordering/disordering of people and places and by differential exclusion, dispossession, and sacrifice, an analysis of their production also requires attention to the nuances of their overt and covert destruction. Attending to these factors in the context of the Eldorado uranium refinery requires unearthing the conditions and circumstances within which they were produced. To analyze the socio-spatial production of Port Hope as a nuclear landscape, I weave literature on nuclear landscapes throughout this dissertation, yet I briefly set out several main points here to illustrate the links between the state, power, and nuclear landscapes. Literature on nuclear landscapes is a body of work in social science that, broadly defined, seeks to make visible the hidden or obscured social relations that configure nuclear spaces. These scholarly works render visible the social relations that produce nuclear landscapes as spaces of dispossession, insecurity, anxiety, uncertainty, and sacrifice, while revealing the uneven power relations that are intrinsic to their reproduction.

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90 Painter, “Prosaic Geographies of Stateness,” 770.
Nuclear physicist B.S. Mityagin commented in 1961 that “when we consider nuclearity we must necessarily also consider many questions which appear at first sight to have nothing in common.”  Given the technological complexity of the industry, its links to the state-military-industrial complex, and the physical and psychosocial characteristics of radioactivity, the conditions that underpin the industry are not easily rendered clear. Geographers and other scholars have employed the term “nuclear landscapes” to scope in the physical and social implications of the nuclear industry. Nuclear physicists use the term “nuclear spaces,” describing them as “infinite dimensional,” a hint that nuclear spaces are endless and timeless. The spatial and temporal characteristics of nuclear landscapes range from the body to the globe and in timeframes that may exceed the human scale.

Nuclear spaces include the site and scale of the body. Given the temporal and spatial reach of radiation, even the womb has become a nuclear space. The body is a “grid for the calculus of suffering.” On the corporeal effects of radioactive contamination, Petryna’s empirical work on the aftermath of the Chernobyl disaster in the Ukraine shows how technopolitical practices of the nuclear state categorize contaminated bodies and landscapes into ordered, rationalized units to be managed. Adopting a Foucauldian lens of discipline-normalization through techniques of biopower, she exposes the rational-technical and nationalistic response of the nuclear state to Chernobyl. The “anthropological shock” of the disaster brought “the efficacy of everyday knowledge to a state of collapse and [underscores] how much the conditions for secure living in what have been termed risk societies lie in the hands of experts of all kinds.” She further demonstrates that a shifting map of legitimate claims to contamination underwrites the political response, with material consequences for the social care and compensation that people receive. These insights parallel Valerie Kuletz’s assertion that “geographies of sacrifice are about bodies

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93 Masco references the millennial timeframe of nuclear landscapes as a “multi-millennial colonization of the future.” Masco, *The Nuclear Borderlands*, 300.
of land, human bodies and the ‘body politic’ – now, and in the future,” therefore “seeing the nuclear wasteland … is a political act.”

Scholarly research on nuclear landscapes also scopes in the psychosocial, as conditions of anxiety and uncertainty that are endemic to nuclear landscapes stem, in part, from the imperceptibility of radioactivity, at least to lay persons. Francoise Zonabend writes of “everyday, habitual fear… an underlying uncertainty” in relation to nuclear installations in La Hague, France. In Chernobyl, Petryna terms the psychosocial as “daily life characterized by overwhelming uncertainty and unknowability,” conditions of everyday life further described by Joseph Masco as “colonized psychic spaces,” the “nuclear uncanny.” Masco further defines the atomic age as ushering in new “psychosocial spaces” that brought into the forefront of everyday life the ever-present possibility of perpetual annihilation. The western hegemonic belief in rationality and progress of mankind as evolutionary girded the atomic age. Yet so too did the geopolitical fears and aspirations of World War II and the Cold War. Drawing on Walter Benjamin, Masco pinpoints another characteristic of the new psychosocial condition; the normalization of the “state of emergency” no longer defined as the exception – i.e. in times of war or crisis, but as endemic, manifested as routine anxiety in everyday life. This insight

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100 Masco, *The Nuclear Borderlands*, 1. The term psychosocial refers to the embodied psychological effects associated with nuclear spaces, including alienation, anxiety, fear, and uncertainty. The psychosocial is also evident in the plethora of popular culture films, books, songs, and documentaries that engage with the atomic age.
102 Masco, *The Nuclear Borderlands*, 5; Also see Walter Benjamin, “On the Concept of History,” in which Benjamin writes “the tradition of the oppressed teaches us that the ‘emergency situation’ in which we live is the rule,” VIII. Found in “Theses on the Philosophy of History,” in *Illuminations* (New York: Schoeken, 1969), 253-64.
parallels the dire observation by Ulrich Beck that the risk society is a “catastrophic society. In it the state of emergency threatens to become the normal state.”

Masco describes the nuclear age as a “contraction of time and space” that abstracts and distorts perceptions of the temporal and spatial risks of the nuclear industry. The techno-political characteristics of the nuclear industry enable a “technoaesthetic” phenomenon that has turned the material violence of the atomic age and its main character – the atomic bomb - into an “aesthetic and intellectual pleasure.” This is clearly evident in the ongoing cultural fascination with atomic apocalypse. Yet in acknowledging the abstraction of the atomic fetish, photographer Blake Fitzpatrick evokes a post-Cold War signification when he recognizes that while the mushroom cloud imagery of the Cold War defined the dawn of the nuclear age, he questions: “What are the post-Cold War photographs that constitute a contemporary site of symbolic struggle over the visualization of an evolving atomic culture? By what counter-images might we now un-frame the symbolic monopoly of the cloud in order to think and see a contemporary ‘post-cloud’ atomic landscape, factory, community, artifact or victim?”

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106 Fitzpatrick, Visibility and Invisibility in the Nuclear Era, 3; Kuletz stresses making visible the invisible social consequences of nuclear colonialism. See Kuletz, The Tainted Desert, 120; Masco also calls for rendering visible the consequences of the nuclear industry, obscured through “banalization” of atomic weapons in everyday life. See also Masco, Nuclear Borderlands on the need to de-fetishize the atomic bomb.
Theorizing the ‘post-cloud’ atomic landscape pushes beyond an analysis of the iconic imaginary, spectacle, and visible consequences of the atomic bomb to reframe attention on the everyday conditions and social relations of nuclear landscapes – relations that are, to borrow a phrase from Nicos Poulantzas, power relations at every level.\footnote{Poulantzas, \textit{Political Power and Social Classes}, 103.} A fundamental task of analyzing the production of nuclear landscapes is a commitment to de-centering the catastrophic or spectacular event and resisting the allure of the phantasmagoria, in order to unveil the conditions and social relations that produce everyday nuclear spaces. Un-framing the atomic cloud does not diminish the historical and geographical significance of ‘the bomb’ nor its devastating consequences. On a global scale, military use of nuclear materials is ongoing, and nuclear war remains a possibility.\footnote{While there is a cease in the deployment of atomic bombs in war, radioactive substances, such as depleted uranium, are still used in military weapons. See for example, Christina Larson, “Depleted Uranium: A Tragedy of the Commons,” \textit{Peace and Conflict Studies} 2, no. 3 (1996): 217-232; Rob White, “Depleted Uranium, State Crime, and the Politics of Knowing,” \textit{Theoretical Criminology} 12, no. 1 (2008): 31-54; Victor W. Sidel, “Vertical Nuclear Proliferation,” \textit{Medicine, Conflict and Survival}, 23, no. 4 (2007): 249-258. Sidel argues how despite the international Non-Proliferation Treaty, nuclear states are still improving and expanding nuclear weapon capabilities, as well as developing new military weapons systems with nuclear materials. John Lovering observes that the post Cold War era is marked by remilitarization, not demilitarization – a “restructuring of the ways in which it is organized and supplied” through “leaner and more ‘rational’ means.” John Lovering, “The Production and Consumption of the ‘Means of Violence’: Implications of the Reconfiguration of the State, Economic Internationalisation, and the End of the Cold War,” \textit{Geoforum} 25, no. 4 (1994): 481.} Further, the consequences of the atomic bomb since World War II are still in the forefront of many ongoing environmental justice struggles. Fitzpatrick stresses that attendance to the everyday and ordinary reveal how nuclear landscapes are continually reproduced, while screening the state and the adverse consequences of the nuclear industry from view. The ‘post’ in Fitzpatrick’s ‘post-cloud’ is not a temporal marker; it does not signify a switch to a new age because the material conditions that make nuclear weapons and all ancillary nuclear industries are still well in place and the industry retains strong ties to the state-military-industrial complex in the post-Cold War era.\footnote{For further debate on the use of ‘post’ as an analytic term and as a temporal marker, see the exchange between Anne McClintock and Stuart Hall. Anne McClintock, “The Angel of Progress: Pitfalls of the Term ‘Post-colonialism,’” \textit{Social Text} 31/32 (1992): 84-97; Stuart Hall, “When Was the Post-colonial? Thinking at the Limit,” in Iain Chambers and Lidia Curti, eds. \textit{The Post-Colonial Question: Common Skies, Divided Horizons} (London and New York: Routledge, 1996).}
The relationship between the nuclear industry and the state-military-industrial complex is demonstrated with historical specificity by Matthew Farish, Gabrielle Hecht, Scott Kirsch, Valerie Kuletz, Joseph Masco, and Adriana Petryna, to highlight the most pertinent to this analysis. The military-state rationalizes activities, even internal violence, as in the national interest, “debunking the myth of democracy and equality.” Masco further argues that nuclear projects, such as the atomic bomb, are means of “radioactive nation-building” that “pursue the public good through means that are simultaneously corrosive of the social contract…they contaminate the public sphere.” Visible markers of the state-military-industrial complex are numerous. Nuclear facilities have emblematic signifiers of power such as fences, barbed wire, warning signs, or military personnel that delineate public boundaries. Other nuclear spaces are notable by absences – in some instances an absence of radiation warning signs, in others a dispossession of the public from certain areas, and in others, a complete dehumanization. Kuletz shows that despite measures to contain nuclear technology, experimentation, and information, the artificial boundaries between public space and nuclear space are repeatedly demonstrated to be porous, resulting in the spilling of secrets, information and waste. The wasteland discourse permeates literature on nuclear landscapes, rendering visible these spaces as sacrificial zones for geopolitical ends. Inability to contain radioactive waste is also a marker of the nuclear state. One of the key insights that Masco raises is that the millennial timeframe imposed by nuclear waste imagines the continuance of the nation-state and presupposes its “eternal reliability” to manage and contain radioactive waste in perpetuity. These projections assume the stability of nature. In proposing plans to contain radioactive waste, the nuclear state also presumes its continued existence in substantially unaltered form and function.

111 Masco, *The Nuclear Borderlands*, 25. Masco also notes the contamination of bodies and terms the nuclear industry as “culturally toxic.”
114 Masco, *The Nuclear Borderlands*, 146; Francoise Zonabend terms radioactive waste “a kind of rubbish that can never be got rid of, a poison that will linger for all time, an everlasting blemish, permanent, indomitable pandemonium.” Zonabend, *The Nuclear Peninsula*, 128.
radioactive waste is premised on just such a proposition, but elides the impermanence of political formations.

The literature on nuclear landscapes analyzes the production of nuclear spaces with historical specificity and demonstrates that conditions of dispossession, insecurity, anxiety, uncertainty and sacrifice are endemic. This body of work seeks to make visible the social relations that underpin what could be, after Jurgen Habermas, termed the negative utopia of nuclear landscapes.\footnote{Jurgen Habermas, “Technology and Science as Ideology,” in \textit{Towards a Rational Society: Student Protest, Science and Politics.} (Boston: Beacon Press, 1971), 81-122. Habermas argues that western science and technology (the foundation of nuclear techno-politics) has shifted from solving practical problems (of everyday inequality, for example) to solving technical problems (such as containment structures for radioactive waste). In a negative utopia, practical questions have been eliminated, a process noted by Habermas as “depoliticization.”}

Situating my analysis within the literature on nuclear landscapes explicates that the links between the state, power, and Port Hope as a nuclear landscape are systemic, and not an isolated case. As I set out in this dissertation, there are parallels in not just the intrinsic conditions of nuclear landscapes, but in how nuclear landscapes are reproduced through a myriad of means, through processes that I describe as enclosure and containment.

**Conceptual Lens: Enclosure and Containment**

I analyze the uranium refinery and contestation in Port Hope over radioactive waste through the dual lens of enclosure and containment. The concepts of enclosure and containment have theoretical leanings in common with scholarly literature in political economy and nuclear landscapes, although their links are not always explicit. Below, I set out these concepts as a rich spatial lens through which to analyze how a state owned uranium refinery retained legitimacy despite seemingly incontrovertible evidence that the refinery had contaminated the town with radioactive waste, and to assess the uneven power relations that produced Port Hope as a nuclear landscape.

**Enclosure**
Enclosure most commonly refers to the ways in which private or state interests secure ownership or control of land and property. The result is that prior relationships with the land, as well as social relationships, are severed or deleteriously altered. Processes of enclosure also include dispossession of the resources and prior social relations of a community. Nik Heynen and Paul Robbins argue that enclosure is “the capture of common resources and exclusion of the communities to which they are linked.”\textsuperscript{117} Drawing on Heynen and Robbins, with insight from Massimo de Angelis that analysis of dispossession must account for the conditions and circumstances under which dispossession is “enforced,” I situate enclosure as an ongoing form of dispossession articulated through a variety of mechanisms for political and economic interests.\textsuperscript{118} Enclosure is a socio-spatial ordering and analyzing processes of enclosure in the context of the Eldorado uranium refinery enriches my analysis of how dispossession of territory and social relations both enabled and disallowed particular outcomes.

\textit{Containment}

George F. Kennan’s 1946-1947 Cold War containment strategy inadvertently placed the term containment on the political map, as described policies and actions to withhold or limit the expansion of a hostile, or unwanted power or ideology, in order to protect the domestic sphere.\textsuperscript{119} Containment “signifies an enclosing within,” a literal and figurative encapsulation or holding


back of something unwanted.\textsuperscript{120} Kennan’s containment strategy is commonly interpreted as pertaining to “a hostile international environment” and “relied on the fiction of an external threat,” most obviously in reference to tensions between the Soviet Union and United States in the Cold War era.\textsuperscript{121} Kennan characterized containment as “the adroit and vigilant application of counter-force at a series of constantly shifting geographical and political points.”\textsuperscript{122}

However, Andrew Ross argues that Kennan’s containment strategy was interpreted as applying only to international relations, and what is missing from most accounts is the flipside of the external threat. Containment strategy (or strategies of containment) also refers to “internal political containment of a political threat.”\textsuperscript{123} Matthew Farish describes that containment was both “a recommended foreign policy and a national narrative.”\textsuperscript{124} Indeed, Kennan writes that “indecision” and “disunity” were damaging to the domestic cause. To counter external threats, civil society should display the appearance of unity as a means of containment and give “the impression of a country which knows what it wants, which is coping successfully with the problems of its internal life.”\textsuperscript{125} Viewed through these latter lenses, containment may also target the “domestic contents of the social body, [and] concerns a threat internal to the host which must then be neutralized by being fully absorbed.”\textsuperscript{126}

John Lewis Gaddis, a Cold War historian, argues:

… grand strategy is the calculated relationship of means to large ends. It’s about how one uses whatever one has to get to wherever it is one wants to go. Our knowledge of it

\textsuperscript{120} Here, I am playfully riffing on a Cold War era dictionary definition of “contain” to convey the intangible and coded quality of containment in everyday, ordinary usage. See Webster’s New World Dictionary: College Edition (Toronto: Nelson, Foster and Scott, Ltd., 1953), 318.


\textsuperscript{122} X, “The Sources of Soviet Conduct.”

\textsuperscript{123} Andrew Ross, No Respect: Intellectuals and Popular Culture (New York: Routledge, 1989), 46. Here, Ross is quoting George F. Kennan. Also see Matthew Farish, The Contours of America’s Cold War (Minneapolis: University of Minnesota Press, 2010), 193.

\textsuperscript{124} Matthew Farish, The Contours of America’s Cold War, 194.

\textsuperscript{125} Mr. X, “The Sources of Soviet Conduct,” 581.

\textsuperscript{126} Ross, No Respect, 46.
derives chiefly from the realm of war and statecraft, because the fighting of wars and the management of states have demanded the calculation of relationships between means and ends for a longer stretch of time than any other documented area of collective human activity. But grand strategy need not apply only to war and statecraft: it’s potentially applicable to any endeavor in which means must be deployed in the pursuit of important ends.\textsuperscript{127}

Containment may be productive to certain interests through a myriad of mechanisms. Containment also pertains to expansion, yet not just of territory, but of influence. Frederic Jameson theorizes strategies of containment as having ideological roots that are “not only modes of exclusion; they also take the form of repression.”\textsuperscript{128} Strategies of containment include presenting texts or history as a totality. Viewed in this light, theorizing containment necessitates an investigation into how the construction, or erasure of certain past events may enable the production and legitimization of particular kinds of presents [and futures], that is, specific political and economic ends.\textsuperscript{129} “Conflict can be contained” such that the interests of the elite are maintained over long periods of time.\textsuperscript{130}

Recently, the concept of containment has been employed by social theorists to describe how an intensification of accumulation by dispossession in capitalism relies on political techniques of security, surveillance, and borders, and the concurrent growing insecurity of civil society. These


\textsuperscript{129} I attend to Jameson’s insights into containment through a case study lens, yet also to illustrate a broad example: if nuclearism is viewed along a historical timeline since the dawn of the atomic age, shifting patterns emerge that indicate how the production of uranium was contained on ideological grounds within nuclear states, including Canada. During WWII and through the Cold War, ideological grounds for the justification of the nuclear industry included the threat of nuclear war. Current ideological grounds for the continued commodification of uranium include nuclear energy as a source of “clean” energy and substitute for fossil fuels. Climate change is the new “external threat.” Elsewhere, I argue that these state facilitated discourses and practices are used to justify the continued pursuit of geopolitical and economic power.

conditions of alienation are also reproduced in everyday life.\textsuperscript{131} Strategies of containment may increase the “material insecurity of civilians and political insecurity of civil society.”\textsuperscript{132} In particular, Feldman et al note the physical infrastructure of containment in borders and walls, yet also comment on its increasing articulation through coercive means.\textsuperscript{133} In relation to built infrastructure, containment also has practical definitions within the nuclear industry. Containments are physical components of nuclear reactors “enclosed in a thick, concrete, domed building…In the event of a release of radioactive material into the reactor building, the containment traps the emissions and prevents their escape.”\textsuperscript{134}

Nuclear accidents such as Chernobyl, yet also the non-spectacular releases of radioactive waste in communities such as Port Hope, have in common the techno-political response of the nuclear state to contain the problem. Unfortunately, as has been documented by Kirsch, Kuletz, Petryna, Masco and others, this often has entailed containing the response, including the flow of information, rather than the ecological, biophysical or social problem, per se. Petryna terms these strategies of containment as “[revealing] variable ethical commitments and human tolls. This variability in itself suggests not only the intensely political nature of nuclear science but the extent to which the very scientific and political construction of aftermath can affect its lived experiences.”\textsuperscript{135} Moreover, Masco’s discussion of secrecy in relation to the atomic bomb also suggests strategies of containment, as does Kirsch’s observation that the compartmentalization of information is a “strategy for containing secrecy and control.”\textsuperscript{136}

I focus on containment internal to the state and among civil society, and draw on Farish, Kennan, Kirsch, Jameson, and Ross to theorize how containment may ‘enclose within,’ ‘absorb,’ limit, distort, undermine, or erase, opposition to dominant political and economic interests. On a cautionary note, as demonstrated most powerfully by Kuletz on the radioactive contamination of

\begin{footnotesize}
\textsuperscript{132} Feldman, Geisler, and Menon, \textit{Accumulating Insecurity}, 20.
\textsuperscript{133} Feldman, Geisler, and Menon, \textit{Accumulating Insecurity}, 9.
\textsuperscript{134} www.nuce.boun.edu.tr/glossary.html [Last Accessed March 20, 2010].
\textsuperscript{135} Petryna, \textit{Life Exposed}, 217.
\end{footnotesize}
the American southwest, and by Petryna regarding Chernobyl, processes and infrastructures of containment are not, nor do they produce, totalities: all forms of enclosure and containment are subject to some form of leakage.\textsuperscript{137} Therefore, in the chapters that follow, I attend not only to what is enclosed and contained, but what is not.

Conclusion

I am inspired by E.P. Thompson’s observation that insufficient attention is paid to stability. In this dissertation, I analyze how stability is not only maintained, but intensified, even in times of crisis. I am also driven to investigate how the separation of the state from civil society, however false, is productive to state power. The state is inextricably linked to the nuclear industry and this analysis of a state owned uranium refinery requires attention to the specificities of the state and power. This literature review of key scholarly writings in political economy and nuclear landscapes provides the foundational texts that I draw on to theorize not what is the state, but what is the effect of state power. Theoretical writings from Harvey, Gramsci, Hall, and Mitchell, to highlight the most pertinent, stress the importance of analyzing how the separation of the state from civil society, however false, is maintained, and what this separation enables. Yet power is articulated not just from the state, but also across civil society; indeed, the socio-spatial production of territory in capitalism also relies on techniques of discipline-normalization and individuation in civil society.

Since 1944, the state has figured prominently in the small town of Port Hope, where the Eldorado uranium refinery has loomed large as both an arm of the federal government, and as the town’s largest employer. Over time, this refinery incrementally transformed Port Hope into a nuclear landscape, a space of dispossession, insecurity, anxiety, uncertainty, and sacrifice, but then expanded in the wake of social and political scrutiny. I draw on the concepts of enclosure and containment to analyze this outcome. To begin assessing how Eldorado retained its legitimacy in spite of this apparent crisis, it is first essential to understand the relationship between the nuclear state and Port Hope. In the following chapter, I provide a history of the

\textsuperscript{137} See Kuletz, \textit{The Tainted Desert}; Petryna, \textit{Life Exposed}. 

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relationship between the Eldorado uranium refinery and the small community of Port Hope to demonstrate how it was, from the outset, born in uneven power relations.
Chapter 1
Port Hope: Home of the Nuclear State

The town of Port Hope is a small community located on the north shore of Lake Ontario, 110 kilometers east of Toronto, Canada’s largest city. The Ganaraska River runs through the centre of town, flowing into Lake Ontario just steps away from the world’s largest uranium refinery, which dominates the town’s waterfront to the west of the river. Port Hope has several distinctive features. Aside from its eighty-year relationship with the nuclear industry, the longest in Canadian history, Port Hope is home to some of the most architecturally preserved historic houses in Ontario, many dating from the 19th century and earlier. This latter mark of distinction, heritage conservation, is much lauded by the local community. Architectural preservation is a primary objective of the Port Hope Heritage Advisory Committee (formerly the Local Architectural Conservation Advisory Committee), a local organization that strives to conserve historic properties under the Ontario Heritage Act. Port Hope is termed the “poster town for architectural conservation” with over 200 buildings having heritage designation, an attribute that is thought to benefit property values as well as tourism. Historic architecture is seen by the community as key to remaking Port Hope’s image into an emblem of heritage conservation. Local historian Ian Montagnes describes that “from the buildings of its past, Port Hope found a new vitality for its future,” and emphasizes that architectural conservation is a way for the town to market itself as a unique tourist destination.

Yet this image is in tension with another source of Port Hope’s notoriety. Port Hope is Canada’s oldest nuclear town. Established on the town’s waterfront in 1932, the Eldorado uranium refinery quickly grew into a cornerstone supplier of processed uranium in the national and global markets. Over time, other facets of the nuclear industry also located in Port Hope, a move welcomed by the local community government. By the mid-1970s the Eldorado uranium

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3 Montagnes, Port Hope: A History, 207.
4 Other nuclear industries locating in Port Hope included American Machine and Foundry in 1957 which was bought by Westinghouse Canada Limited in 1964. These companies made nuclear fuel and components for the Candu nuclear reactor. This latter business was sold and
refinery had expanded its property holdings to occupy approximately 25 acres of prime lakeshore lands on the Port Hope waterfront and became the town’s largest employer with approximately 400 employees out of a town population of about 9,300.\textsuperscript{5}

Being home to the nuclear state has been a source of great pride in Port Hope. The refinery played a pivotal role in the development of specialized uranium products for civilian and military purposes, and the community became a site of nation-building for the nuclear state. Until the publicity over the town being contaminated with radioactive waste, Port Hope’s pivotal role in the national uranium industry was advertised on welcome billboards throughout the town, with slogans such as “Port Hope: Home of Radium” and “Port Hope: The Town that Radiates Friendliness.”\textsuperscript{6} For some local residents, however, the allure of embracing the nuclear industry began to fade in the 1970s. As discovered in 1975, radioactive and other wastes from the refinery had been indiscriminately dispersed throughout town over a period of decades. Hosting the nuclear industry, and particularly the Eldorado refinery, had come with immense social and environmental costs. As the extent of the contamination unfolded, Port Hope and the Eldorado uranium refinery became mired in controversy that deeply divided the community.

In this chapter I provide an historical background of that contestation, by first detailing the establishment of the Eldorado uranium refinery in Port Hope, and then providing an account of

\textsuperscript{5} Alastair Gillespie, memorandum to Cabinet, “Site Selection for an Ontario Uranium Refinery,” January 28, 1977, R1526 Energy, Mines, and Resources Ministers Fonds (hereafter EMR Fonds), Vol. 190, File ENL and Eldorado Aviation Limited Capital Budgets 1977, LAC. See Table 7 for Eldorado employment figures from 1948 to 1986. With the exception of the occasional year, employment at the Port Hope refinery grew steadily from the 1940s and increased markedly in the mid-1970s. The refinery reduced employment by over 80 workers, (approximately 20% of the workforce at that time) after the new UF6 expansion plant was built in Port Hope.

\textsuperscript{6} See for example, Montagnes, \textit{Port Hope: A History}, 193.
events surrounding the discovery of radioactive waste throughout the town. I demonstrate how this small town factory was an integral component of the nuclear state and I show the stakes at risk for the nuclear state when the contamination surfaced. Through this historical narrative, I also demonstrate how the relationship between Port Hope and the Eldorado uranium refinery was born in uneven power relations that favoured the state. While located within a small town, Eldorado was not just a refinery, but an arm of the nuclear state.

The Eldorado Uranium Refinery: The Nuclear State Finds a Home

Charles and Gilbert Labine originally established Eldorado Gold Mines Limited in 1926 in Manitoba. In 1930, Gilbert Labine discovered pitchblende (uranium) with high radium-silver content near Great Bear Lake in the Northwest Territories where it established the Port Radium mine shortly afterwards. A facility for refining the ore from Port Radium was built in Port Hope. Starting out in a few waterfront buildings in the early 1930s, the radium refinery was a welcome addition in a struggling town. Local Port Hope residents remember:

_Uranium and radium came to Port Hope in the 30s when the Depression was on and part of the reason they came here, is they offered employment when there was none...and the unemployment went from not being able to find labour to mass unemployment...in the 1930s the Depression and things were so bad here that they would take any kind of industry._

_We had just Eldorado there first and for people of Port Hope there were no jobs, they were so happy to get the jobs they didn’t know anything about it right, well nobody did back then, and so they were happy to have them. There were no jobs ... the men would get on the train and go look for jobs, we were just nice normal people and you can’t trust them now, but you could then ...just normal guys looking for work so when Eldorado, when the government said ‘here’ everybody jumped, everybody thought it was wonderful._

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7 Eldorado Gold Mines Limited “claimed to be the largest producer of radium in the world and sole producer in the Western Hemisphere with a radium refining facility at Port Hope, Ontario, and treating, servicing, and research facilities in the United States and Canada.” R. M. Pratt, “Review of Radium Hazards and Regulation of Radium in Industry,” _Environment International_ 19 (1993): 481.

8 Interview #12: Anonymous, Port Hope resident. Penny Sanger details the discovery of radioactive waste in Port Hope, providing excellent detail on the struggles at the local scale. This section provides background on the issue drawn mostly from archival and media sources, supplemented by Sanger’s book, in order to situate the reader. Penny Sanger, _Blind Faith: The Nuclear Industry in One Small Town_ (McGraw-Hill Ryerson, 1981).

9 Interview #10: Anonymous, Port Hope Resident.
Some argue that the locating of the refinery in Port Hope was an historical accident. Yet others emphasize that the town was deliberately chosen due to its “strategic location in relation to chemical supplies” necessary to process uranium ore. The site provided further industrial advantages, notably that the waterfront offered the combination of vacant industrial buildings, rail transportation, and water. The town was in an economic slump and town council encouraged the company to locate on a long term basis in Port Hope by offering to pass a special bylaw for reduced taxes should the company purchase, rather than rent, the waterfront buildings, formerly known as the Morrow Seed Company.

Obtaining the privately owned Eldorado company in the name of national interest was first raised by the federal government in the early 1930s due to the importance of radium for medical purposes, including cancer treatment. Radium was also used in luminous dial painting. At the time, the question of nationalizing the company to secure a supply of radium for medical research was touted as “in the name of humanity and social justice.” However, when Eldorado was nationalized on January 27, 1944 (as Eldorado Mining and Refining [1944] Limited), through World War II emergency war powers, it was for very different reasons. Eldorado was nationalized to guarantee the security and secrecy of uranium resources for the United States military purposes, notably the atomic weapons program. As a result, the newly formed

10 Sanger, Blind Faith, 24.
13 Bothwell, Eldorado, 37. Also see page 61 in relation to nationalistic overtures by the National Research Council in 1936 towards Canada’s control over radium resources.
14 The term “crown” refers to Canada’s constitutional monarchy with Great Britain.
Eldorado federal crown corporation, relying on its uranium refinery in Port Hope, became a critical supplier of processed uranium to the Manhattan Project and the development of the atomic bomb. Eldorado and Port Hope were “vitally important to the military strategy of the Western Allies and played a historic part in world events.”

In commenting on the United States atomic bomb program, Eldorado corporate historian Robert Bothwell notes that “the road to strategic safety, not to mention atomic superiority, let to Eldorado.” As observed by one local resident, however the refinery’s contribution to the Manhattan Project has since been a controversial topic: “That first bomb came from here, a lot of people deny it, but you can’t deny it, it’s the only place that made it.”

While ending up as a key ingredient in atomic bombs, uranium as a marketable and profitable substance had a rather unremarkable beginning as the waste material of radium processing. In the early 1930s, uranium was merely Eldorado’s largest waste byproduct. As such, uranium was not deemed by the company to be of economic or political value, and was stored or disposed of with apparent disregard, at both Eldorado’s Port Radium mine in the Northwest Territories and at their Port Hope refinery site, where it was discarded in local ravines, piled around the plant, or dumped into the harbour.


16 G.B. Knight (AECB), “Regulatory Concerns Arising From the Port Hope Situation,” 2.

17 Bothwell, *Eldorado*, 201; For historicized analysis of the social and political response within Canada to Canada’s involvement in the atomic bomb, including the contribution of uranium to its development, see Robert Teigrob, *Warming Up to the Cold War: Canada and the United States’ Coalition of the Willing, from Hiroshima to Korea* (Toronto: University of Toronto Press, 2009), particularly chapter one, “The Bomb: Pax Ango-Saxonia’ Or ‘Too Much Power’?”

18 Interview #10: Anonymous, Port Hope resident.

It was not until the late 1930s, when scientists seriously pursued the splitting of the uranium atom for military purposes, that uranium itself became a hot commodity. Bothwell comments on this specific historical juncture: “at the dawn of the atomic age, politics entered the uranium business.”\(^20\) He further notes that with the development and deployment of the atomic bomb, uranium became “the most sensitive, strategic commodity in the world.”\(^21\) Following the atomic bombing of Hiroshima and Nagasaki, Japan, by the United States and the subsequent end of World War II, the market for Canadian uranium did not subside. Rather, American demand for uranium rose for its escalating military program that then turned towards atomic weapons stockpiling. Indeed, by the onset of the Cold War, uranium had become “the scarcest and most desirable of commodities. Like radium before it, uranium held the key of life and death, this time of whole countries; and some countries would do anything to get it.”\(^22\) Within the scope of Eldorado’s operations, the uranium refinery in Port Hope remained “crucial to the bomb project” and the rapid increase in demand for uranium had immediate and long-lasting impacts on the refinery’s importance at the national and international scales.\(^23\)

The decision over how to nationalize Eldorado was cloaked in secrecy and fraught with international pressure from the British and American governments who each sought a measure of control in Canada’s uranium supplies. Nationalization was seen by the Canadian state as a means to secure sovereignty and monopoly over uranium resources. Two options for converting Eldorado to a crown corporation were considered by C.D. Howe, the federal Minister of Munitions and Supply, in the early 1940s, yet each posed particular problems. Should the state use blunt powers of expropriation under emergency war measures, the crown corporation would once again become a private enterprise at the end of the war, an undesirable outcome due to the geopolitical and economic value of uranium as a strategic and lucrative commodity. Therefore, beginning in 1942, in order to ensure more permanent control of uranium resources, the state secretly executed a take-over strategy by incrementally buying all the company shares for the

\(^{21}\) Bothwell, *Eldorado*, 158.
\(^{22}\) Bothwell, *Eldorado*, 175.
\(^{23}\) Bothwell, *Eldorado*, 112.
Then, in 1943, to further guarantee national control over uranium resources, the Canadian government passed two Orders-in-Council that reserved all radioactive substances in the Northwest Territories and the Yukon, territories with vast uranium reserves, for the federal crown. This latter act is described by Bothwell as a “giant leap towards full control of the uranium industry. Only one step remained: public nationalization of the industry,” a process already well underway. Eldorado became the only entity with legal authority to stake and claim radioactive substances, as well as undertake exploration, mining, refining and sales of uranium. When the uranium mining industry was then re-opened to private interests in 1947, the crown corporation continued to maintain a strict monopoly over uranium refining and was the only uranium sales agent in Canada until 1958. This series of strategic moves highlight how the state deliberately established this crown corporation to be the pivotal link in securing sovereign territory over uranium rich areas, while building a monopoly over raw uranium resources and processing uranium fuels for national and international interests. By the late 1950s, the Canadian uranium industry had expanded into a “resource giant.” At the centre was Eldorado, which by then had become a “miniature empire.”

Within this empire, the Port Hope refinery was pivotal in making Canada “among the three atomic powers of the world,” a distinction celebrated by the federal government immediately following the bombing of Japan in World War II. While many other World War II crown corporations were privatized after the war ended, Eldorado remained a crown corporation, in

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24 Bothwell, *Eldorado*, 121-127, 181; Robert Teigrob also comments on American ambitions for control over Canadian uranium resources throughout World War II and the Cold War, American military presence in northern Canada, and the securing of uranium reserves through long-term contracts. See Teigrob, *Warming Up to the Cold War*, 49.
26 Bothwell, *Eldorado*, 149.
30 Bothwell, *Eldorado*, 336. See Appendix 4 for a list of Eldorado subsidiary companies, organizational structure, and ministerial jurisdiction.
large part because of the increased demand for Canadian uranium supplies to fuel the Cold War arms race, and the imperative to retain secrecy surrounding the American atomic military program. The role of the refinery in Port Hope as a guarantor of Canadian uranium resources to the United States weapons program remained strongly in effect at the close of World War II and continued through the first two decades of the Cold War. The status of Eldorado as a federal crown corporation enabled the federal state to retain control over the uranium industry through these times.

C.D. Howe, an extremely influential Minister, and the “political godfather” of Eldorado from 1944 to 1957, was instrumental in the success of Eldorado through World War II and the beginnings of the Cold War. Political theorist Leo Panitch characterizes Howe as an “architect of federal industrial and commercial policies during the war [World War II] and in the formative post-war years.” Recognizing the political and economic importance of uranium as a commodity, Howe was integral in shaping the future of Eldorado as a crown corporation, and also in guiding Canada’s ambitions in leading atomic research and development for national and global markets. Led by Howe, the uranium industry was enveloped in nationalistic terms early on in its development due to its strategic importance in atomic weapons. The Canadian media, as well as prominent federal politicians, like Howe, emphasized Canada’s contribution to the atomic bomb in terms of national pride and triumph. The promotion of Canada’s role “as a vital member of the nuclear vanguard” was “reinforced relentlessly” by the Canadian government and

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33 G.B. Knight (AECB), “Regulatory Concerns Arising From the Port Hope Situation,” 3; Also see Bothwell, Eldorado.
34 Bothwell, Eldorado, 431.
36 Bothwell, Eldorado, 172, 199.
37 Teigrob, Warming Up to the Cold War, 23, 25-26. He notes an apocalyptic thread through popular media reports, yet marked differences between the American and Canadian culture and context in response to the atomic age, including a greater willingness in Canadian media to acknowledge the Allied contribution, address moral considerations, and voice disapproval of the atomic bomb.
media. From early on, uranium resources were seen as instrumental to strengthening Canada’s role on the global stage, “heady days, indeed, for a nation seeking to establish its standing as a partner rather than drudge, to the major international powers.” By the late 1950s, uranium had become Canada’s main mineral export commodity and when American military demand for uranium threatened to lessen, Canada was poised to assume an additional lead role in research and development of atomic energy and the supply of uranium resources for so called ‘peaceful’ purposes.

The link between uranium and nuclear technology as key to Canada’s national uranium industry remained through the transitional development of fuel and technology for nuclear power production, most notably geared towards the Candu reactor. Writing in 1980, political theorist G. Bruce Doern termed the Candu technology as Canada’s last and/or best chance for developing and maintaining a high-technology-based and internationally competitive and respected industry. Such an argument is rarely explicitly articulated, but there can be little doubt that senior decision makers consciously

38 Teigrob, Warming Up to the Cold War, 36. Teigrob ponders the extent to which media and political messaging influenced public opinion, as well as the influence of American media and popular culture in shaping Canadian perspectives.
39 Teigrob, Warming Up to the Cold War, 25. Canada was not alone in housing uranium reserves. He also acknowledges the heightened international importance of the Belgian Congo for precisely the same reason, notably their large stores of fissionable uranium reserves.
40 Bothwell, Eldorado, 383. A review of Eldorado’s annual reports indicates the fiscal contribution of this crown corporation to the national economy. In 1962, Eldorado reported that “uranium has made an important contribution to national prosperity. For the eight years 1955-62 inclusive, it brought an average of $180,000,000 annually into the Canadian economy from sales to the United States and the United Kingdom.” Under contracts at the time, Eldorado estimated the total value of Canadian uranium sales to reach $1,750,000,000. See Eldorado, 1962 Annual Report of Eldorado Mining and Refining Limited and Subsidiaries (Ottawa: Eldorado). By the end of 1963, Eldorado reported that the crown corporation had paid out to the Government of Canada dividends and redemption of shares totaling $30,740,000; income taxes of $26,890,000; $3,600,000 in royalties to the Government of Saskatchewan; and, $2,400,000 in grants to municipalities (including Port Hope and Uranium City). In 1963, Eldorado had a net worth of $51,000,000 after these expenses. See Eldorado, 1963 Annual Report of Eldorado Mining and Refining Limited and Subsidiaries (Ottawa: Eldorado), 4.
41 G. Bruce Doern, Government Intervention in the Canadian Nuclear Industry (Montreal: Institute for Research on Public Policy, 1980), 38. He terms the combination of “high technology” of the Candu reactor and the “staple resource” of uranium as characteristic features of Canada’s nuclear industry, 37.
and subconsciously view our nuclear technology and the nuclear technological community as an asset not to be squandered.\textsuperscript{42}

Doern subsequently noted that “the nuclear industry is [not] a major ‘lead’ sector in a direct economic sense …Its importance as a symbolic lead sector in high technology industry cannot, however, be doubted.”\textsuperscript{43} This ideological element to Canada’s national nuclear industry was also infused with the cultural capital of nuclear expertise. Shifting emphasis from the Manhattan Project to technological advancement in nuclear reactors continued Canada’s already established role as a leading supplier of uranium fuels and the development of new nuclear technologies for a new nuclear age. Rather than diminishing when the military demand for uranium lessened, Eldorado strategically transitioned into a key role in research, development and production of nuclear reactors and fuels. The Eldorado refinery in Port Hope adapted its operations to produce several commodities from uranium concentrates into more purified forms.

Writing in 1980, Energy, Mines and Resources Canada (EMR), the federal department responsible for the Eldorado crown corporation, listed the primary commodities as “natural, ceramic-grade uranium dioxide powder (UO\textsubscript{2}), used for CANDU reactor fuel fabrication, and natural uranium hexafluoride (UF\textsubscript{6}), needed by most of Canada’s export customers as feedstock for the uranium enrichment process.”\textsuperscript{44} By the early 1980s, Eldorado had successfully become a leading global supplier of UF\textsubscript{6}. Through these transitions, the Canadian government maintained a monopoly on the uranium industry. Until Eldorado established a uranium trioxide facility (UO\textsubscript{3}) in Blind River, Ontario, in 1983 the refinery in Port Hope was also the only uranium refinery in Canada. The Eldorado uranium refinery was also one of only five UF\textsubscript{6} facilities in the world, with two in the United States, one in France, and one in Britain. Competition among these uranium producers was “normally intense…all of them [expanding] in response to the growing market” in the late 1970s.\textsuperscript{45}

\textsuperscript{42} Doern, \textit{Government Intervention in the Canadian Nuclear Industry}, 38.
\textsuperscript{43} Doern, \textit{Government Intervention in the Canadian Nuclear Industry}, 38 (emphasis in original).
\textsuperscript{44} EMR, “The Structure of Canada’s Uranium Industry,” 288.
\textsuperscript{45} EMR, “The Structure of Canada’s Uranium Industry,” 287.
Since its establishment in the 1930s, the uranium refinery in Port Hope was central to the building of Canada as a leading uranium supplier. Eldorado remained instrumental to the future of Canada as a leading nuclear state, which inserted uranium in the making of a post-war national culture. Moreover, as uranium was defined as a prescribed substance in the *Atomic Energy Control Act*, the uranium refinery in Port Hope became defined as a work for the general advantage of Canada, cementing the small town of Port Hope as the pivotal link in a national nuclear industry. Indeed, the nuclear state was built in large part through this one refinery. By the 1970s, when it was discovered that the town was widely contaminated with radioactive waste, the Port Hope refinery had become the cornerstone in Canada’s uranium industry. But Eldorado had achieved this position with little scrutiny. This was soon to change.

1975: A Nuclear Giant Emerges from the Shadows

Writing in 2007, local historian Ian Montagnes described the contamination of Port Hope:

One dark legacy continues to underlie part of Port Hope. Eldorado had demolished its radium laboratories in 1954 and sent the building materials to a dump site north of town. A certain amount of waste made its way into ravines and landfills in town, and some scrap material seems to have been sold for construction. From exposure to radium this waste was mildly radioactive, but within the government’s safety guidelines of the time. Twenty years later, the true risk was recognized. Radon gas was found in the basement of St. Mary’s School at levels a hundred times greater than normal. Every building in town was checked for radon, contaminated landfill was removed and a few of the hottest buildings were demolished. In the 1940s Port Hope had boasted itself as the home of radium, and even much later it boasted of being a town that ‘radiates friendliness.’ Now it became known as ‘the town that glows in the dark.’

Montagnes effectively portrays the role of the community in the production of radium. He also makes clear that the contamination of Port Hope shattered not just the town’s image, but the

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46 Montagnes, *Port Hope: A History*, 193. Montagnes further argues that this “new nickname was as unfounded as the nickname ‘open air asylum.’” Other names for Port Hope over the years have been ‘the town that radiates friendliness,’ and ‘the home of radium.’ Billboards with these latter (and similar) slogans in town that advertised Port Hope’s association with the nuclear industry were removed after the mid-1970s discovery that the town was contaminated with radioactive waste from the Eldorado refinery.
community’s belief in radium, and subsequently uranium, as progress. Suddenly, radium and uranium did not correlate with light and progress, but with darkness and waste.47

_I think part of the reason it [the story] didn’t break [before], the face of modern was always benign, it was always like mother, but when Jim Cutting broke the story of the face of modern, it wasn’t mother anymore, it was some kind of ugly, evil figure that endangered the health of 5 year old kindergarten kids at St. Mary’s School, and suddenly in that moment in Port Hope, modern wasn’t all good, there was something about modern that was a little suspicious._48

As indicated above, the surfacing of Port Hope as a contaminated community constituted what Adriana Petryna terms an “anthropological shock,” a disruption of the belief in the conditions of everyday life.49 In relation to Chernobyl, also very much a nation-building nuclear project (of Ukraine and Russia), Petryna notes how the explosion of the nuclear reactor and spread of radioactivity among civil society was a physical and psychological jolt to the community, “bringing the efficacy of everyday knowledge to a state of collapse and underscoring how much the conditions for secure living on what have been termed ‘risk societies’ lie in the hands of experts of all kinds.”50 In Port Hope, radium and uranium no longer signaled progress. The “pinnacle of civilization” that this small community had proudly been part of through the Eldorado refinery, suddenly became under great strain.51

Before 1975, there was little sustained media coverage of the Eldorado uranium refinery [in local, regional, or national newspapers].52 Nor was there much government oversight of Eldorado’s waste management practices in Port Hope. However, in 1974, what began as a simple investigation into past refinery waste handling practices quickly snowballed into the shocking discovery that the town was widely contaminated with radioactive waste and other toxic

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47 Francoise Zonabend also demonstrates how associations of radiation/irradiation (e.g. radium for medical cures) evoke clean, light, mythic properties. Radiation/contamination evokes dirty, filthy, unclean (physical and moral), blemish, and corruption. Francoise Zonabend, _The Nuclear Peninsula_ (Cambridge: Cambridge University Press, 1989), 108-109.
48 Interview #12: Anonymous, Port Hope resident.
50 Petryna, _Life Exposed_, 3.
52 Based on my analysis of local, regional and national newspapers of the Eldorado refinery and corroborated by field interviews.
substances. The story really took off when St. Mary’s School was found to have elevated radiation in December 1975. News of a contaminated school thrust the Eldorado refinery and the small town of Port Hope into a highly publicized government and media spotlight. However, the contamination became public through the efforts of the media and concerned local citizens, rather than the overt actions of the refinery or state agencies.

In the summer of 1974, the Atomic Energy Control Board (AECB), responsible for all atomic matters in Canada, was conducting a consolidation of the refinery’s operations into a single General Prescribed Substances Licence and issuing licences for the refinery’s radioactive waste dumps (Residue Areas). Eldorado had operated the refinery without a license until the early 1960s, and the radioactive waste Residue Areas, some in use since the 1940s, had never been licenced at all. Implementation of the Atomic Energy Control Regulations, which came into effect on June 3, 1974 under the Atomic Energy Control Act, redefined “nuclear facility” and the new definition encompassed the uranium refinery in Port Hope, prompting alterations to the refinery’s licensing requirements. This regulatory exercise was intended to be routine.

At the request of the AECB, Eldorado underwent regulatory review of its operational practices, including investigation into prior waste disposal. This exercise led to sampling of a few properties suspected of containing radioactive contamination, beginning with those of former and current employees. Not having adequate records of its waste disposal, yet needing to comply with AECB directives, Eldorado had to resort to a variety of methods to trace radioactive materials from the refinery, including interviews with employees, and soliciting tips from the community through the local newspaper and radio stations. These extraordinary measures to try and locate where radioactive materials may have ended up illustrate the lack of control taken by

the crown corporation over a period of decades with regards to the disposal and dispersal of radioactive materials in the Port Hope area. Eldorado soon discovered several properties with elevated radon readings that were brought to the attention of the AECB.

However, by the summer of 1975, inklings that there might be a much bigger problem with radioactive waste trickled into the public light, when “members of the public became aware of the developments underway and brought them to the attention of the media and certain public interest groups.”55 One local resident notes:

_The St. Mary’s story was broken by a Port Hope resident Jim Cutting but he worked for ...the Peterborough Examiner...in those days it was highly respected...I honestly don’t know what would have happened if it had broken locally ... but when it broke by a paper outside of town...there was nothing anyone could do to stop it, and I’m not saying people would have stopped it, but there was nothing they could do to stop it._

_Because the Peterborough examiner filed it and then they filed it on Canadian Press, the story would have gone into the paper, and then onto the wire, that’s how you did it in those days, you’d file your story, make sure your paper had it first, count 2, 3, 4 and then phone or telegraph ...Canadian Press [CP] in Toronto... and they had a writer there who would say ‘hold on, hold on I want this one,’ and they’d say, ‘oh no, I don’t give a shit if they’re raising the flag in Port Hope,’ but Jim Cutting phones up from the Peterborough Examiner and CP says ‘yeah, I want this one, I want a lot of this one. Okay, who are you?’_

_And he starts to type in Toronto and he’s typing the story as he goes and this is going to go in a matter of minutes on the CP wire which is going to go to every subscriber of the CP wire in Canada which is every major newspaper and radio station and television station, it goes over broadcast news and if it’s big enough it’s going to go on to AP which_

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55 AECB, “Progress Report on Radioactive Waste Investigation in Port Hope, Ontario,” February 19, 1976, RG 134 ENL Fonds, 1995-96/012, Box 6, File 1-460:1, LAC. Other sources claim the initial survey was requested because the AECB had investigated the radioactive contamination of a property in Toronto and made a link to the refinery in Port Hope. See Marchand, “Port Hope,” 56. This latter claim is also in a report by the OMH: “the problem came to public attention in July 1975, following on publicity earlier in the year concerning radiation from a former luminous-dial plant at 103 Church Street, Toronto.” See OMH, “Provincial Policy Concerning Financial Liability for Remedial Actions on Radiation Contamination,” June 22, 1976, RG 12-45, Minister MOE Files, Box 140948, File Government Correspondence Port Hope Radiation 1976: 2, AO. Other reports claim contamination of a Deloro home by Eldorado residues instigated the survey in Port Hope, see J.H. Aitken to V.L. Tidey, “Radiation Problem in Port Hope,” 21 November 1975, RG 7-128, Port Hope Radiological Inspection Files, OMH Fonds, B101631, AO. Regardless, it was media attention that spiraled the story out of the state’s control.
Soon thereafter, the Minister of EMR, Alastair Gillespie, was facing questions in the House of Commons regarding the Eldorado crown corporation under his federal jurisdiction.

Eldorado’s initial survey rapidly escalated into an investigation led by the AECB, with assistance from the Ontario Ministry of Health’s (OMH) Radiation Protection Branch. In February 1976, the EMR announced the formation of the Federal-Provincial Task Force on Radioactivity (FPTFR) led by the Chairman of the AECB, A.T. Prince, to consolidate and coordinate federal and provincial departments with responsibilities and expertise in radiation. While the FPTFR was given a mandate for radioactive waste across Canada, their first priority was Port Hope. The AECB also hired the firm James F. MacLaren Limited, who entered into a contract with the federal Department of Supply and Services to assess technical and fiscal parameters of a “cleanup” of radioactive wastes in Port Hope. By February 1976, several hotspots of elevated radioactivity had been found and a few locations, such as the CNR dock where radioactive materials were loaded onto railway cars, a former radium storage building, and a former radium laboratory, were decontaminated or demolished. St. Mary’s School, part of which was built on contaminated fill, was closed, and other schools were then surveyed with another, Dr. Powers School, showing elevated radioactivity in unventilated storage rooms. When several private residences were also found to have elevated radiation, however, it became increasingly apparent that the contamination of Port Hope was extremely widespread. By the spring of 1976, an

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56 Interview #12: Anonymous, Port Hope resident; Also see Sanger, Blind Faith, chapter one. As observed by the Royal Commission on Electric Power Planning, “nor should it pass unnoticed that it was largely the initiative of public interest groups which brought the problem to light and subsequently facilitated the cleaning up operations.” See Royal Commission on Electric Power Planning, A Race Against Time: Interim Report on Nuclear Power in Ontario (Queens Printer for Ontario, 1978), 73.

57 See Appendix 5 for the representatives of the FPTFR.

extensive investigation was underway to assess the scope and degree of contamination of private homes.\textsuperscript{59}

According to the AECB, refinery waste disposal practices had dispersed radioactive materials throughout the Port Hope area, primarily radioactive and chemical residues from radium and uranium processing that were dumped or stored at the refinery site on the waterfront (1933-1939) including the harbour, or at one of the refinery’s waste dumps. The main dumpsites are identified by the AECB as the Lakeshore Residue Area, just west of the refinery and near the West Beach public park (1939-1944); the Monkey Mountain Residue Area, near a ravine and residential area within town (1945-1948); the Welcome Residue Area, 3 miles northwest of the refinery, near local farms (1948-1954); and the Granby Residue Area, the refinery’s main radioactive waste dump located about 10 miles west of Port Hope, on the north shore of Lake Ontario near local farms (1955-early 1980s). In addition, the refinery stored and incinerated radioactive wastes and contaminated materials at the Pidgeon Hill Storage Area (1948-1974), also close to a residential area within town.\textsuperscript{60}

This was not the first time Eldorado had been implicated in placing radioactive waste and toxic substances such as arsenic in public and private spaces. Local residents had complained to Eldorado for years, notably about runoff polluting ponds and streams in their backyards. On the outskirts of town, several farms had became polluted, in some instances causing to cattle die. However, these events were managed as isolated and localized incidents, easily contained and

\textsuperscript{59} EMR, February 19, 1976, “Radiation Task Force Announced,” RG 134 ENL Fonds, 1995-96/012, Box 6, File 1-460, LAC. A total of 109 areas in Canada were identified as having suspected or known radioactivity, yet the main focus of the FPTFR was Port Hope, Elliot Lake in Ontario, and Uranium City in Saskatchewan; AECB, “Progress Report on Radioactive Waste Investigation in Port Hope, Ontario,” February 19, 1976, RG 134 ENL Fonds, 1995-96/012, Box 6, File 1-460, LAC.

\textsuperscript{60} AECB, “Progress Report on Radioactive Waste Investigation in Port Hope, Ontario,” February 19, 1976, RG 134 ENL Fonds, 1995-96/012, Box 6, File 1-460:3, LAC; AECB, “Staff Memoranda of 6 July, 1975, and 16 July, 1975,” RG 60-7 AECB Fonds, 1993-94/-93, BMD 75-47 to 76-37, LAC. The latter documents are written by AECB Health Physicist G.B. Knight and contain radiological information as well as remediation efforts undertaken at the main Residue Areas in the Port Hope area.
dealt with by the crown corporation. Since the 1940s, it appears that complaints regarding refinery waste were ignored completely, or, if community members persisted, dealt with through "quiet negotiation with anyone complained." In some instances, citizens received scant monetary compensation, and in others, Eldorado purchased the property, but only when they deemed the acquisitions useful for their own purposes. Additionally, several Residue Areas had been partially remediated in the late 1950s and early-mid 1960s, and radioactive materials and metals sold to the Vitro Corporation in the United States and the nearby Deloro Smelting and Refining Company, or transferred to the Granby Residue Area. Yet, as became evident in 1975, these actions did not solve the contamination problems at these sites. While they were efforts to remediate wastes, they were also opportunities for capital gain.

Prior to 1975, the refinery and provincial government agencies were aware of problems with refinery waste, albeit not its extent, but largely dismissed efforts to have these issues recognized. One notable example is the efforts of Dr. D.G. Andrews, a Professor of Nuclear Engineering from the University of Toronto, who sampled radioactivity at refinery dumpsites in 1966. Using the media, Dr. Andrews heavily criticized radiation levels, the absence of warning signs, and ease of public access at the Granby Residue Area and in a "ravine above a townsit" (Monkey Mountain), and contamination of public roadways. In response, a representative of provincial authorities wrote to Eldorado:

Professor Andrew’s report I find not too informative technically. The tables in particular give no real clues. The general tone is one of allegation rather than positive finding which is perhaps in keeping with the surreptitious nature of his survey. I suppose the most charitable comment we can make is that he has served as a ‘gadfly’ which spurs us to clean up some situations which should have been attended to long since. We try to keep radiation hazards in perspective rather than treating them according to the strict letter of

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61 Sanger, Blind Faith. Sanger analyses buyouts and negotiations with local farmers and residents. Sanger’s expose on Port Hope is the only published account into the contamination of the Port Hope area. My archival research also revealed numerous instances in which Eldorado acquired property they wanted to own near the refinery site in Port Hope and surrounding Residue Areas, as well as negotiated monetary payments to compensate local area residents for contamination of their properties. Correspondence between Eldorado and individual residents and area farmers, including buyout letters and property acquisitions are held in the ENL Fonds at Library and Archives Canada.

62 See Sanger, Blind Faith, for a detailed account of waste problems in Port Hope in the 1950s and 1960s and for further commentary on the efforts of Dr. Andrews in the 1960s.
the regulations, and while I have realized for many years that there was still work to do around Eldorado’s properties, there was no real danger to the public in any existing situation. I think it will be well worth while to keep a pretty tight watch on effluents which may become public relations problems even if they are not public hazards.  

This correspondence indicates that, prior to the spiraling publicity in the 1970s, Eldorado was the recipient of lenient regulatory oversight from the provincial government, who while not overly worried about containing refinery wastes, were definitely concerned with keeping a tight lid on public response. Indeed, it appears that only as a result of media, followed by political pressure, did the OMH and Eldorado undertake further remedial work at Residue Areas, such as Monkey Mountain. In 1974, Eldorado commented (internally) that the 1960s efforts were inadequate: “criticism raised at the time (1966) were fence-line activity levels and lack of an exclusion area. These still appear to be valid.” Eldorado then sought the “cheapest” solution to these problems.

Until the mid-1970s investigation, not much attention was paid to the waste management practices of the Eldorado refinery. On the heels of uncontrollable publicity, however, the AECB stepped up their involvement, directing mitigation controls for the Residue Areas, including repairing fences, extension of perimeter fencing, barbed wire fencing, and erection of radiation warning signs, measures intended to create “exclusion areas” by enclosing Residue Areas from public access and attempting to limit public exposure to radiation levels well above permissible levels. Removal of some contaminated soil was also undertaken at Monkey Mountain and Pidgeon Hill as an interim measure. However, ease of public access to contaminated areas and lack of warning signs remained a significant concern for many residents, who complained about the state’s reluctance to improve fencing and install signs to clearly mark radioactive areas.

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64 S.E. Frost to F.F. Colborne, 8 April 1974, RG 134, ENL Fonds, Vol. 162, File 372, LAC. Criticism of the Residue Areas included radiation at the perimeter and inadequate fencing.
65 AECB, “Progress Report on Radioactive Waste Investigation in Port Hope, Ontario,” February 19, 1976, RG 134 ENL Fonds, 1995-96/012, Box 6, File 1-460:6, LAC. Noting that “malicious damage to warning signs continues to be a problem” security patrols were also ordered to the Port Granby Residue Area, and warning signs reading “This water not safe to drink,” were placed at boundary intervals.
Additionally the AECB recommended that guidelines be established on certain parameters for radiation exposure to the public, including “an acceptable exposure rate at the boundary of a disposal area” as well as “acceptable” exposure rates for surface and ground water. The Atomic Energy Control Regulations stipulated maximum permissible doses of radiation for members of the public “who are not atomic workers.” Yet the situation unfolding in Port Hope was unprecedented: there were no criteria to evaluate radiation exposure levels inside private residences and businesses. Nor were there criteria in place to limit levels of radioactive waste and other chemical residues emanating from the Eldorado refinery. The crown corporation and its private predecessor had been disposing of radioactive substances with little oversight since the early 1930s.

As events unraveled in the 1970s, the AECB concluded that approximately 150,000 cubic yards (210,000 tons) of radioactive contaminated material needed removal from the Port Hope area and disposed of in a licensed facility capable of handling these wastes. Yet there was no facility in place, nor any criteria even to design a facility capable of handling wastes of this type and volume. Nor did any department or agency of the federal or provincial government have the mandate to develop a suitable facility, or have jurisdiction over the long-term management of these radioactive wastes. As a result, radioactive waste removed from the town was sent under the Port Hope Remedial Program to the Chalk River Nuclear Laboratory until the facility quickly

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67 AECB, “Progress Report on Radioactive Waste Investigation in Port Hope, Ontario,” February 19, 1976, RG 134 ENL Fonds, 1995-96/012, Box 6, File 1-460:5, LAC. Regarding criteria for water, the AECB noted that “water quality criteria would provide a conservative guideline, but it may be necessary to consider other factors to establish a more realistic level where the water is not used for drinking purposes, or else to consider the feasibility of water treatment before discharge into the lake.

68 AECB, “Staff Memoranda of 6 July, 1975, and 16 July, 1975,” RG 60-7, AECB Fonds, 1993-94/-93, BMD 75-47 to 76-37, LAC. In the July 16th staff memoranda, the AECB, citing the “absence of dwellings” at the Port Granby Residue Area, recommended a dose guideline of 0.060 uR/h on the basis that “it is unlikely that anybody would spend their entire time at the boundary fence,” 8.

69 MacLaren Lavalin, Port Hope Low Level Waste Management Study: Report to AECB (MacLaren, April 1981).

70 MacLaren Lavalin, Port Hope Low Level Waste Management Study, 1-10.
reached capacity. Between 1976 and 1979, this federal laboratory received 3000 tractor-trailer loads of 104,500 tons of contaminated soil and 130 more loads of contaminated demolition debris from the Port Hope area. Then, having nowhere to put the remaining radioactive wastes, government efforts to remediate public spaces such as ravines and parks were abandoned, while a limited remedial program prioritized contaminated residential and occupied commercial buildings. Upon the closure of the Chalk River Nuclear Laboratory, the AECB negotiated with the local Port Hope government to establish storage mounds of radioactive waste at various locations within town. In so doing, the nuclear state shifted the burden of hosting radioactive wastes onto the local community. While these were intended to be temporary, some still remain in place, as does Port Hope’s sacrificial role as host to not just the nuclear state, but its wastes.

When it became publicly known that Port Hope was contaminated with radioactive waste from the Eldorado uranium refinery, there were calls among the community for the waste to be promptly removed. However, from the outset, both Eldorado and the AECB tied cleaning up the small community to finding a host waste site. Indeed, the crown corporation leveraged a clean up to their own expansion, an opportunistic move. The AECB also tied removing the contamination with the establishment of a suitable containment facility for not just these, but other wastes from across Canada. What was required was an engineered site capable of receiving massive volumes of radioactive materials that could physically contain wastes, and for which “institutional control” could be exercised in perpetuity. From the outset, Port Hope was their preferred location. In the late 1970s and early 1980s, the town did consider various proposals for hosting the waste site, as both a way to finally see a clean up completed and as leverage to keep the refinery expansion in town. The town even considered filling in the harbour with the wastes, and a separate proposal to bury the wastes in geologic caverns under the waterfront. But then they balked. Ultimately the community wanted the wastes removed from town.

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72 MacLaren Lavalin, Port Hope Low Level Waste Management Study, 1-5.
74 MacLaren Lavalin, Port Hope Low Level Waste Management Study, 3-3.
process was undertaken by a working group of the FPTFR to find a location, no candidate site was ever found. The remaining contaminated materials were left in Port Hope, pending finding a willing host.

In September of 1976, the AECB published a news release in which this federal atomic regulator committed to a full and speedy cleanup of all radioactive waste: “The cleanup of Port Hope is expected to be concluded during the 1978 season.” But by 1981, the AECB termed the clean up of Port Hope, now abandoned, a success: “as much as we’d like to get rid of it all, we have had to leave a few odds and ends behind … But we have clearly achieved our goal, which was to reduce the risk to people.” The remaining contamination was left for another time: its remediation beyond the capacity, or to put it more bluntly, beyond the political will of the nuclear state.

It was not the radioactive waste, but its becoming public knowledge through a media spotlight that posed a dilemma for the nuclear state. While the crown corporation and the federal and provincial governments certainly knew that areas of Port Hope had contamination problems, some acutely, little was done until the publicity began to spiral in December of 1975. Radioactive waste is noted above by Port Hope historian Ian Montagnes as having “made its way into ravines and landfills in town.” Descriptions such as these simplify the extent of the contamination but obscure much about how Port Hope became contaminated, and describe the problem as merely resulting from a lack of past knowledge. They also shield Eldorado from blame. Yet, radioactive waste did not simply ‘find its way’ around Port Hope without having


76 AECB, News release 76-12, 9 September 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-113, LAC.

77 Margaret Munro, “Port Hope No Love Canal Crisis, Mayor Insists,” Ottawa Citizen, October 17, 1981.

78 Montagnes, Port Hope: A History, 193.
Radioactive substances certainly moved through air, soil, surface and groundwater to migrate throughout the local environment of Port Hope over decades, and in so doing, demonstrate the inability of the nuclear state to contain the spread of radioactive waste by non-human nature.\(^{80}\) However, toxic substances were placed or allowed to be placed in various locations around town over decades. One long-term resident reflects on how the community became contaminated:

_The fact of the matter was that, I don’t know how it happened exactly, but radioactive contamination got all over town, and it was put there by somebody, and it wasn’t supposed to be put there but it was, so that happened and that’s a fact, and so people had to have known how this happened because people didn’t steal out in the middle of the night and dump this stuff without anybody’s knowledge. There was a whole lot of people must have asked for it, and got it, you know, so again this comes back to the town and the people of the town knowing what was going on. Now the argument I think would be is they didn’t know the danger, in the 30s they didn’t know what they did in the 50s, and in the 50s they didn’t know what they knew in the 70s and that’s always the argument these people use by the way, they always render the prior generation of management guiltless by virtue of the fact that they said they didn’t know back then. I’m not sure that’s always true._\(^{81}\)

Radioactive materials were dumped into the harbour, public ravines, and beaches, as well as spilled onto public roadways. As I describe in Chapter Three, contaminated building materials and soils were allowed, whether willfully or not, to be salvaged by community members from the refinery and its various dumps and used by hundreds of unsuspecting town residents as construction material for homes and businesses. Even more disconcerting is that radioactive wastes were sold to unwitting community members for use as construction materials and landscaping fill surrounding their homes. Radioactive materials were mismanaged to such a gross extent that radioactivity was found not just outside of homes and other buildings, but, _inside_ the homes of hundreds of residents, residing in the air of their everyday spaces and emanating from their everyday household objects.


\(^{80}\) The reference to non-human factors draws on Timothy Mitchell in _Rule of Experts_ in which he makes the point that non-human factors may create or exacerbate “externalities” beyond the control of techno-political solutions. Timothy Mitchell, _Rule of Experts: Egypt, Techno-politics, Modernity_ (Berkeley: University of California, Press, 2002), 290.

\(^{81}\) Interview #12: Anonymous, Port Hope resident.
The refinery’s waste was not new, although its extent was certainly unprecedented. What was new in 1975 was not waste, but that it was becoming public knowledge. Contamination was not contained in Residue Areas, but was scattered inside public and private spaces. Growing public knowledge of this latter contamination could no longer be easily contained. Decades of lax waste disposal practices by the refinery and lenient oversight by regulatory bodies were soon to come under close scrutiny.\textsuperscript{82}

\textbf{Conclusion}

In this historical account of the Eldorado uranium refinery in Port Hope, I have demonstrated the vital importance of the uranium refinery to the nuclear state. There were significant political and economic stakes for the nuclear state when it was discovered that Port Hope was contaminated with radioactive waste from the refinery. Eldorado was the cornerstone of the nuclear state and Port Hope had become a key site of nation-building through the uranium refinery. Yet the town also had stakes embedded in this refinery: the town’s largest employer had appeared at a time of great economic need. However, after 43 years of producing radium and uranium in Port Hope, the events of 1975 were certainly a jolt to the well-established relationship between Eldorado and

\textsuperscript{82} The early 1970s, the time period during which the radioactive contamination of Port Hope was discovered, was marked by increased environmental awareness in Canada, including the introduction of legislation for environmental protection and the emergence of national and regional environmental organizations (e.g. the Canadian Institute for Environmental Law and Policy, founded in 1970). Anti-nuclear organizations, such as Energy Probe (based in Toronto) and the national anti-nuclear organization, Canadian Coalition for Nuclear Responsibility, were involved in activism surrounding the Port Hope contamination beginning in the 1970s. In Chapter 4, I further discuss Energy Probe’s involvement in the Port Hope contamination. The emerging environmental movement in Canada included institutional reform with the state, such as the formation of the provincial Ministry of Environment (MOE) in 1971. The MOE were subsequently involved in regulatory processes for the Eldorado uranium refinery. The emerging environmentalism “follow[ed] the first green wave of the late 1960s and early 1970s” and was influenced by the publication of Rachel Carson’s groundbreaking book, \textit{Silent Spring}, in 1962. See Anita Krajnc, “Whither Ontario’s Environment? Neo-Conservatism and the Decline of the Environment Ministry,” \textit{Canadian Public Policy} 26, no. 1 (2000): 111-127. Krajnc notes that in the 1970s, state environmental institutions had a close working relationship with polluting industries, at the general exclusion of the public and environmental organizations. I analyze the role of the MOE in the Port Hope contamination in the following chapters.
the community. Yet, as the next chapter illustrates, Eldorado immediately set out to deflect and delimit the fallout. In fact, this ‘good corporate citizen,’ as the refinery was fondly called by local citizens and by Eldorado, expanded its operations even as the radioactive waste problem was still unraveling. The refinery’s status as a federal crown corporation most certainly contributed to this outcome and was instrumental in establishing itself as separate from, and above, the community of Port Hope.
Chapter 2

The Good Corporate Citizen

My husband said ‘Eldorado’s burying something.’ He wanted to go to the government, but it was owned by the government, so what do you do?¹

Lauded by local supporters as a ‘good corporate citizen,’ the Eldorado crown corporation used this name for itself in communications with the citizens of Port Hope. This moniker implied the refinery was a member of the community. Yet the contamination of Port Hope with radioactive waste threatened to taint community support for this ‘good corporate citizen’ and it put on edge Eldorado’s relationship with federal and provincial state authorities who had responsibilities for the refinery.² Questions of fiscal and legal accountability arose immediately in response to the public discovery of radioactive waste throughout Port Hope. Government officials sought to reassure the local community that they were not in danger and that the waste would be quickly removed. Yet behind the scenes, accusations of blame were circulating between Eldorado, the federal government, and Ontario provincial authorities. The radioactive waste became a political hot potato.

In this chapter I analyze the actions and internal exchanges of the crown corporation and government departments immediately following the publicity of radioactive waste to assess the response of the state in the aftermath of December 1975. Insisting that blame lay elsewhere, each asserted claims regarding a lack of standards in past practices, each professed ignorance regarding the hazards of radiation, each delimited fiscal responsibility, and each safeguarded itself against legal claims. An examination of correspondence internal to Eldorado and state

¹ Interview #10: Anonymous, Port Hope resident.
² The term corporate citizen appears in the literature as the conduct of private business in relation to the public, that is, assessed as ‘corporate social responsibility,’ now called by the acronym ‘CSR.’ Banarjee in particular notes how CSR and ‘corporate citizenship’ is not a progressive social turn of corporations, but rather an ideological device to concentrate corporate power at the expense of the social. While I agree on this premise, in a way, these works reify a distinction between the state and the corporation. I turn this around and instead assess how it matters that the state is also the corporation. See, for example, David Sadler and Stuart Lloyd, “Neoliberalizing Corporate Social Responsibility: A Political Economy of Corporate Citizenship,” Geoforum 40 (2009): 613-622; Subhabrata Bobby Banarjee, “Corporate Social Responsibility: The Good, the Bad and the Ugly,” Critical Sociology 34 (2008): 54-79.
authorities reveals their priorities, and shows fissures in the message that government agencies put forth to the general public and the concerns debated among themselves behind the scenes in government. As I demonstrate in this chapter, the crown corporation, as well as federal and provincial authorities of the nuclear state, were quick to position themselves to protect their own interests, while ensuring that the uranium refinery continued to operate without interruption.

In weaving a tale of corporate power in a small mining town, John Gaventa investigates “the means by which corporate power turned itself to the shaping of its own legitimacy” when confronted by what he terms the “emergence of challenge.” He demonstrates how elites can assert and maintain corporate interests in spite of challenge. The radioactive contamination of Port Hope clearly marked the emergence of challenge for the state, one that could undermine a very powerful and lucrative uranium refinery. Yet here the interests were not just corporate, but state-corporate. In revealing the priorities of the state in the immediate aftermath of the emergence of crisis, I demonstrate how state power can be exercised to contain not radioactive waste, but the political response to it. In this detailed analysis, I also reveal a myriad of ways in which the nuclear state held itself as separate from civil society as a means of containment to retain its own legitimacy.

**Eldorado: The Good Corporate Citizen**

In July 1975, as the refinery was undertaking its regulatory review of waste practices, Nick Ediger, President of Eldorado, wrote a memo to staff about elevated radioactivity at Residue Areas [news of which was just starting to trickle out into the press] and pledged a full clean up of radioactive waste:

> In recent weeks, Eldorado has been subject to criticism in the media, concerning the operation of our waste disposal areas at Port Hope … The Company is continuing its thorough inspection of all areas in Port Hope which have been or are involved in our operations. Wherever there is an indication of radiation above natural background, every effort will be made to eliminate the source even when there is no apparent hazard. The

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Company is determined that, as a prominent member of the Canadian nuclear industry and as an important corporate citizen of Port Hope, our operations will be above reproach.¹

The above statement was published before the extent of contamination became clear, before hundreds of residential homes, as well as local schools and public parks were also discovered to have been ‘involved’ in refinery operations, that is, contaminated by its waste. But, as the crisis unfolded, would Eldorado really spare no expense and effort to eliminate radiation levels ‘above natural background’ in ‘all areas of Port Hope?’ The historical record indicates that ‘this good corporate citizen’ would not. Other priorities were at play. Eldorado was planning a major expansion of the uranium refinery and the Port Hope area was their preferred location for the new facility. As the extent of contamination continued to widen, Eldorado began to distance itself from the waste, while trying to improve the refinery’s image in the community.

In the immediate aftermath of 1975, Eldorado sought to improve the company image, in part, by launching a public information program. With no program in place since 1965, they observed: “The result is that today the Company has virtually no information materials to help explain its activities and its role in the nuclear fuel cycle.” What Eldorado also had in mind was educating the community in advance of its upcoming expansion: “The largest single information program in 1976 will be to announce and explain the siting of new refineries, beginning in July.”² They then set out to dispel “myths” of uranium refining and nuclear power through public information bulletins:

A second thing critics would like you to believe is that managing radioactive wastes is a particularly hazardous problem. Technically it is probably one of the easier problems we will have to deal with. We will simply bury the wastes in a geologic structure that has remained undisturbed for several hundred million years. Canada has thousands of square miles of such geologic structures …

¹ N.M. Ediger to Dear Employee, July 22, 1975, RG 134 ENL Fonds, 1995-96/012, BMM, Box 6, File 460-1, August 12, 1975.
² Eldorado, “The Information Program: Annual and General Meeting of Shareholders 1976,” RG 134, ENL Fonds, 1995-96/012, Box 6, File 1-460, April 1976, LAC. The program was intended to also satisfy public consultation requirements on its expansion plans. In launching the program, Eldorado also hoped to curtail anti-nuclear sentiment in advance of an expansion announcement.
however, it is a very difficult public relations problem. The difficulty is that the public has been led to believe that radioactive materials are some new and horrible poison, far worse than anything the world has seen before. In actual fact, the earth’s crust already contains, and has contained ever since civilization began, far more radioactive material than we will ever produce from nuclear power stations. Nature protects us from this hazard by locking up this material in the rocks and soils of the earth’s crust. This is exactly what we propose to do, only with radioactive wastes …

In relation to nuclear contamination in the American southwest, Valerie Kuletz notes how public relations campaigns set out to “naturalize” radiation with a “frenzied assurance,” a mechanism of containment that also seeks to naturalize the radioactive waste byproducts of nuclear industries. Scott Kirsch argues how discourses of safety feasibility in nuclear techno-politics are also “discourses of control.” Eldorado’s information campaigns sought to control the public perception of radiation and refinery wastes. An implicit message in the Eldorado public bulletin is that radioactive wastes are natural and therefore benign. Statements such as these seek to manufacture a public understanding of uranium as natural, safe, and part of everyday life. Nature protects Port Hope citizens. Eldorado also contained their internal flow of information by implementing a Code of Ethics policy for employees, including confidentiality clauses prohibiting employees from media statements and from disclosing “confidential” information about the refinery.

**A Hot Commodity Becomes A Hot Potato**

The crown corporation and other government departments with a role in the refinery quickly took measures to distance themselves from the radioactive contamination of the town. These actions did not escape public attention, and as observed by lawyer Heather Mitchell from the Canadian Environmental Law Association, state officials were ignoring “the important questions

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6 Eldorado, “Information: Why Nuclear?” RG 134, ENL Fonds, 1995-96/012, Box 6, File July to August 1976, LAC. Given that the extent of radioactive contamination of Port Hope was then still unraveling (and still has not been solved), the irony in asserting that radioactive waste was an easy problem was certainly unintentional.


of legal, economic and political responsibility.”\textsuperscript{10} The federal Minister of EMR, Alastair Gillespie, sought to assure the community that “legal and financial responsibilities are not matters we are concerning ourselves with at this time. Our main priority is to proceed as quickly as possible to identify affected areas and to clean them up.”\textsuperscript{11} He subsequently assured the Mayor of Port Hope that it was not “in the best interests of either the Federal Government or the citizens of Port Hope to delay clean-up operations while Governments quibble over funding.”\textsuperscript{12} But quibble they did. Legal and financial accountability are exactly what the federal and provincial governments were jostling behind the scenes. Within this milieu, Eldorado was most aggressive in repudiating any sort of responsibility whatsoever.

Early on, the crown corporation delimited their role in the clean up, informing Gillespie that it was “inappropriate” for Eldorado to do remedial work, instead recommending the AECB as lead agency. Eldorado asserted they were proactive in discovering the waste, and that any of their participation in remediation was not to “be construed as an acceptance of liability.”\textsuperscript{13} They then sought to be treated as a private industry, not a crown corporation:

Eldorado should not be expected to accept a greater level of responsibility than that which would be borne by private companies with which it competes.

As a member of both the Canadian mining and world-wide nuclear communities, we do not think it advisable for Eldorado to set a precedent by assuming responsibilities beyond our legal liabilities. If the corporation involved in the Port Hope case was not a Crown Corporation, its liabilities would be determined solely in accordance with the laws of the land, and it is unlikely that Cabinet would ask it to assume responsibilities such as those suggested …\textsuperscript{14}

\textsuperscript{11} “Eldorado Expansion Site Sought,” \textit{Port Hope Evening Guide}, January 29, 1976. These comments are from an interview Gillespie did with the local Port Hope press, and as the title of the article indicates, corresponded with Eldorado’s plans to expand the refinery.
\textsuperscript{12} Alastair Gillespie to Mayor Hewson, 15 April, 1976, RG 60-8, AECB Fonds, 1993-94/093, File BMD 76-38 to 77-22, LAC.
\textsuperscript{13} N.M. Ediger to Alastair Gillespie, February 2, 1976, RG 134, ENL Fonds, 1995-96/012, Box 6, File 1-460, LAC.
\textsuperscript{14} N.M. Ediger to Alastair Gillespie, February 2, 1976.
Eldorado was very concerned a lead role in remediation would “seriously prejudice, and in all probability, destroy our right of recovery from our insurers.”\textsuperscript{15} The tactic worked: Eldorado was absolved of responsibility and the AECB was appointed lead agency. Behind the scenes, but only as a matter of principle, however, the Minister still placed ultimate responsibility for the contamination, including finding a waste site, on the refinery doorstep: “…there would be no clean-up problem if it were not for Eldorado, it seems to me only appropriate that Eldorado should take the initiative.”\textsuperscript{16}

**Containing the Fiscal Damage**

Having delimited its role in the clean up, the crown corporation turned attention towards containing liability while refuting any wrongdoing for the contamination of Port Hope:

… Eldorado and its predecessor have complied substantially with all applicable rules, regulations and requests of the AECB and the OMH, and other Federal and Provincial departments and agencies having responsibility in these matters, and … the various practices and procedures followed by Eldorado and its predecessor from time to time have conformed to industry standards as such standards evolved.

In light of the foregoing, and in the view of the fact that the expiration of legal limitation periods may well preclude any claims being made against Eldorado on the basis of alleged negligent conduct prior to 1970, Eldorado is of the view that it is under no legal liability to bear any cost of the Port Hope cleanup.

Notwithstanding … the Company is willing, as the major corporate citizen of Port Hope, to participate in a cost sharing arrangement that will allow the cleanup program to go forward without dispatch.

\textsuperscript{15} N.M. Ediger to Alastair Gillespie, February 2, 1976. What is particularly noteworthy in the above statements is the claim that the crown corporation should be treated as a private corporation. As I demonstrate in Chapter 6, Failsafe, Eldorado strategically used crown corporation status to reap fiscal and political benefits by drawing on crown corporation status to absolve itself from compliance with any provincial jurisdiction. In that instance, Eldorado insisted the refinery was always, and could only be, an agent of the crown. Here, they strategically argue the opposite.

\textsuperscript{16} Alastair Gillespie to Nick Ediger, April 20, 1976, R1526 EMR Fonds, Vol. 324, File 15, Correspondence, LAC.
…[Eldorado’s] participation … does not constitute an admission by Eldorado of any legal obligation to do so.\textsuperscript{17}

Effectively, this position shifted blame onto the standards and practices of the federal and provincial governments over time. By extension, they inferred that if stringent oversight had been in place, Eldorado would have managed refinery waste accordingly. The statement also signaled that the AECB, provincial authorities, and even the federal Minister were implicated in the contamination of Port Hope. Here, it is also evident that Eldorado was acutely aware that the difficulty in proving damage from radioactive waste was in their favour.

Eldorado also began aggressively asserting its vital importance to Canada’s national uranium industry. Downplaying the events in Port Hope, the crown corporation stressed its continued role as a leading uranium producer. Woven into these assertions are claims of public safety at any fiscal cost.

The nuclear industry is as safe as any other human activity; its operations are conducted in a manner which can withstand public scrutiny at all times. In keeping with this principle it is the policy of Eldorado Nuclear Limited that all its activities must meet high standards of safety and environmental cleanliness, regardless of the economic consequences.\textsuperscript{18}

In practice, however, Eldorado resisted the clean up criteria established by the FPTFR. In a letter to the President of the AECB, A.T. Prince, the President of Eldorado, Nick Ediger, wrote:

I feel I must express my concern over the assumptions on which your consultants [MacLaren] appear to be proceeding. As I understand them, the cost estimates are to be based on the assumption that sufficient materials will have to be removed to reduce radiation levels to approximately natural background. If a clean-up program were to proceed on that basis one can readily visualize an earth-moving operation of monumental proportions, in addition to significant disruptive effect on the community. … I am also

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\textsuperscript{17} N.M. Ediger to A.T. Prince, “Cost Sharing Port Hope Cleanup,” June 8, 1976, RG 134, 1995-96/012, File 1-460, June 1976, LAC. Eldorado’s offer was conditional on the crown corporation being named as project manager based on the rationale that this would be the most cost effective option. This position was soundly rejected by the FPTFR and Eldorado withdrew this condition.

concerned that the consultant’s report, which I understand is to be distributed to the public, will establish irreversible standards.\textsuperscript{19}

This internal state correspondence reveals that Eldorado was not committed to restoring Port Hope to “natural background” as promised earlier. Instead, the crown corporation resisted setting radiation standards that their future operation would have to comply with. They also resisted contributing financially to the remediation and leveraged cleaning up Port Hope against securing AECB approval for additional waste disposal facilities for refinery operations.

In April 1976, Eldorado continued lobbying for less stringent clean-up criteria:

Although the Company is primarily concerned that any contamination have a minimum effect on the health of the public and its employees, it is also concerned that the AECB is attempting to attain unreasonably high standards in Port Hope which are not economically justified.\textsuperscript{20}

At their Annual General Meeting of Shareholders in April 1976, they repeated these concerns:

We are extremely concerned that, in its attempt to overcome social and political pressures, the AECB will undertake a program that will set precedents that are unrealistic and will be unattainable in the rest of Canada.\textsuperscript{21}

Shortly thereafter, they wrote a briefing note to Cabinet in which they set out fiscal requirements for refinery expansion, complaining:

Adverse public reaction to the attention focused on low level contamination discovered recently at Port Hope, combined with increased public consciousness of environmental risks, prompted the AECB to adopt stringent standards for the management of the uranium refinery wastes that may only be met by the use of methods radically different from those employed to date.\textsuperscript{22}

\textsuperscript{19} N.M. Ediger to A.T. Prince, March 31, 1976, RG 134, ENL Fonds, 1995-96/012, Box 6, File 1-460, April 1976, LAC. The President of Eldorado subsequently noted that the corporation would cooperate with the AECB to “correct truly unacceptable situations and to restore public confidence within the community.” Eldorado also pointed the AECB towards radiation remediation techniques used in Grand Junction, Colorado.


\textsuperscript{21} Eldorado, “Annual and General Meeting of Shareholders 1976,” RG 134, ENL Fonds, 1995-96/012, Box 6, File 1-460, April 1976, LAC.

\textsuperscript{22} Eldorado, “Briefing Note for Officials,” September 21, 1976, R1526, EMR Fonds, Vol. 190, File ENL and Eldorado Aviation Limited Capital Budgets 1977, LAC.
These statements indicate that the crown corporation was attempting to influence lower standards for the Port Hope clean up to save costs, yet also to prevent precedent-setting radioactive waste standards imposed on its future operations. These concerns illustrate that Eldorado prioritized economic factors in assessing its public function as a federal crown corporation. An arm of the nuclear state attempting to construct standards to their own satisfaction also illustrates that the production of “official” radiation criteria standards is the prerogative of state power.\textsuperscript{23} There is a “measure of social arbitrariness” in the production of scientific standards.\textsuperscript{24}

In developing radiation criteria for the remediation of Port Hope, economic considerations were also on the AECB’s agenda:

With the imminent expenditure of large sums of money on the cleanup of Port Hope, Uranium City, and possibly other areas, the question has been raised ‘What magnitude of expenditure can be justified?’ … The ‘cost’ is obviously that involved in cleaning up Port Hope … the ‘benefit’ is the saving in future detriment to the residents of Port Hope expressed in dollars. It is the calculation of this ‘benefit’ or acceptable cost that is the subject of this document …

\[
\text{Acceptable cost} = \text{Detriment} \times \text{Cost per unit detriment}
\]

It is common practice to use the population dose expressed in man-rem as a measure of detriment … the detriment will be replaced with the collective dose to the lungs of the sub-population of Port Hope, which gives the following relationship:

\[
\text{Acceptable cost} = \text{collective lung dose} \times \text{dollars per man-rem}
\]

The collective dose to the whole population of Port Hope is… 986 man-rem per year of exposure …

Out of a series of complex formulas, the AECB derived an acceptable monetary value of $83 per lung man-rem for the citizens of Port Hope, resulting in the conclusion that “a general interpretation is that the acceptable cost for cleaning up Port Hope could be between $6 million and 8.4 million.”\textsuperscript{25} The MOE recoiled at this economic logic, noting that it “should be considered

\textsuperscript{24} Bourdieu, “The Specificity of the Scientific Field,” 32.
\textsuperscript{25} G.B. Knight, “Cost-Benefit Analysis for the Cleanup of Port Hope,” RG 12-45, Minister MOE Files, Box 140948, File Government Correspondence, Port Hope Radiation 1976, AO. The
an academic exercise,” and arguing that an analysis must include “predicted health hazards such as cancer and birth deformities,” based on reports already available from elsewhere.\textsuperscript{26}

Calculating cost-benefit analysis as a determinant of clean up criteria has also been observed in Chernobyl, where costs of remediation were “weighed against” health effects to determine “levels of social acceptability,” processes Petryna describes as adjusting risk calculations to fit economic objectives.\textsuperscript{27} Kuletz also observes that “scientific facts” about the radioactive contamination of the American Southwest are “not objective” but “constructed” and made “purposefully malleable” to meet political goals.\textsuperscript{28} Charles Perrow also argues that risk assessment in the nuclear industry is “not about risk” but “the power to impose risks on many for the benefit of a few.”\textsuperscript{29} The assessment of risk by the nuclear state in Port Hope parallels this pattern. The AECB’s assessment of risk for the Port Hope contamination included fiscal risk, weighed against “future detriment” to “collective” public health. Their cost-benefit analysis for Port Hope shows that the federal nuclear regulator assessed public health and environmental well-being in economic terms and indicate that fiscal considerations were a significant factor in the federal government’s response to the Port Hope contamination. This constitutes a significant difference in the assessment of risk for the state and for the public. In Port Hope, it appears that a political objective of the nuclear state was to contain the fiscal implications of the radioactive contamination.

Concern over economic considerations continued within the nuclear state. Intense debate then ensued between Eldorado and other government agencies over who should pay for the Port Hope

\textsuperscript{26} A. Castel to Everett Biggs, “Re: Cost-Benefit Analysis for the Cleanup of Port Hope,” October 14, 1976, RG 12-45, Minister MOE Files, Box 140948, File Government Correspondence, Port Hope Radiation 1976, AO.


\textsuperscript{28} Kuletz, \textit{The Tainted Desert}, 104.

remediation, with the province adamant that the “polluter pay” full costs. Provincial payments for radioactive wastes would set a precedent, which the province saw as sharing responsibility for the cause.\textsuperscript{30} The MOE was explicit: “the sharing of costs is not on the agenda, however I am sure that it will arise and our position is that it should be borne by AECB, the licensing agency and Eldorado.”\textsuperscript{31} Behind the scenes, the AECB agreed, yet as observed by the MOE, “Federal Cabinet are intent on some type of political confrontation to ensure that Ontario make some contribution to the initial payments, whether or not the total costs are to be borne by Eldorado in the future – following legal action, if necessary.”\textsuperscript{32} Delays in remediation due to government spats angered the province, who considered “airing” their “annoyance” to help draw more attention to the Port Hope clean up.\textsuperscript{33} As predicted by the province, a cost sharing formula was devised by the FPTFR, who noted the debate was immaterial: the “Canadian public assigns fundamental responsibility for the existence of radioactive contamination of private and public premises in Canada to the federal government, provincial government and the crown corporation.”\textsuperscript{34} The formula avoided a lengthy and costly legal fight between government agencies.

The crown corporation reluctantly agreed to contribute financially as a compromise of necessity. When the federal Treasury Board balked at assuming full costs, Eldorado was backed into

\textsuperscript{30} Everett Biggs to George A Kerr, “Contamination Clean Up,” June 22, 1976, RG 12-45, Minister MOE Files, Box 140948, File Government Correspondence, Port Hope Radiation 1976, AO; Alan Backley to A.T. Prince, June 29, 1976, RG 12-45, Minister MOE Files, Box 140948, File Government Correspondence, Port Hope Radiation 1976, AO; The Minister of MOH, Frank S. Miller, also termed Eldorado as “wholly liable” and worried that sharing costs was a “tacit assumption of some liability for the existence of the problem.” See MOH, “Provincial Policy Concerning Financial Liability for Remedial Actions on Radiation Contamination, June 23, 1976, RG 12-45, Minister MOE Files, Box 140948, File Government Correspondence, Port Hope Radiation 1976, AO.

\textsuperscript{31} W.B. Dowley to W.A. Backley, “Task Force on Radioactivity, AECB,” March 22, 1976, RG 12-45, Minister MOE Files, Box 140948, AO.

\textsuperscript{32} MOH, “Cost of Remedial Action at Port Hope,” June 11, 1976, RG 12-45, Minister MOE Files, Box 140948, File Government Correspondence, Port Hope Radiation 1976, AO.

\textsuperscript{33} George A. Kerr to Everett Biggs, “Contamination Clean Up,” June 24, 1976, RG 12-45, Minister MOE Files, Box 140948, File Government Correspondence, Port Hope Radiation 1976, AO.

\textsuperscript{34} FPTFR, “Proposed Allocation of Costs Incurred in Implementing Investigational and Remedial Actions,” n.d. [June] 1976, RG 12-45, Minister MOE Files, Box 140948, File Government Correspondence, Port Hope Radiation 1976, AO.
agreement by the AECB.35 Eldorado’s contribution was set at one-third of costs to a maximum of $2,000,000, “on condition that Company management satisfy itself that the remedial action was being effectively and property carried out at minimum cost.”36 Certainly Eldorado was pressured, however there was also a corporate motive behind sharing costs. Nick Ediger stated:

Considering the risk of legal liability and the substantial cost to the Company in terms of time and money that would be involved in litigation, management concluded that a voluntary contribution for the cleanup costs would be a prudent expenditure. In addition, it was deemed to be in the Company’s interest to have the problem resolved as early as possible and for the Company to be seen to have taken positive action to this end.37

A corporate sensibility to economic considerations was first and foremost. Regardless, however, while Eldorado and other government departments fought over funds, ultimately, as pointed out by several community residents, the public will pay to clean up wastes from the uranium refinery: “You and I, the taxpayers of this country, are footing the bill for the cleanup of Port Hope – we are, in fact, subsidizing the industry.”38

**Containing Legal Liability**

Eldorado also worked to delimit legal liability. In the immediate aftermath of the waste discovery, the crown corporation executed several strategic moves to protect its legal interests, including barricading the executives against liability. When the state appropriated the shares of Eldorado in 1944, the new crown corporation had assumed “all the obligations and liabilities of or incurred by Eldorado Mining and Refining” and “all liabilities since then incurred.”39

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35 Eldorado, “President’s Report to the Board of Directors,” June 24, 1976, RG 134, ENL Fonds, 1995-96/012, Box 6, File 1-460, LAC.
37 Eldorado, “President’s Report to the Board of Directors,” June 24, 1976, RG 134, ENL Fonds, 1995-96/012, Box 6, File 1-460, LAC.
However they did not know if they were insured for the Port Hope contamination, even though this was not the first time they inquired about insurance for refinery waste.\(^{40}\) In 1975 Eldorado had $5,000,000 insurance for the uranium refinery, yet the coverage was geographically delimited. The policy applied to a “nuclear energy hazard” at the Eldorado facility defined as “buildings, structures and land …in which uranium is stored or processed in any form in the area bounded by John Street, Hayward Street, the Ganaraska River and Lake Ontario” and specified “Storage Areas” and “Dumps.”\(^{41}\) The policy also included “shipments of uranium or refinery waste products between these locations.”\(^{42}\) Insurance delineated the territorial coverage to refinery property or transport between. The question remained whether this policy also covered radioactive substances widely dispersed throughout public and private spaces.

Eldorado again investigated the refinery’s insurance coverage in January 1976. In response to questions from their insurers, the Nuclear Insurance Association of Canada (NIAC), Eldorado provided background information including the caveat that their assistance with remediation was “without prejudice.” They provided a simple explanation for the contamination of Port Hope:

> It was known that several areas in the town had received at various time, but principally during the 1950s, fill material generated on Eldorado property by demolition and/or construction. This fill material, monitored as it left the refinery property, exhibited at times radioactive contamination.\(^{43}\)


\(^{41}\) NIAC, “Nuclear Energy Liability Policy No. 5,” 1961, RG 134, ENL Fonds, Vol. 20, File No. 1-12, Nuclear Insurance, LAC. This was up from $1,000,000 insurance in 1959. “Nuclear energy hazard” meant “the radioactive, toxic, explosive, or other hazardous properties or prescribed substances …at the facility or have been discharged or dispersed therefrom without intent to relinquish possession or custody thereof to any person or organization” or occurring during insured transport.


\(^{43}\) Eldorado to NIAC, “Policy No. 5,” February 13, 1976, RG 134, ENL Fonds, Vol. 16, File Adm-Basc. Nuclear Insurance, LAC. It is unclear, and could be an awkward phrasing, but the
One week later, after meeting with the NIAC to determine how Eldorado should proceed to protect its insurance, Eldorado told its Board of Directors they were withdrawing from the Port Hope remediation.

After consulting with our outside legal counsel … I concluded that the Company should take the position that it not be required to take an active roll in any clean-up operations in Port Hope except as an agent of the AECB…

I am not able to report to you what insurance coverage, if any, the Company has in connection with any liability that may attach to it as a result of the Port Hope situation …

NIAC’s counsel was not prepared to have his client agree that any conduct of Eldorado prior to the filing of a claim would not be used as a defence [sic] by NIAC or waived as a breach of any condition of the policy. He agreed it was not in the best interest of Eldorado or NIAC to invite the claims to be issued by any of the residents of Port Hope and he agreed that the policy outlined by Mr. Baschenis [of Eldorado] of attempting to act quickly and to diffuse the whole matter before it got out of hand was a proper one.44

Clearly the crown corporation was concerned with liability and pending legal claims. Here also, Eldorado’s strategy to contain the response to the radioactive waste “before it got out of hand,” rather than the waste, per se, is made evident.

Within months of the closing of St. Mary’s School, the crown corporation indemnified the Eldorado Board of Directors and officers, their heirs and estates against any monetary costs for any legal “action, suit or proceeding” except as those incurred through “neglect and default.”45 Concurrent agreements stipulated indemnities included “civil, criminal or administration action,” valid only if executives:

above statement could be interpreted that fill known to be radioactive left the refinery to be used in town construction.

44 N.M. Ediger, “President’s Report to the Board of Directors,” February 20, 1976, RG 134, 1995-96/012, Box 6, File 1-460, LAC. The report also notes that a claim was filed by the Peterborough-Victoria-Northumberland and Newcastle Roman Catholic Separate School Board regarding the contamination of St. Mary’s School, which as noted by Eldorado, had to pay for the ventilation system installed in the school because of radon gas.

45 Eldorado, “BMM,” January 7, 1976, RG 134, ENL Fonds, 1995-96/012, Box 6, File 1-460, LAC. Indemnity bylaws and agreements were passed by the Board on March 1, 1976 and approved at the Annual General Meeting in April. Also see Eldorado, “Bylaw No. 22: Schedule ‘B’ to the Meeting of the Board of Directors,” March 1, 1976, R1526, EMR Fonds, Vol. 282, File 260-6, ENL 1975-1976, LAC.
… acted honestly and in good faith in such matter with a view to the best interests of the Corporation, and in the case of a criminal or administrative action … the Director had reasonable grounds for believing that his conduct in the matter was lawful; and the costs, charges and expenses incurred by the Director were not occasioned by his own willful neglect or default.\textsuperscript{46}

Analysis of the historical record indicates that Eldorado executives did indeed act with the ‘best interests of the corporation’ in mind at all times, and I found no trace of any accusation by the state of willful neglect by any Eldorado official.

In June 1976, Eldorado confirmed that the NIAC had denied insurance, and cost recovery for any expenses was unlikely. Briefing the Board, the President forewarned:

The Company also faces the possibility of court action by third parties for injury to health and for financial losses due to the presence of low level radioactive material. To date several notices of claim have been served, presumably to preclude any claim being barred by legal limitation periods, but so far only one action has actually been commenced.\textsuperscript{47}

Insurance only covered “a small part of the Port Hope operation for enriched materials.” There was no insurance for the waste, nor any even for the Residue Areas.\textsuperscript{48} Actual legal proceedings

\textsuperscript{46} Eldorado, “Agreement,” March 1, 1976, RG 134, ENL Fonds, 1995-96/012, Box 1, File 415-036, LAC. This file contains numerous indemnity agreements for the various directors and officers beginning in March 1976. The corporate and government records give no indication that misconduct or unlawful allegations were raised towards any specific employees. Nor is there evidence of punitive actions taken by the federal government against Eldorado or its executive directors and officers.

\textsuperscript{47} N.M. Ediger, “President’s Report to the Board of Directors,” June 24, 1976, RG 134, ENL Fonds, 1995-96/012, File 1-460, June 1976, LAC. I could find no further indications of the outcomes of any litigation, if pursued, against Eldorado for the contamination of Port Hope. The action referred to was noted by Eldorado as “being brought by a construction company … it is suspected that it relates to financial losses allegedly suffered as a result of houses having to be sold at below the market value as perceived by the construction company.” I address the issue of radioactive contamination and property values in Chapter 4.

\textsuperscript{48} N.M. Ediger, “President’s Report to the Board of Directors,” June 24, 1976, RG 134, ENL Fonds, 1995-96/012, File 1-460, June 1976, LAC. Liability insurance for nuclear facilities in Canada was a grey area until the passing of the federal Nuclear Liability Act on October 11, 1976. The introduction and drafting of the Nuclear Liability Act was a long time coming, yet occurred in the midst of the unfolding radiation crisis in Port Hope. Eldorado sought to ensure that this legislation would fill the above insurance coverage gaps. For legal opinion on how the new legislation would affect the Eldorado refinery, see G.S. Bennett to D. Elgee, May 27, 1976,
against Eldorado are difficult to assess. Legal content is often redacted in state archives and only traces of potential legal action are visible in the records. However, although not filed against Eldorado, in an extraordinary attempt at forcing a full clean up Port Hope, a group of 129 residents filed a claim to the Human Rights Committee of the United Nations, claiming that the Government of Canada was putting present and future generations at risk from radioactive wastes. While this claim was quashed because claimants had not exhausted all “domestic” avenues of recourse (such as legal action against Eldorado), the attempt demonstrates how some residents viewed the state as culpable for the contamination.49

Eldorado was not alone in worrying about future lawsuits. The Ontario provincial government noted that “if the issue should be defined as one of alleged dereliction of duty, then it is further complicated by the fact that the provincial government has historically carried out some regulatory activity, such as approvals, in an area of exclusive federal jurisdiction.”50 These concerns had merit, for a group of residents included the province in a potential lawsuit. Alleging they were responsible for monitoring environment and health, the ‘Pidgeon Hill group’ advised the MOE of potential legal claims “for damages sustained by them and their property as a result of the presence of radon gas and radioactivity in the area of their homes and persons.” Citing the province as responsible for environmental monitoring, they claimed their “homes have been rendered uninhabitable … [some] may or have suffered economic and personal injury” from the waste.51 Here, the radioactive contamination is deflected onto provincial authorities, rather than at the local refinery. Another, less obvious issue is raised by this correspondence. If this action went forward, there is no further trace of its existence.52

51 Alec M. Gowland to MOE, 19 March 1976, RG 12-45, Minister MOE Files, Box 140948, File Waste Sites – Port Hope.
52 If there were any further proceedings, they may have dropped, or resulted in an out of court settlement with a non-disclosure clause.
The AECB and the Provincial Government: A Battle of Fed-Prov Jurisdiction

The Ontario government also worried about potential public backlash and scrambled to compile information on their role with the refinery. Their response indicates that the provincial Minister, George A. Kerr, was previously unaware of the extent of radioactive contamination and he quickly recommended readying for a potential public inquiry. He also asked the provincial lawyer about possible legal action against the federal crown corporation, a grey area of jurisdiction.

I also have Mr. Mulvaney’s report in respect to any possible action that we could take against the Company and I was sorry that it was not more encouraging. Hopefully, however, he can find some way in which we can do something in Port Hope.

In May 1976, the Minister was more direct: “Can we prosecute?” These statements mark a turn in the MOE’s attention to the uranium refinery, which was previously characterized by ambivalence, if not complacency.

Behind the scenes, the MOE and Ontario Ministry of Health (OMH) were also very concerned about possible health effects from uranium and radon gas, but also arsenic and thorium. Internally, they discussed their views on the contamination in Port Hope:

… our Ministry is being asked to head up a Task Force to find a landfill site for the radioactive material. The situation is more serious than indicated in the newspaper …

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53 Everett Biggs to George A. Kerr, Memorandum, February 6, 1976, RG 12-45, Minister MOE Files, Box 140948, AO. The MOE had been aware of waste mismanagement and spread of contaminants at the Residue Areas and several localized sites at numerous times during previous decades, albeit they appeared to have no knowledge of its extent and scope.

54 George A. Kerr to Everett Biggs, Memorandum, February 12, 1976, RG 12-45, Minister MOE Files, Box 140948, AO. Mulvaney was the legal counsel to the MOE.

55 W.B. Dowley to Everett Biggs, May 31, 1976, RG 12-45, Manager MOE Files, Box 140948, AO. Provincial lawsuits against Eldorado are the subject of Chapter 6, Failsafe.

56 References to these latter substances are sparse, and arsenic was intentionally deleted from some government reports to focus on radioactive substances, for which the AECB had jurisdiction.
It’s very obvious that no municipality will want this material. If we are to become involved in the finding of a suitable disposal site, then I feel it should be made clear publicly from the outset that we have been asked to do this and co-operate with the people at El Dorado and the federal level, who are truly responsible for this situation. Unless this is handled carefully I am concerned that in a very short time, we will be the brunt of all public attack concerning the disposal of this contaminated material. Actually I have some real concern regarding this quantity of highly contaminated material being disposed of in the built-up areas of Southern Ontario. As you know, a special site and disposal facility were created in Alberta by the Federal Government some time ago for disposal of DDT.

As you can image the disposal site for such material has to be very carefully selected and any possibility of leachade [sic], etc. has to be completely ruled out. I think there is good reason to consider suggesting to the Federal Government that we will co-operate with them if there is a role we can play, but it is their responsibility to find a site. You did have correspondence with the Minister of National Defense. We do know that there are large acreages of land still under the control of the Department of National Defense. Maybe they should be looking at some of these areas. I don’t like to suggest an uncooperative attitude, but it is not too hard to imagine the bashing we could take over this one. I have set out staff to work but in a non-visible way ...

The MOE remained adamant their role was strictly technical expertise to the AECB and the FPTFR, and rejected responsibility for the contamination, its remediation, or disposal site. In their view, jurisdictional battles between the provincial and federal governments had long been a bone of contention, but over atomic or nuclear materials, the AECB had ultimate jurisdiction.

Moreover, the tone of the Minister towards events in Port Hope continued to intensify:

The public and the media have not yet realized the potency of the material which must be landfilled. I don’t believe there is a municipality or an area anywhere in Ontario that would not be violently opposed to the disposal in their area. We feel, therefore, that it should be Ottawa’s responsibility and the disposal should take place on lands owned by the Federal Government, such as the Department of National Defense areas …. It is only a matter of time until this whole matter of disposal becomes a public issue ...

57 Memo to the Minister, “Re: Attached Clipping: Radiation in Pt. Hope,” RG 12-45, Minister MOE Files, Box 140948, File Waste Sites July 75-May 76 Port Hope Eldorado, AO.
59 Everett Biggs to E.E. Stewart, Draft letter, “Eldorado – Port Hope,” April 21, 1976, RG 12-45, Minister MOE Files, Box 140948, AO.
A similarly worded letter was sent to Alan Prince, President of the AECB, refuting responsibility for the Port Hope wastes, and stressing federal-provincial roles must be clarified immediately to avoid future “misunderstandings.”

The AECB also repudiated blame for the waste. Acknowledging jurisdiction for “the health and safety of the public as a result of the operation of nuclear facilities,” they said these responsibilities were “discharged” when they approved a site and enforcement fell to other parties (such as the MOE) through licenses.” These claims sought to absolve the AECB of monitoring, compliance, and enforcement of Eldorado. They then described their role as security matters, rather than public health and safety, further pushing responsibility onto the province. Yet provincial authorities had no jurisdiction over atomic matters, meaning Eldorado was left in charge of Eldorado.

**Containing Public Perception: Defining Waste as Historic and Low-Level**

In addition to containing fiscal and legal liability, other mechanisms were put in place to shape public perception of the Port Hope situation, including the adoption of terms to describe the wastes as ‘historic’ and ‘low-level.’ These representations of radioactive waste as benign “yield great power,” and work to legitimate the actions of the nuclear state. Terming the radioactive waste as ‘historic’ framed the problem as one of the distant past, a scourge attributable to the former private owners, and not a recent or ongoing issue attributable to current refinery practices. Relegating sources of contamination to the 1930s and 1940s, Eldorado distanced itself from a causal link to the fiasco in Port Hope. Delineating the waste as historic conveyed a separation

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60 Everett Biggs to Alan Prince, “Task Force on Radioactivity Working Group Port Hope Disposal,” April 21, 1976, RG 12-45, Minister MOE Files, Box 140948, AO.
62 AECB, Memorandum “Questions and Answers about Radon and Radon Daughters,” April 21, 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-38 to 77-22:10, LAC.
63 As I discuss in Chapter 6, Eldorado subsequently refuted having to comply with any provincial regulations and the AECB did little oversight on the ground.
64 Kuletz, The Tainted Desert, 287.
between their predecessor, the Eldorado refinery owned by the Labine brothers that processed radium between 1932-1944, and the Eldorado crown corporation that had owned and operated the refinery since 1944. However the distinction between wastes generated by these two corporations is much more complicated and not so easily cordoned. While the private company certainly disposed of wastes throughout the Port Hope area, it is clear that the crown corporation contributed significantly to contaminating the town, in countless ways over decades. This latter contamination includes spilling waste in public places such as the harbour, spilling materials in transport, and failing to contain waste at dumpsites. Further, there was widespread dispersal, even sale, of radioactive building materials and fill to private homes and local businesses under the tenure of the crown corporation until at least the late 1960s.65 Similar to Eldorado, the AECB also inferred the radioactive waste was attributable to a distant past:

In the 1930’s and early 1940’s the [Port Radium mine] was operated principally for the extraction of radium and silver with the abundant pitchblende being of little value and hence largely discarded as waste along with nickel, cobalt, and arsenic derived from the complex ores …During this period, mineral and chemical wastes were disposed of at Port Hope in waste piles on and close to the Eldorado plant. Standards of control for toxicity and radiation hazards applicable to industrial wastes were not well established at that time.66

Here, the AECB also phrase the contamination of Port Hope as stemming from a lack of knowledge of previous generations.

The term ‘historic’ was then paired with the term ‘low-level’ as a further means to describe the contamination in alleviating terms. In 1982, the federal government established the Low Level Radioactive Waste Management Office (LLRWMO) “to carry out the federal government’s

65 The contamination of homes and residential yards is the subject of the next chapter, The Home as Nuclear Space.
66 AECB, “Radioactive Waste Locations in Canada,” February 19, 1976, RG 134 ENL Fonds, 1995-96/012, Box 6, File 1-460, LAC; Also see AECB, Draft news release 75, “Report by the AECB on the Waste Disposal Sites of Eldorado Nuclear Limited,” July 22, 1975, RG 12-45, Minister MOE Files, Box 140948, AO. While it is true that standards were not implemented until the Atomic Energy Control Regulations in 1960, the AECB knew of radiation hazards since its inception in 1946 and could have exercised oversight of Eldorado at any time, had it desired.
responsibilities for the management of historic low-level radioactive waste in Canada. As inferred in the name, defining the Port Hope radioactive waste as “low-level” was a further means by which the federal government positioned the waste as benign. The definition of “low-level” requires close examination. A working group of the AECB and AECL defined low-level as “only naturally occurring material similar to waste from uranium refineries…not products from reactors. Examples are…the Port Hope material.” This is a tautology. Low-level was subsequently termed “wastes whose characteristics and potential health and environmental impacts are similar to the material cleaned up in Port Hope, Ontario.” Again, these definitions set low-level as a source and type of waste (from uranium refineries and in Port Hope).

The LLRWMO was (and continues to be) responsible for managing “historic LLRW where the original producer can no longer be held responsible or the previous method of management is no longer considered acceptable.” Describing the radioactive contaminated materials in Port Hope as “dating back to” 1930s radium processing, they stated that “the waste is primarily contaminated soil with smaller amounts of other contaminated material.” Contaminants were characterized as high volume, low specific activity of radioactive substances, included uranium, radium-226, and thorium-230. “Other” materials were listed as chemicals and heavy metals, such as lead-210, ammonia, arsenic, nickel, selenium and vanadium. ‘Historic low-level’ lumped all

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69 MacLaren Lavalin, *Port Hope Low Level Waste Management Study*, 3-6. The waste was deemed typical to uranium mill tailings, i.e. 10-1,000 pCi/g radium, half–lives greater than 10’s of years.


72 MacLaren Lavalin, *Port Hope Low Level Waste Management Study: Report to AECB* (MacLaren, April 1981), 3-5. In a March 1976 Draft Report to the AECB, MacLaren noted particular concern with the radioactive substance thorium: “It is impractical to consider that 100 per cent of the radium contamination can be removed from Port Hope. The decision whether or not soil is to be removed from a particular property and when it has been sufficiently removed, should depend to some extent upon the degree to which the radium is in disequilibrium with its parent thorium … If all the radium were extracted and none of the thorium, the radium would in
these substances into a vague, aggregate category, omitting the scope of contaminants, as well as their specific properties.

When, in 1985, the federal government finally acknowledged responsibility for the waste in Port Hope (yet only for disposal), they stated: “the contaminated wastes and soils are historic wastes for which the federal government bears ultimate responsibility for disposal.” This pronouncement was silent on causes of contamination, liability, compensation, and any measure of social accountability. In this acknowledgement, the term “historic” continued to imply a separation between the still operating Eldorado uranium refinery and its privately owned predecessor, and neatly bracketed the problem:

The problems encountered in Port Hope were associated with the historic use of residues from the refining process for both radium and uranium as backfill material around occupied structures. The potential health risks resulting from the entry and build-up of radon gas inside these structures was not recognized and therefore strict management procedures to control the transportation or disposal of these wastes was not exercised.

Categorizing the radioactive waste as “historic” also imparted a perception that the waste should not be affiliated with the continuing operations of the uranium refinery. “Low-level” further implied that wastes were low concern, banal and benign. Demarcating the problems in Port Hope into simple, digestible categories were measures of containment to influence public response to the radioactive waste.

time be replaced in the residue by thorium decay … The fact that both the Lakeshore and Monkey Mountain Residue Areas have had to be cleaned up repeatedly because radiation levels had increased since the last cleanup, suggests that the thorium 230 is at least some of the residue was not in equilibrium with the radium.” See James F. MacLaren Limited, “Draft Report on The Preliminary Investigation of the Technical and Economic Factors for the First Stage Remedial Measures at Port Hope, Ontario,” March 1976, RG 60-8, AECB Fonds, 1993-94/-12, BMD, File 76-56: 4-11, LAC.


74 MacLaren Lavalin, Port Hope Low Level Waste Management Study, 3-2.
The federal government now defines “historic” radioactive waste as:

low-level radioactive waste (and processing waste such as arsenic) that was managed in a manner no longer considered acceptable and for which the original producer cannot reasonably be held responsible, or no longer exists, and for which the federal government has accepted responsibility.\(^{75}\)

In the case of Port Hope, where over 90% of the “historic” radioactive waste in Canada is located, the original producer was Eldorado, both as a private company and as a federal crown corporation. Eldorado no longer exists, having been privatized by the state in 1988. Accepting responsibility for historic waste for which they claim to bear no responsibility, makes the federal government appear as benevolent. Framing the radioactive waste as “historic” continues to screen the federal government as the primary cause of the contamination. When describing the radioactive waste in their community, Port Hope residents still use the categories of ‘historic’ and ‘low level:’

> all the stuff it’s like super super low level, it’s like the background radiation level here, you’ve probably read all about it, it’s a non issue.\(^{76}\)

Petryna observes (in relation to Chernobyl) how scientific categories for radiation and its effects are “inextricable from the power those processes legitimate and even provide solutions for.”\(^{77}\)

Kuletz also describes representations and metaphors as legitimating actions of the nuclear state.\(^{78}\)

In Port Hope, categories of ‘historic’ and ‘low-level’ became the legitimate categories for Eldorado’s wastes and adopted as the official truth. However, these representations were not totalizing. One long-term resident suspects that ‘low-level’ may have been adopted to infer low-risk:

> I remember when town council, and they sat down and decided to call it low-level because they didn’t want people to not come to Port Hope, and to me it’s not been proven

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\(^{76}\) Interview #8: Anonymous, Port Hope resident. This interviewee also compared the radiation in Port Hope to other communities in Canada, to demonstrate that Port Hope is safe: “it’s way less than Bancroft, it’s way less than Banff, Alberta, it’s really not an issue.”

\(^{77}\) Petryna, Life Exposed, 10.

\(^{78}\) Kuletz, The Tainted Desert, 287.
to be low level, it's them sitting down and deciding it's a good name for it, that's what they did way back when I was young.  

This comment also scopes in the community government as part of the nuclear state. Representations of radioactive waste as historic and low-level were devices to contain public concern and thus backlash against the refinery. For the timing of the discovery of radioactive waste could not have been worse: a major refinery expansion to increase the production of uranium hexafluoride (UF6), a product crucial to Eldorado’s domestic and international markets, was being planned.

Expanding An Empire: The Refinery is Vital to the Nuclear State

In the immediate wake of December 1975, Eldorado and the AECB asserted the uranium refinery as a cornerstone producer of uranium products and fuels in the national and international arenas. The nuclear industry was portrayed as vital to Canada’s economic future. Disruptions to refinery operations were deemed catastrophic. Part of this strategy was pointing out Eldorado’s fiscal benefit as a federal crown corporation, particularly its $9.7 million profit in 1975. After a four-year downturn in the international uranium market, forecasted uranium sale were again high. The planned expansion of UF6 production was critical to Eldorado’s operational plans and to Canada’s nuclear industry:

…additional refinery capacity… must be provided by the early 1980s to process the rising output of Canadian mines … in its longer-term planning, Eldorado Nuclear envisages an accelerating demand for uranium that makes it imperative to develop, between 1985 and 2000, not only additional mines and refining capacity but also the capability to strengthen the Company’s role in other phases of the nuclear fuel cycle.

At the time, Eldorado was the only refinery in the world that could convert uranium mine concentrates for light water and heavy water reactors. The refinery was crucial, not just to Eldorado, but also to private ventures – uranium mines, nuclear energy producers, and associated industries. Containing adverse reaction to the contamination of Port Hope and ensuring that the

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79 Interview #10: Anonymous, Port Hope resident.
refinery could not only continue to operate, but expand, were central to the viability of Eldorado, and crucial to the privately owned uranium and nuclear industries that relied on Eldorado for uranium processing and fuel products.

The AECB urged that the refinery be allowed to continue without interruption, lobbying federal Ministers on the importance of a timely UF6 expansion. In 1978, Eldorado had reported “a year of record growth” and the crown corporation needed to get the expanded UF6 refinery into operation before 1980 in order to meet contractual arrangements and legal contracts for UF6 production and bolster its production output against competitors. Any delay was seen as a severe threat to the refinery’s ability to retain itself as a leading global supplier of UF6 fuel, and thus Canada’s role as a leading nuclear state. The importance of the new UF6 refinery in Port Hope was directly linked to Canada’s forecasted position as a major supplier to the international uranium market. As noted by the EMR in 1980, “Eldorado’s plans have the potential to make the company the world’s largest producer of uranium hexafluoride by the mid-1980s.”

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82 Eldorado, 1978 Annual Report of Eldorado Nuclear Limited and Subsidiaries (Ottawa: Eldorado). Also see Appendix 8 for figures showing the significant growth of their uranium production in the mid-late 1970s. For example, Eldorado doubled its uranium production between 1975 and 1979 despite being mired in controversy over the contamination of Port Hope. 83 Eldorado, “President’s Report to the Board of Directors,” August 9, 1976, RG 134, ENL Fonds, 1995-96/001, Box 6, File 1-460, July 1976, LAC. This report is but one example: many Eldorado, AECB, and Minister of EMR reports between 1976 and 1980 stressed the importance of a new UF6 plant. See also, for example, Eldorado, “Submission to Treasury Board: Capital Budget, 1977,” R1526, EMR Fonds, Vol. 190, File ENL and Eldorado Aviation Limited Capital Budgets 1977, LAC. Following a downtrend in the international uranium market beginning in the late 1950s, uranium demand and its price rose quickly in the early 1970s. By 1980, Canada had “almost doubled” its production. The years of intensification and expansion of the uranium refinery in Port Hope were also marked by a tremendous increase in the economic assets of Eldorado. Between 1970 and 1980, the total assets of the crown corporation grew from $86 million to $326 million, a growth of 279.1%. See Anthony David Owen, The Economics of Uranium (New York: Praeger Publishers, 1985), 97, 101; Allan Tupper and Bruce Doern, Public Corporations and Public Policy in Canada (Montreal: The Institute for Research on Public Policy, 1981), 7. 84 EMR Canada, The Structure of Canada’s Uranium Industry and its Future Market Prospects, 288.
In the early 1980s, Eldorado achieved their expansion plans with a new UF6 plant adjacent to the Port Hope public West beach. The expansion resulted in a marked increase in uranium production and sales. While the decision on where to locate the new plant was a drawn out affair, during which it seemed the new facility could be located elsewhere, ultimately the Port Hope site was chosen. In advocating to have the new refinery in Port Hope, Minister Gillespie noted the importance of Eldorado to the nuclear state and to the community:

[There is an] appreciable dependency of the Port Hope community on Eldorado Nuclear, which has been the town’s largest employer for over 40 years. Establishment of new facilities in a distant area would be perceived as a socioeconomic loss to Port Hope. In addition, a distant location for the new refinery could be incorrectly interpreted as evidence that uranium refining is unduly hazardous. This perception would focus public concern on other activities of the nuclear industry including the Port Hope refinery and the fuel fabrication facilities in Port Hope and Peterborough.

Gillespie articulated the town as economically dependent, while also trying to delimit further attention being drawn to the uranium refinery. Eldorado expanded right where it wanted: on prime Port Hope waterfront lands. Around the same time the new UF6 plant was approved, the clean up of radioactive waste in Port Hope was put on hold.

85 A detailed analysis of the UF6 expansion is beyond the scope of this dissertation. For the purposes of this analysis it is only important to stress that a major refinery expansion was underway in order to illustrate the stakes involved at the time of the discovery of radioactive waste. For an account of local events surrounding the new UF6 expansion, see Penny Sanger, Blind Faith: The Nuclear Industry in One Small Town (McGraw-Hill Ryerson, 1981).
86 See Appendix 8 for Eldorado uranium production data.
88 In addition, shortly after the new UF6 refinery was built in Port Hope, Eldorado cut approximately 20% of the Port Hope workforce at the refinery and started reporting uranium production figures in terms of ‘production per employee.’ In 1984, Eldorado fired 25 senior managers from the Port Hope refinery, citing organizational changes as a result of refinery expansion. In 1985, Eldorado stated: “Production per employee at the Fuel Services plants (Port Hope and Blind River) rose sharply in 1985 compared with the previous five years. This was achieved through a combination of increased productivity and an orderly reduction of the Port Hope workforce. Employment at Port Hope declined by 82 people to 337 employees during the year. The major portion of this reduction was achieved through an early retirement program.” Eldorado, Annual Report of Eldorado Mining and Refining Limited and Subsidiaries (Ottawa: Eldorado), 6. In 1986, revenue of uranium sales was measured in “revenue per employee” – a ratio that Eldorado appeared to be trying to maximize. See Appendix 7 for additional information.
“Non-decisions” or inaction are also means of containment. The priorities of Eldorado and other arms of the nuclear state are made clear, not just in their words, but in their actions and in their inaction. The lack of a containment facility for the radioactive wastes gave an appearance that the state had no choice but to abandon the clean up. In Port Hope, action (UF6 expansion) and inaction (leaving wastes) were both framed as necessary. Failure to do something is also telling, and in Port Hope, the failure to fully clean up the radioactive waste was indicative of the priorities of the nuclear state. Through exerting its influence as a federal crown corporation to delimit fiscal and legal liability, and in aggressively asserting its own legitimacy as an arm of the nuclear state, Eldorado achieved its goals.

The Good Corporate Citizen: Revisited

There was an economic dependency, or perceived dependency, of Port Hope on Eldorado, the ‘good corporate citizen.’ As more contamination was uncovered in the late 1970s and early 1980s, Penny Sanger makes clear how an apparent majority of the community actually increased its display of support for the refinery, in fear of losing the town’s largest employer. Yet, power relations shape not just outcomes but also the perception of grievances themselves. The intense community support for the expansion was articulated in economic terms, and local residents who pressed for more clean up and investigative health studies were marginalized. Economic dependency on Eldorado, which was articulated as fear of immediate job loss and decreased corporate financial contributions to the town – was weighed against a less tangible outcome – the employment data, and see the Annual Reports of Eldorado for further detail (such as annual budgets) for uranium production at the refinery and subsidiary companies.

90 Jack Kloppenburg argues that “what was not done may be just as revealing as what was done.” Jack Ralph Kloppenburg, *First The Seed: The Political Economy of Plant Biotechnology*, 2nd edition (Madison: Wisconsin University Press, 2004), 9.
92 See Sanger, *Blind Faith*. This pattern is also evident in the plethora of letters and columns in the local Port Hope newspapers. I return to how community members who did raise concerns were socially ostracized in the next two chapters.
possibility of an unknown health or environmental problem in the distant future. These latter concerns were contained by the state: the radioactive waste was normal and benign.

In the wake of contamination, many residents focused on the refinery’s financial contribution to the town, warning that Port Hope would be a ghost town should Eldorado fail to locate its proposed UF6 expansion in the area, or, even worse, shut down completely. Despite the wastes, Eldorado, many said, was still a ‘good corporate citizen’ and there was widespread support for Eldorado. One resident, in 1979, put it this way, “the thought of Port Hope without Eldorado is unthinkable.”\(^\text{93}\) When it appeared possible the new UF6 plant could locate elsewhere, local Mayor Wyatt lamented: “The atmosphere around here was almost like a death had occurred.”\(^\text{94}\) Imbuing the town’s largest employer with a life or death dichotomy was also observed by Francoise Zonabend in the response of residents in La Hague, France, where accidents at the local nuclear facility were not talked about for fear of economic loss: “without the plant, La Hague would have been doomed.”\(^\text{95}\) Also unthinkable was that Eldorado was not the ‘good corporate citizen’ residents thought it was before the discovery of radioactive waste.

Yes, I want clean air for my children but I also want a roof over their heads, food on the table and a progressive economic and social environment in which to bring them up.\(^\text{96}\)

Others noted similar views:

The bulk of our town lies within one mile of the Eldorado refinery. This refinery was in operation many years before we were even born …Although there was recently a radiation contamination problem in the Port Hope area, it is our belief that no residents’ health or welfare has suffered. Eldorado Nuclear Limited have proven themselves as a good corporate citizen during the recent clean up of radiation problems in cooperation with AECB and the Ontario Department of Health.

Although we do not derive our livelihood directly from Eldorado Nuclear Limited, the economic base of the whole community would be shattered if for any reason your

\(^{93}\) Resident to A. Gillespie, March 8, 1979, R1526, EMR Fonds, Vol. 284, File 260-8 Eldorado New Plant Site Proposal ‘D,E,F’ 1978, LAC. This area resident was advocating for a Hope Township site, not the town of Port Hope proper.


government made a policy decision to affect the future of Eldorado Nuclear being able to remain here in Port Hope.97

Similarly, 150 local businesses voted unanimously to endorse Eldorado as a ‘good corporate citizen,’ distributing letters to local, regional and national politicians indicating strong support. As cited in one local newspaper, business interests stressed the $3.5 to 4 million dollars that Eldorado contributed to Port Hope’s economy:

‘It’s not just the business community, but everyone who lives in the town who benefits from the 350 jobs Eldorado now provides’ … ‘This industry has provided the payroll that has allowed many people to own good homes, educate their children and maintain a dignified lifestyle’ … [The Association] is ‘striving to indicate that [Eldorado] has been a great asset to the community’ because it has been under ‘constant attack’ for the past 13 months. … for years Eldorado has been represented for years [sic] by workers who were willing to serve on town council, committee of adjustment, in sports activities, Red Cross, churches and every activity that makes up the fabric of the town … since 1932, Eldorado’s contribution to Port Hope has ‘far outweighed’ the negative aspects of the recent radon gas discovery.98

For these local businesses, Eldorado’s fiscal benefit absolved the refinery for polluting the town with its wastes. Above, Eldorado’s infusion throughout the everyday social fabric of Port Hope is also made apparent. The ‘good corporate citizen’ was an active member of local politics and social life. In fact, as a crown corporation not subject to the federal Civil Service Act, Eldorado encouraged employees to be involved in local municipal politics but “discourage[d] active participation in provincial or federal politics”.99

Why would Eldorado distinguish between municipal and provincial or federal politics? It is difficult to say with certainty, yet it is possible that involvement in the local government influenced local outcomes in favour of Eldorado, whether intentionally or not. While likely not

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97 Resident to Pierre Trudeau, March 3, 1978, R1526, EMR Fonds, Vol. 284, File 260-8 Eldorado New Plant Site Proposal 1978, LAC. At the time, Pierre Trudeau was the federal Prime Minister of Canada. These comments refer specifically to the siting process during the Port Granby phase but also speak to the economic importance of Eldorado as seen by local residents, even those not employed at the refinery.


anticipated in the context of waste, the state’s infusion into everyday political and social life may have made it more difficult for residents to blame Eldorado when the contamination was uncovered. Eldorado was there before many residents were born. Corporate loyalty is fostered through uneven power relations, stemming from “a position of dependency” that “allowed and encouraged the response of loyalty to the regime when challenge to it occurred.”

Dependency “[manifests] itself in uncritical loyalty.” In spite of the waste problem, Port Hope’s economic dependency on the refinery manifested as loyalty to Eldorado. The representation of Eldorado as a ‘good corporate citizen’ helped to screen the refinery from the negative association with radioactive waste and retain the crown corporation as a benevolent member of the community.

Naming Eldorado a ‘good corporate citizen’ fostered a perception of the refinery as another member of the local community. Yet similar to the labeling of radioactive waste as historic and low-level, not all residents were convinced by these representations. One resident commented “it just burns me up to hear them talk about Eldorado being a ‘good corporate citizen.’” Another resident observed (in hindsight) that the benefits of Eldorado’s ‘good corporate’ citizenship also benefited the corporation:

*Eldorado sponsors all sorts of things in town ... people say ‘oh they’re really generous’. ’ Great publicity, but is it really financially that burdening?*

*The* benefit of the employment, taxes that they pay, little gifts they give to certain venues, ..but again, the publicity far outweighs the financial burden....oh yeah, I’d love to have a few million dollars that I could throw around saying ‘I’m a good citizen,’ corporate or not, and get it back in tax deductions.

These dissenting views indicate that material and ideological representations may become instilled as norms, yet are not totalizing. While called a citizen, the Eldorado uranium refinery was not an ordinary member of the community. It was an arm of the nuclear state, a federal

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102 See also Sanger, *Blind Faith*, chapter one.
104 Interview #11: Anonymous, Port Hope resident. This comment indicates that the skepticism of Eldorado as a ‘good corporate citizen’ is still evident [yet remains a marginal viewpoint] in Port Hope.
crown corporation that strategically drew on its state powers and privileges to contain dissent and bolster its own interests in the midst of crisis.

My analysis of Eldorado’s response to these pressures in the emergence of crisis demonstrates that this ‘good corporate citizen’ drew on a series of tactics and strategies to ride out this public and political storm. Tactics and strategies by which Eldorado sought to retain its own legitimacy included controlling the agenda and the flow of information, deflecting blame, and containing fiscal and legal liability. Revealing how this ‘good corporate citizen’ actually behaved behind the scenes reveals cracks and fissures in this convenient epithet. Rather than turning outward towards its fellow ‘citizens,’ to extend its expertise and vast resources as an arm of the federal state, and tackle a crisis of its own doing, this ‘good corporate citizen’ protected its own economic interests and power. When these adverse events arose, the contamination of Port Hope could have become what Gramsci termed “a crisis of authority” that threatened the Eldorado uranium refinery and the nuclear state, as well as an obstacle standing in the way of refinery expansion. 105 How to contain the public and political response, rather than the waste, per se, shot to the top of its agenda. These are the markers of state power and capitalism interwoven. What could have undermined the legitimacy of Eldorado, and perhaps the nuclear ambitions of the state, was transposed and put to work towards the intensification and expansion of these very entities. Crisis was short-lived for Eldorado, if not for the community. Adverse events sputtered on, but did not spiral into what Gramsci called a crisis of hegemony, nor into a general crisis of the state.106

Moreover, in the immediate aftermath of 1975, the crown corporation and other factions of the nuclear state each operated with a decisive economic agenda. However, as I also demonstrate in this chapter, the state is not a homogenous, monolithic entity with an objective rationale – the state is internally fragmented and contested. Elements of the state, such as Eldorado executives, federal Ministers, and departments such as the OMH, each sought to protect themselves from

adverse fallout – to prevent a “bashing” so to speak. Indeed, while there was a shared immediate and long-term goal of continuing and expanding the refinery, each also had their own interests in mind that were clearly articulated in economic terms and self-preservation. Eldorado was most aggressive in these tactics and strategies, yet they were not alone.

As a ‘good corporate citizen,’ Eldorado gave the appearance of functioning in the best interests of the local community, bringing to mind Gramsci’s argument that state elite give the appearance of representing the interests of civil society in order to facilitate the continued dominance of state and capitalist interests. While assuring no expense would be spared to restore the community, Eldorado aggressively lobbied against stringent clean up criteria, fighting to keep standards “realistic,” by which it meant economical and of a standard that would not affect their operations. Bourdieu argues that the tacit role of the state is to legitimize itself. Tactics and strategies to relegate blame to the past, then terming the wastes as “historic” and “low-level” are exercises in the production of “truth” and their infusion into civil society shows how the legitimacy of the state also articulates across the social fabric.

Many Port Hope residents helped Eldorado retain legitimacy despite the refinery having contaminated the town. Calling Eldorado a ‘good corporate citizen’ was one means through which citizens showed support for the town’s largest employer. The economic incentives in this position are evident throughout residents praise of Eldorado, whose fiscal contribution was said to outweigh any social or ecological consequences of the refinery. ‘Good corporate citizen’ was a normative mechanism that helped secure Eldorado’s validity to operate [and expand] the uranium refinery in Port Hope. Further, in calling a federal crown corporation a citizen, local community members perhaps sought to dissolve the boundary between the state and civil society,

107 Gramsci, *Selections From the Prison Notebooks.*
109 Bourdieu et al, “Rethinking the State,” 12.
110 I do not know if the emergence of this representation initially came from Eldorado, yet earlier in this chapter I document the refinery President using the term in 1975 in response to the waste problem in Residue Areas.
enveloping the crown corporation as another citizen of their town. Yet, as demonstrated by Eldorado, this crown corporation held itself as separate, if not above, the citizens of Port Hope, at least where its own interests were concerned. Corporatism and the retention of its powers and privileges as a federal crown corporation were first and foremost. The priorities of Eldorado were strategic, calculated responses to shifting adverse events. Eldorado did so through mechanisms of containment, “institutional practices” of power that include “non-decisions … [also] a form of power.”

Conclusion

Strategies to deflect responsibility and contain fiscal and legal liability reveal that the priorities behind the nuclear state were economic. Even the potential lung dose of Port Hope citizens was quantified and remediation scenarios calculated as a measure of cost-benefit in monetary terms, not in social, health, or ecological terms. At the time that the contamination of Port Hope came to light, the stakes for increasing production at the uranium refinery in Port Hope were very high: the refinery needed to expand to meet Canada’s uranium contract obligations and secure Canada’s position as the leading global supplier of strategic uranium fuels. Community supporters, in turn, asserted they also needed Eldorado. Events such as the discovery of radioactive waste throughout its host town had to be managed and contained.

In response to the publicity regarding its radioactive waste, Eldorado took several tacks. While seeking to assure refinery staff and the community, the crown corporation worked behind the scenes to distance itself from fiscal or legal accountability for the causes and consequences of the waste, including cause, remediation, costs, and legal liability. As events surfaced over the Port Hope contamination, agencies and departments of the nuclear state struggled over fiscal and legal accountability in the aftermath of the Port Hope crisis. This ‘good corporate citizen’ worked to protect its own interests. Eldorado was steadfast in refuting responsibility for the waste, guarded itself against fiscal and legal responsibility, and set out to contain the perception

of its culpability. Drawing on state-corporate power further entrenched those same privileges. Eldorado was not alone in these mechanisms of containment.

Other factions of the nuclear state also took similar measures to protect their own interests, yet none as staunchly as Eldorado. The crown corporation also blamed former owners, past practices and a lack of awareness of radioactive hazards for the contamination of the town. Defining the wastes as ‘historic’ and ‘low-level’ were but two of these means. Even though radioactivity had become the indiscernible occupant in hundreds of Port Hope homes, efforts to contain the problem focused on controlling the agenda, limiting fiscal and legal accountability, and managing public response. Social accountability, like its counterpart radiation, remained unseen.

If, as it seems from my analysis of archival records, that regulatory bodies such as the AECB, which had paramount jurisdiction over all atomic matters, and the Minister(s) responsible for the Eldorado crown corporation, assumed the refinery was only disposing of radioactive materials at designated (yet unlicensed) Residue Areas, they were grossly mistaken. The crown corporation, similar to its predecessor, had been dumping, spilling and otherwise dispersing radioactive materials throughout the Port Hope area for over forty years and had allowed, unknowingly or knowingly, a vast variety and quantity of radioactive materials to leave the refinery site unaccounted for. This latter contamination, that which occurred outside Residue Areas, resulted in grossly elevated “abnormal” radioactivity in public and private spaces. In fact, the contamination of public and private spaces exemplifies the scope and scale of the problem.

As I discuss in the next chapter, The Home as Nuclear Space, the contamination of the home belies claims by the refinery and government that the waste stemmed primarily from past radium processing at the former privately owned Eldorado Gold Mines Limited. While this private enterprise certainly dumped wastes into the harbour, ravines, and landfills, the mishandling of radioactive waste and other toxic substances and its sporadic dispersal throughout the Port Hope area continued in multiple forms and in multiple ways for decades under the tenure of the crown corporation. This latter contamination, that of the home and everyday objects, as well as the
response of the crown corporation to the residents of Port Hope regarding their private homes, therefore merits further investigation. An analysis of radioactive contamination of the home will further underscore how the nuclear state responded to the contamination of a small community that felt dependent upon the refinery for economic viability, and shows how the nuclear state manipulated this dependency to ensure its own viability.
Chapter 3

The Home as Nuclear Space: A Pandora’s Box

One of the most intimate scenes in the 1983 film *Silkwood* is also the most disturbing. Arriving in white radiation hazard suits, identities concealed behind hoods, masks and goggles, technicians of the nuclear state enter the home of Karen Silkwood, armed with radiation detection devices. *Silkwood* is not a fictitious film. Karen worked at Kerr McGee, the plutonium refinery in Oklahoma, where she lobbied for worker and public safety from what she saw as mishandling of radioactive materials. Before her untimely death, which was suspected of being murder because of her activism, radiation detection personnel invaded her home to sample for radiation.¹ The depiction of this event in *Silkwood* conveys how radiation resides in everyday spaces and objects, an invasion that also brings the nuclear state into the home. Finding elevated radioactivity in the bathroom, they pry the vanity cabinet off the wall, removing everyday fixtures. In the kitchen, they confiscate leftover food from the refrigerator. Then they leave. In their wake, Karen’s home is torn apart, and, along with it, her sense of security in this private space. Radioactive materials had entered Karen’s home and an intangible psychosocial condition of radiation contamination, termed the “nuclear uncanny,” was left behind.² This form of “dislocation” manifests as anxiety and uncertainty in everyday life.³

The nuclear uncanny comes in many forms. The contamination of Port Hope also rendered “everyday life strange,” as radiation, followed by the nuclear state, also entered Port Hope homes.⁴

₃ Masco, *The Nuclear Borderlands*, 28. He also describes the nuclear uncanny as a “theft of sensibility.”
house to house and door to door and they seemed to have a list of things they thought might be hot, radioactive, and so ... the reason I knew about this was twofold, I lived in a house up on [Street] ... and one of these teams came to my door and said we’d like to look at your garage. We’re in a rented accommodation, and the person from whom we rented the accommodation I think had, there was some, there was a belief there might be some connection between wood in the garage and the nuclear industry. I don’t know what that connection was. These people came, they tested the garage and they started, they said they were going to have to take some remedial action.

They started removing furniture, like little tables, wooden tables and things, and they came back and, I’ll never forget it, this guy had a big suit on like a diver except that it was an asbestos suit and I gather it must have been a radioactive suit and he picked up this one table that we used to bbq on with tongs and took it away and I’ll never forget that, and I said ‘what’s happening here?’ And he said ‘oh well we’re testing various sites around town.’

Radioactive contamination of the home and the state’s response was unsettling, an invasion of private space, but not just of material space, but psychosocial space, what Joseph Masco refers to as the “colonized psychic spaces” of nuclearity. The contamination of the home was also a form of dispossession, one element in what David Scott calls an “effective occupation through incremental means.” The nuclear state had come home.

The home is a “landscape form” and “as the most everyday of landscape, is also the most profound.” Alison Blunt argues that the home “is a material and affective space, shaped by everyday practice, lived experiences, social relations, memories, and emotions.” The home “might at first glance appear to be familiar and mundane,” yet is a “space of belonging and

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5 Interview #12: Anonymous, Port Hope resident.
6 Masco, The Nuclear Borderlands, 28.
7 David Scott, “Colonial Governmentality,” Social Text 43 (1995): 202. Scott also argues that dispossession and occupation include not just material space, but “colonized psychic space.”
8 Mona Domosh, “Geography and Gender: Home Again?” Progress in Human Geography 22, no. 2 (1998): 276. Here, Domosh is drawing on J.B. Jackson. I use this quote to illustrate the significance of the home as a site and space of socio-spatial analysis. The original quote also contained the word “house.” I omitted ‘house’ to not conflate house with home (nor does Domosh conflate the two), in the recognition that homes encompass different forms of housing. I do however, address the significance of home and home ownership as private property in the next chapter, “Black Wednesday.”
alienation, intimacy and violence, desire and fear, the home is invested with meaning, emotions, experiences and relationships that lie at the heart of human life.” In Port Hope, the appearance of the home as familiar and mundane is troubled by its pervasive contamination with radioactive waste. Radiation was inside the private homes of hundreds of Port Hope residents, inhabiting the air they breathed, residing in their everyday spaces, and emanating from their everyday household objects. In this chapter, I analyze the radioactivity of everyday spaces and objects in the home and demonstrate how nuclear landscapes, including the landscape of the home, are everyday spaces reproduced through everyday occurrences, not through apocalypse.

Mona Domosh asserts that “the home is rich territory indeed for understanding the social and the spatial.” “Stepping into the house not only opens new ways of interpreting landscape but also recasts economic analysis.” In this chapter, I step inside the contaminated homes of Port Hope residents to analyze how the nuclear state contaminated hundreds of residential homes, and assess how the response of the social body to this widespread problem was contained. To do so, I first analyze the interaction behind the scenes between the Eldorado crown corporation and the regulatory bodies, then assess correspondence between the nuclear state and citizens of Port Hope. Through this analysis, I demonstrate the uneven power relationship between the nuclear state and civil society, and show how containment of the social body was, in part, enabled by rendering radioactivity as everyday and ordinary, and as banal. The contamination of the home and the state’s response was a “socio-spatial ordering” of landscape and population.

In recounting this story, one that relies heavily on letters contained in a restricted state archive, I discuss how, in many ways, the contamination of the home was the most insidious of pathways

14 I conducted all my interviews with Port Hope residents inside their homes, some of which were revealed during the interview as contaminated with radioactive waste. Therefore I also literally, not just figuratively, ‘stepped inside’ the home as a method of analysis.
whereby a small community was transformed into a nuclear landscape. Adriana Petryna argues that the contamination of private and public space, including the body, imbues “daily life characterized by overwhelming uncertainty and unknowability.” Uncertainty and fear among civil society can “produce a social and political unraveling” and become un-containable. Indeed, the potential backlash to the contamination of Port Hope homes was perhaps the most difficult for the nuclear state to contain. For it is one matter to think of radioactive waste as refinery residues inadvertently “finding their way” around the refinery and Residue Areas, to come to terms with its presence and await its removal: it is quite another matter to realize that the category of radioactive waste includes your home.

Searching for Abnormal: Background on the Radiological Inspection Survey

Finding radioactive contamination in public spaces, including the harbour, beaches, ravines, roadways, sidewalks, ditches, parks, and schools, was certainly shocking. Even more alarming was elevated radioactivity inside homes. As the search for radioactive contamination unfolded, it became increasingly apparent that radiation was not just outside in contaminated fill and building materials, but dispersed throughout homes and businesses. The AECB described the problem as unprecedented:

This kind of operation (locating areas contaminated by radium companies) was a whole new ball game for us in 1975 … by the time the year was over it was pretty obvious we’d opened a Pandora’s Box.

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16 This chapter draws extensively on the radiological property survey undertaken by the AECB and OMH in the 1970s. These archived files are closed pursuant to a 100-year access restriction. I was only given access to view the files subject to a Research Agreement with Archives Ontario, in which I agreed not to disclose personal identities attached to particular properties and homes. Therefore this chapter does not identify specific addresses or names of residents in connection with that archive. Where any names and addresses are referenced herein, they are attributable solely to already published information easily available through media sources and public documents.


18 Petryna, Life Exposed, 21.

Port Hope residents recall how radioactive waste was widely distributed around town:

_A long time ago ...they gave away free dirt, so everybody likes free things right, that’s why it’s spread around so bad, homes made terraces, you wouldn’t believe it was Eldorado dirt but if you needed a driveway paved you’d phone Eldorado and they’d bring up, and they brought up yellowcake to fill it in and repaved it with the asphalt, and who knows how many driveways have yellowcake underneath it and you know pavement and cement is porous and what’s under there is eventually going to seep through to the next one and they did that without a thought._

_Even years ago there was people complaining about these trucks dumping stuff... and even storeowners [said] ‘leave Eldorado alone they know what they’re doing.’ Well evidently they didn’t know what they were doing._

As I showed in the previous chapter, Eldorado blamed the dispersal of radioactive waste on people and practices of the distant past, and, when they were clearly culpable, to a lack of awareness of radiation hazards in the refinery’s early days. The AECB was more direct, blaming radium refining during the 1930s and 1940s and crown corporation practices during the 1950s, noting spillage during transport and demolition of buildings: “all of these actions produced building rubble, fill and reclaimed building materials, any of which might have been contaminated and may have been used in the Town for various purposes. Although spot checks for radioactivity were made by ENL on material leaving ENL property, not all material was checked.”

The Board also noted that surface runoff from contaminated Residue Areas spread radioactivity, particularly near Pidgeon Hill.

The OMH claimed that refinery buildings were “demolished and the rubble trucked away and used as fill material in local construction. Fill material is thought to be the source of the present high radiation levels in certain locations.”

One resident remembers that the use of fill in town construction was common practice:

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20 Interview #10: Anonymous, Port Hope resident.
21 Interview #11: Anonymous, Port Hope resident.
22 AECB, “Progress Report on Radioactive Waste Investigation in Port Hope, Ontario,” February 19, 1976, RG 134 ENL Fonds, 1995-96/012, Box 6, File 1-460:8, LAC. Unless otherwise noted, the technical description of the survey are derived from this summary document. Also see AECB, “Draft Submission to Treasury Board,” April 26, 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-38 to 77-22, LAC.
23 OMH, “Memorandum: Eldorado Nuclear Limited Port Hope Radiation Survey of the Town of Port Hope,” January 19, 1976, RG 12-45, Minister MOE Files, Box 140948, AO.
... there was nuclear waste dumped right in this school [St. Mary’s] and the school was on a steep embankment and probably the reason for the waste dumping all over the place was it’s a very hilly town and it’s very difficult to build, you need a lot of fill to level stuff out to build buildings and so fill was probably hard to get and expensive and everybody that was offering free fill ...the residents were inclined to take it rather than not take it.

The other thing was in the 30s I think it was, there were a number of ravines where as a kid I remember and this is sort of urban legend, but it has a basis in fact, I’m pretty sure, mentioning that uranium tailings from the old radium plant ...were dumped in a lot of ravines around town, and at the time those ravines would have been not in the centre part of town, they would have been kind of on the outskirts, and later and I mean 1950s, 60s, 70s, later subdivisions were built around them and of course those tailings were then of course in town, as opposed to out of town and the reason I know that they weren’t urban legend because later on they were discovered as hot.24

The contamination clearly came from an astonishing array of sources over decades, during which time many areas were built over. Where radioactive materials may have ended up was therefore exceedingly difficult to determine.

To assess the extent of contamination, the AECB and OMH began a joint investigation, first by following up on Eldorado’s initial regulatory compliance survey. Borrowing equipment from the Chalk River Nuclear Laboratory, they fitted vehicles with radiation detection devices and drove along each street, measuring outside radiation. Elevated “abnormal” radiation outside resulted in indoor air samples for radon gas.25 By January 19, 1976, approximately half the town had been surveyed by road and many homes by indoor air sampling. At this time however, there was no criteria for radioactive contamination inside public and private buildings. Noting this gap hindered the investigation, the OMH stressed the immediate need for radiation standards inside homes to “determine which premises are evacuated and remedial measures implemented.”26 In the absence of criteria, assigned to the newly formed FPTFR, the OMH compared its initial findings to what they would ordinarily expect: “normal background levels of radon in urban

24 Interview #12: Anonymous, Port Hope resident.
25 AECB, “Progress Report on Radioactive Waste Investigation in Port Hope, Ontario,” February 19, 1976, RG 134 ENL Fonds, 1995-96/012, Box 6, File 1-460:10, LAC. Air inside private residences was measured by obtaining a “grab sample” with evacuated 2-litre glass bottles and sent to the OMH radiation laboratories in Toronto. Air in some homes was sampled two or more times, yet despite AECB recommendations, others were sampled only once.
26 OMH, “Memorandum: Eldorado Nuclear Limited Port Hope Radiation Survey of the Town of Port Hope,” January 19, 1976, RG 12-45, Minister MOE Files, Box 140948, AO.
areas are 0.5 to 1.0 picocuries per litre (pCi/l).” Against these “normal” levels, the nuclear state would soon find they had an “abnormal” situation on their hands. Setting standards for determining “normal” and “abnormal” was the prerogative of the nuclear state. The term “normal” is commonly used to denote that which “ought to be,” the “rule,” and “regular,” yet its use cannot be separated from the “value” attached to the speaker. “Normal is a “concept of value and not a statistical reality.” Categories of “normal” are malleable, and were means by which the nuclear state determined and legitimated the “official” truth of what constituted “normal” radiation levels in Port Hope and when radiation could be considered a potential health hazard.

Radiation: The Indiscernible Occupant

As the extent of contamination continued to grow, exposure of the local population to radiation inside private residences became a major concern for government officials and the community. Radium 226 (Ra 226), a radium sulphate that decays to produce radon gas and then radon daughters could emanate from contaminated materials. Radon gas could enter into homes by diffusion. Radon gas cannot be smelled, seen or tasted. Of the different forms of radiation, the AECB was most concerned with alpha radiation doses to the lungs from inhaling radon gas and with radon daughters that could “stay in the lungs longer than radon … adhere to the lung

27 OMH, “Memorandum: Eldorado Nuclear Limited Port Hope Radiation Survey of the Town of Port Hope,” January 19, 1976, RG 12-45, Minister MOE Files, Box 140948, AO.
29 Canguilhem, The Normal and the Pathological, 131. I am extracting from Canguilhem’s analysis of biological life and medical science.
31 Radon gas is “a radioactive gas that results from the radioactive decay of radium, which in turn results from the radioactive decay of uranium … although radon is a gas, it does not burn (it is chemically inert), and it has no odour. It can only be detected by special radiation detectors.” Equally undetectable to human senses are their byproduct, radon daughters, “atoms of solid elements” that “behave differently” and can deliver a higher dose of radiation. AECB, Memorandum “Questions and Answers about Radon and Radon Daughters,” April 21, 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-38 to 77-22, LAC.
surface … long enough to decay and deposit all their radiation.”³² Units of measurement for assessing exposure were rationalized based on cumulative doses calculated from radiation concentrations and estimated time of exposure. In setting radon limits for the public, the AECB cautioned that the “risk of lung cancer is proportional to the exposure, even when the exposure is very low. If small exposures are assumed to involve some risk,” then limits are termed “‘acceptable’ or ‘permissible’ instead of ‘safe.’”³³ Here, they acknowledge there is no safe level of radiation. Risk is what the nuclear state determines is the “level of social acceptability.”³⁴

Radon naturally occurs in rock and soils, yet concentrations of radon inside many Port Hope homes were well in excess of what could reasonably be considered “normal” background levels. Emanating from contaminated landscape fill and building materials, radon gas had seeped into houses through a myriad of pathways. Without adequate ventilation to escape, radon concentrations often built to higher levels than occurring outside. Measuring accurate radon concentrations in air was difficult:

³² AECB, Memorandum “Questions and Answers about Radon and Radon Daughters,” April 21, 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-38 to 77-22, LAC. See this report for further technical detail regarding the properties of radon and radon daughters that are beyond the scope of this dissertation. Knowledge of radon is from observations of lung cancer among uranium and other miners. As described by the AECB, radon and radon daughters emit alpha radiation that cannot “penetrate even the outer layer of skin” and is “harmless as long as the radon and its daughters remain outside the body. However, the air passages in the lungs do not have a protective layer and get irradiated by the alpha particles from any radon and daughters inhaled into the lungs.” Some radon daughters also emit beta radiation “which can penetrate to the sensitive part of the skin and which also irradiates the lungs if the radon daughters are inhaled” yet which is “negligible” compared to lung doses from alpha radiation. Both radon and radon daughters emit gamma radiation, a type of radiation “similar to X-rays and is very penetrating.” Gamma radiation present in contaminated fill could “irradiate the whole body,” yet was not considered as potentially harmful as the “radon hazard in Port Hope.”
³³ AECB, Memorandum “Questions and Answers about Radon and Radon Daughters,” April 21, 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-38 to 77-22:6, LAC; Also see AECB, “Summary of Report by the AECB on the Waste Disposal Sites of Eldorado Nuclear Limited,” 29 July 1975, RG 12-45, Minister MOE Files, Box 140948, File Government Correspondence Waste Sites July 1975-May 1976: 6, AO. Levels for exposure for the public were quantified as one-tenth the exposure limit for uranium miners and atomic workers. Nuclear workers were deemed to accept more risk in their chosen occupation.
³⁴ Petryna, Life Exposed, 115.
Actual radon concentration varies considerably from hour to hour, day to day, and season to season due to a variety of factors including air velocity, barometric pressure, temperature of the soil, the vertical temperature gradient, and relative humidity, hence it is necessary to take repeated air samples to establish the range of radon concentrations.\(^\text{35}\)

Radon concentrations also fluctuate widely depending on the amount of radioactivity in source material, the exterior foundation, the porosity of building materials, soil characteristics, and inside ventilation.\(^\text{36}\) Other factors include number of occupants and whether or not the furnace or air conditioner is on.\(^\text{37}\) Further, “the concentration of radon in a house is influenced by doors and windows being open.”\(^\text{38}\) Ventilation can “flush” radon gas outside where it will dilute, yet radon daughters will then attach to the outdoor environment, such as the ground or trees, yet presumably also on objects. Citing difficulties in measuring radon, the AECB set criteria as an annual average based on multiple sampling, not by singular testing.\(^\text{39}\)

Against what was termed “normal” levels of radiation, residential homes in Port Hope showed a pattern of radiation abnormalities.\(^\text{40}\) Early on, the OMH reported 33 residential properties with 3 pCi/l, 19 properties between 10-30 pCi/l, 3 properties between 30-100 pCi/l, and 5 properties around 100 pCi/l.\(^\text{41}\) By January 19, 1976, two families had been evacuated due to excessive radon. Within one month, three more families had been moved from their homes. By April, 714 of the 3350 properties in Port Hope had been surveyed. Of these, almost half had elevated radioactivity and only 346 homes were reported as “without contamination.” The OMH later reported “major contamination” at 168 properties, including 73 residential homes, 56 residential yards, 26 local businesses and public properties, and 13 public ravines and roadways. “Minor


\(^{36}\) AECB, Memorandum “Questions and Answers about Radon and Radon Daughters,” April 21, 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-38 to 77-22:7, LAC.


\(^{38}\) AECB, Memorandum “Questions and Answers about Radon and Radon Daughters,” April 21, 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-38 to 77-22:7, LAC.

\(^{39}\) AECB, Memorandum “Questions and Answers about Radon and Radon Daughters,” April 21, 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-38 to 77-22:7, LAC.

\(^{40}\) Abnormal is also a normative category, a “reference to value.” See Canguilhem, The Normal and the Pathological, 132.

\(^{41}\) OMH, “Memorandum: Eldorado Nuclear Limited Port Hope Radiation Survey of the Town of Port Hope,” January 19, 1976, RG 12-45, Minister MOE Files, Box 140948, AO.
contamination” was found at 16 residential homes, 67 residential yards, 4 local businesses and public properties, and 2 public ravines and roadways.\(^{42}\) By the spring of 1976, it was increasingly apparent that many residential homes required minor clean up, many needed extensive removal of exterior fill, foundation work and decontamination of interior surroundings, while others were evacuated. These figures grew. In April 1976, the AECB declared 708 “properties receiving remedial work in Port Hope.”\(^{43}\)

Radiation levels in several homes required immediate action and the AECB stated: “A few houses had been found with radon levels so high that the contaminated material should be removed as soon as possible … There was no immediate danger, but it was felt that some limit should be set in the interests of public safety. In some cases, ventilation fans have been set up in basements as a temporary remedial action.”\(^{44}\) Hot spots of radioactivity varied throughout town, but Pidgeon Hill and Cavan Street, in close proximity to in-town Residue Areas, showed a cluster of elevated radiation.\(^{45}\) Homes near contaminated ravines and the refinery also showed higher readings. With the exception of John Street – directly west of Eldorado – hot spots were investigated first.\(^{46}\) The investigation widened to include extraordinary measures: interviews

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\(^{42}\) Alastair Gillespie to Mayor Hewson, April 15, 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-38 to 77-22, LAC.

\(^{43}\) AECB, “Draft Submission to Treasury Board,” April 26, 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-38 to 77-22, LAC. The FPTFR also reported Ra226 in soil measuring from just a few picocuries per gram (pCi/gm) to several thousand pCi/gm throughout town. See FPTFR, “Recommended Course of Action for Discussion by the Working Group on Port Hope Disposal,” RG 12-45 Minister MOE Files, Box 140948, AO.

\(^{44}\) AECB, Memorandum “Questions and Answers about Radon and Radon Daughters,” April 21, 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-38 to 77-22:7, LAC.


\(^{46}\) John Street, a former residential neighbourhood adjacent to the refinery (near the Lakeshore Residue Area and former West Beach public park) was identified as a likely candidate for elevated radioactivity, yet “omitted from further detailed analysis,” having been bought by Eldorado as part of its refinery expansion earlier in the 1970s, a subject I return to in my chapter titled On the Beach.
with government and refinery personnel about past disposal practices, air photo interpretation of the town, external gamma surveys, soil investigations, and interior radiation testing. In April 1976, the FPTFR released their guidelines for radiation criteria, stating:

> On the conservative assumption that there are no known safe levels of exposure to radon or radon daughters, it is the aim of these recommendations to keep such levels not significantly different from local indoor background. In residences where significant differences are found, an investigation is required, which should include measures to identify the source of radioactivity. Priority for action will be based on the degree by which the background levels are exceeded.

> In the case of Port hope, present measurements indicate that levels exceeding 5 pCi/l radon or 0.017 WL radon daughters … would be significantly different from local indoor background.

Contrary to information from the OMH that “normal” radiation levels for urban areas were 0.5 to 1.0 pCi/l, the AECB determined “natural background” levels in Port Hope were 4 pCi/l. They stipulated that residential properties were to be assessed based on 10 by 10 foot grids over the entire property for gamma radiation, and “at least one measurement in the centre of every room (or equivalent space) at a height of 1 m above the floor,” as well as contact measurements on suspected hot spots. Radon gas indoors required multiple sampling, “at least two samples of air … one in the basement and one in a representative living area, e.g. living room, bedroom” following remedial work to assess whether elevated radiation levels reoccurred. In April 1977, the AECB announced the FPTFR’s “clean-up criteria” for radioactivity as a baseline to gauge

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47 James F. MacLaren Limited, “Draft Report on The Preliminary Investigation of the Technical and Economic Factors for the First Stage Remedial Measures at Port Hope, Ontario,” March 1976, RG 60-8, AECB Fonds, 1993-94/-12, BMD, File 76-56: 2-5, LAC. This report contains the details of each survey methodology as well as data results, analysis, and aerial photographs; Also see MacLaren Lavalin, Port Hope Low Level Waste Management Study: Report to AECB (MacLaren, April 1981) for further detail on remediation work in Port Hope between 1976 and 1981.


the remediation of Port Hope, Elliot Lake, and Uranium City. Additionally, the AECB committed: “if contamination is found that was introduced by human activities, it should, where practicable, be removed to an approved waste site … prompt interim action should be taken at a high level to avoid the correspondingly higher health risk while waiting for the permanent remedial measures to be put into effect.”

The radiological survey in Port Hope was a mechanism of containment and a display of state power. Nicolas Blomley argues that surveys and spatial grids “are powerful forms of disciplinary power,” forms of territoriality that re-order space. Surveying the community for radiation constituted what Stuart Elden terms a socio-spatial ordering, effected through a multitude of mechanisms, including the political techniques of mapping, measuring and demarcation – all “calculative” tactics. In Port Hope, the delineation of private and public space into radiation zones of varying degrees were practices of “spatial control” that determined “normal” versus “abnormal” levels of radiation and where further investigation would occur. Demarcating the town into grids to be surveyed and assessed for radioactivity also gave visible form to what could not be otherwise seen, and the nuclear state then sought to contain this visibility through ordered, rational, and calculative techniques.

In developing the criteria for acceptable radioactivity, the “monopoly on interpretation of risk” remains in the hands of those who caused the problem. Nuclear techno-politics reflects two

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51 See Appendix 6 for FPTRF criteria.
54 Elden, “Governmentality, Calculation, Territory,” 578.
spheres: “one that knows (management) and one that does not know (the public).”

As remembered by one Port Hope resident,

We had to deal with millirems, picos, and all of the jargon, we had to understand what a rem was, and they’d tell us what a rem was ...someone would say well 15 is a bad thing, so 14 is okay, and that’s where you draw the line, right? Scientific criteria, such as rems, millirems, and picos, “validates the state as power...[and] tends to emphasize the powerless of the individual, who must surrender to the tutelage expertise of the modern state.” In Port Hope, determining ‘where to draw the line’ was determined by the nuclear regulator, the AECB, a role Petryna terms as constructing a “regime of truth” over official and unofficial knowledge, and deciding what is legitimate and what is illegitimate. As I noted in the previous chapter, Eldorado heavily lobbied for less stringent criteria, in an effort to construct their version of what the “official” truth would be for Port Hope remediation.

Radiation criteria also carried sweeping assumptions about the everyday life of Port Hope residents, including “the fact [official truth] that people spend no more than half their time outdoors.” Assumptions of hours spent in the home left unacknowledged gendered and ageist dimensions to the contamination of the home. While the AECB acknowledged that continuous occupancy is “more typical of housewives, small children, chronic invalids and elderly people,” these social facts were absent in the radiation criteria, potentially putting these groups at elevated risk. Criteria was based on assumptions that people spend no more than half their time inside their home. Assumptions on how much time people spent indoors at home could be inaccurate for people with limited mobility, such as elderly residents. Nor is this assumption necessarily

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58 Interview #12: Anonymous, Port Hope resident.
60 Petryna, Life Exposed, 167.
61 G.B. Knight, “Cost-Benefit Analysis for the Cleanup of Port Hope,” August 1976, RG 12-45, Minister MOE Files, B140948, File Government Correspondence Port Hope Radiation 1976, AO.
accurate for women who work at home, or spend more time at home for family reasons. Not only may some women spend more time at home, their exposures may be increased because of household activities. One life-long resident of Port Hope, whose husband was a refinery worker, described how radiation was dispersed in her home through everyday household activities:

_One thing that really bothers me ... he was very clean, changed his clothes every day, they’d go down to work, take off their clothes, not their shoes and socks, put on their white suit and go in the lab, come out of the lab and have a shower, put on their street clothes, same shoes and socks, then they’d come home._

_I used to wash the clothes every day and there was this yellow stuff all in the laundry, I thought the kids had thrown something in it, I didn’t know, I was very young, I know now it was probably yellowcake, and that I was getting it in my house, washing the clothes and the one thing that these awful things can do is affect your [health] ...and that’s what I’ve got._

... _On [our street] most of the women got sick but the men went to work at 8 and worked until 5, my [husband], he went back to work 7-9, the men weren’t home, the women were home, the women cut the grass, the women dug in the garden, so to me that makes them more susceptible._

A gendered aspect to radiation exposure is also noted by Francoise Zonabend, who characterizes the perception of risk as including the anxiety of adverse biological effects on women and future generations. Many Port Hope residents further observed that children spend more time outdoors and may play in contaminated areas.

_There were all these places that later turned up as hot and I remember thinking as a child, wow, people used to talk about radium stuff being dumped there and as children, where the Jack Burger Centre is now ...there was a fence around old machinery and as kids I grew up, spent part of my time up in that neighbourhood and as kids we used to_

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62 In stating that women may spend more time at home for social reproduction and household purposes, I do not exclude that activities may include paid labour in the home. See for example, Domosh, “Geography and Gender: Home Again?” for a review of feminist geographic analyses of the home, including the importance of paid labour.

63 Here I am describing gendered household activities as conveyed to me by residents in Port Hope – they believed women were more susceptible because of their role in the household – and I am trying not to, as Dowling and Pratt caution, “reproduce and rigidify traditional gender relations.” See Robyn Dowling and Geraldine Pratt, “Home Truths: Recent Feminist Constructions,” _Urban Geography_ 14, no. 5 (1993): 471.

64 Interview #10: Anonymous, Port Hope resident.


66 Interview #10: Anonymous, Port Hope resident.
wonder why the word ‘hot’ was written on all these old machines behind these fences because clearly they’d been there for years, were all rusty, and we thought well it’s the middle of winter, how can these things be hot?

That’s how a six year old thinks but in fact they’re radioactive, but it’s only, it was a chain link fence and kids used to routinely scramble over it and go in and play and you know, you can make the case, they can make the case, they would make the case that back then they didn’t know the stuff was dangerous, I would dispute that.67

Another long-term Port Hope resident stated that children were also more likely to be exposed during the 1970s remediation:

The clean up concerns me because there’s no accountability if there’s an incident, school kids and young kids, and the last clean up I watched kids playing in dug up foundations after the crew had gone home for the night and one time a woman was sitting right across the street in town with a baby on her lap watching them dig a foundations out, and you also seen mud going down the street from rain.68

Also evident in these reflections of community members is that one’s home, and sense of home, does not stop at the front door. Home blurs the boundary between private and public space.69 Home extends outwards into the public spaces of the local community. Omissions in radiation criteria of how different residents actually live in and experience the home in everyday reality, reflected the prerogative of state power to determine what constituted a scientific fact, and through its exclusions, also marked its priorities. Gabrielle Hecht argues that “the language of technological rationality and professional competence serves as a tool for exclusion and a cover for power.”670 Radiation criteria are “scientific construction[s] of biological risk and safety.”671 The nuclear state determined radiation criteria for Port Hope, thereby legitimating its own expertise, while reproducing social inequity and differential subjection to risk.

Risk is a measure of value. The FPTFR described the contamination of Port Hope as widespread, yet not a “serious immediate” health risk:

67 Interview #12, Anonymous, Port Hope resident.
68 Interview #11: Anonymous, Port Hope resident.
69 Blunt and Varley summarize the geographies of the home as recognizing that homes are not “fixed, bounded or confining location[s].” Blunt and Varley, “Geographies of Home,” 3.
71 Petryna, Life Exposed, 50.
... there is not a serious immediate health hazard associated with the low concentration of radioactive materials (including radium, thorium and uranium) found on various properties in Port Hope. However due to the widespread nature of the contamination, a significant portion of the population could be involved.

Hence, action to reduce or eliminate these sources of radiation is felt to be necessary in order that a significant number of people are not exposed to radioactivity that could lead in the long term to individual doses being accumulated which would be in excess of the maximum permissible doses stated in the Atomic Energy Control Regulations.

The hazard is related to radon and its radioactive decay products ... Being a gas, radon tends to migrate into houses and buildings, with the potential for being inhaled by the occupants who could receive a significant increase in radiation dose to their lungs, above that from normal background radiation.\textsuperscript{72}

Writing to the Mayor of Port Hope, Cyril Hewson, in April 1976, the OMH also assured:

... The Ministry of Health was well aware of the fact that radon gas and its decay products (often called radon daughters), constitute the greatest potential source of risk to the exposed population. My staff therefore made an effort to carry out, as quickly as possible, measurements of radon in homes, schools, public buildings and businesses in the Town of Port Hope ... A retrospective study of mortality in Port Hope has been carried out by members of my staff. The number of deaths of Port Hope citizens resulting from cancer of various types has been compared with the death rate for similar cancers anticipated for the town during the same period, based upon Ontario-wide experience. No significant difference between the observed and the anticipated number of cancer cases was found. These results should not be interpreted as an indication that action to reduce exposure levels is unnecessary. I do, however, bring this study to your attention in order to alleviate the apprehension which may have been created by the widely publicized statements of uninformed persons ...

On many occasions I have been asked the question ‘what levels of radon gas can be considered harmful and when radon levels can be considered safe?’ We must bear in mind the fact that radon is a natural constituent of the world’s atmosphere and that man has, therefore, always been exposed to certain low levels of radon in the air. For radiation protection purposes, we usually assume that there is no threshold for a possible harmful effect of radiation and that any increase above natural background level somewhat increases the risk of harmful health effects. I should stress, in this context, that this is a rather conservative approach because harmful effects have not yet been proved at very small doses.\textsuperscript{73}

Assurance from the nuclear state was a means to contain public dissent. Here again, radiation (even as waste) is naturalized as part of everyday life. Evident above is uncertainty about past,

\textsuperscript{72} FPTFR, “Report of the Working Group Port Hope Disposal,” RG 12-45, Minister MOE Files, Box 140948, File Government Correspondence Port Hope Radiation, AO.
\textsuperscript{73} Bette Stephensen to Mayor Cyril Hewson, April 15, 1976, RG 12-45, Minister MOE Files, Box B140948, AO.
present and future exposure of a significant, yet unknown number of people to an immeasurable dose of radiation over an undefined time span. Nuclear landscapes are spaces of uncertainty, however much the state strives to render them knowable and certain. Also characteristic of nuclear landscapes is what Petryna describes as the production of “an image of control over unpredictable and largely unknown circumstances of risk” dominated by the “all-knowing expert” even though the designation of facts (such as radiation criteria) are often arbitrary. Techniques of determining radiation concentrations in homes also included arbitrary elements of measurement. As I describe below, despite stipulations for multiple air sampling in the basement and “main living area,” the OMH sometimes admitted sampling only once and often not in a living space, just the basement. The arbitrariness of criteria and varying techniques of measurement amplified the uncertainty over the contamination of the home.

By April 1977, the AECB sought to further assure local residents as they updated their figures on contaminated homes. Of the 3,170 properties surveyed in Port Hope, 550 required decontamination and 500 more needed additional investigation. Through a news release they announced homes exceeding criteria would be remediated, or “if removal is not practicable,” mitigated through other means, such as sealing the building, or adding ventilation. They further committed to restoring Port Hope to “natural background … or below the primary criterion, whichever is lower.” Against the above background of the radiation surveys, I now turn to examine the actual survey results of Port Hope homes and analyze the behind the scenes interaction among state officials and their correspondence with residents to show how the

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74 Petryna, Life Exposed, 63.
75 Bette Stephensen to Mayor Cyril Hewson, April 15, 1976, RG 12-45, Minister MOE Files, Box B140948, AO; See also FPTFR, “Report of the Working Group on Resource Requirements,” Fiscal year 1976-77: 5, RG 12-45, Minister MOE Files, Box 140948, AO. This trend of single sampling is corroborated by my analysis of the radiological property files.
77 AECB, News release 77-6, “Criteria Set for Radioactive Clean-up in Canada,” April 7, 1977, RG 60-9, 1993-94/093, BMD, File 77-23 to 77-162, LAC. Here, it is apparent that radiation clean up criteria is what Canguilhem terms value-laden, an observation that I return to in more detail. Criteria shifted in relation to a supposed “normal” level of radiation. As is evident almost forty years later, the AECB did not fulfill this promise, only now is the nuclear state beginning to undertake additional clean up of the community. See Canguilhem, The Normal and the Pathological, 125.
nuclear state sought to control the response of community members to the contamination of their most private of spaces.

**Dear [Occupant]: The Nuclear State Comes Home**

Ann Laura Stoler argues that “shadowed places are what states create: emblematic conventions of the archival form.”78 Eldorado was a federal crown corporation dealing in federally regulated nuclear materials, and their corporate archive is a product of the state. So too are the archives of the nuclear state that are dispersed across numerous state institutions. The state’s stark presence is visible in the government records of the nuclear state, but the state also appears in shadow, evident in the restrictions imposed on my access and use of these materials. While the anonymity of residents cited in this chapter is a legal requirement of my Research Agreement that permitted access to these state records, I code and categorize the lives of community residents into discrete, anonymous units to recall how the nuclear state also ordered the Port Hope community, its public spaces and private homes, yet also its residents, into units to be surveyed, analyzed, and contained. In the following section, I recount radioactivity inside residential homes to illustrate how the nuclear state transformed even these private spaces into elements of a nuclear landscape. I assess the response of the crown corporation and state officials to these deleterious outcomes, revealing fissures in the correspondence among state officials behind the scenes and cracks in the official narrative conveyed to the public. I also reveal how state officials internally characterized the plight of residents, who were, in some instances, blamed by the state as ‘authors’ of ‘their own misfortune.’ Further, in detailing correspondence among the parties, I show how information conveyed to residents about the contamination of their homes was not always forthcoming: indeed, sometimes it was withheld. These letters are evidence of the uneven power relations that helped to contain the response of the social body to the Port Hope contamination. Correspondence to residents was a means of containment to delimit public dissent. A close analysis of the radiological property files reveals these trends.

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Residents whose homes were surveyed received letters from the AECB or OMH, and sometimes Eldorado. Devoid of any context for why or how their homes may be contaminated, or why they were being surveyed, these letters flatly convey bare radiological results. Letters from the nuclear state were a tool for “normalizing catastrophe” and controlling information. The following letter to Home #09, located near the Eldorado refinery, is an example of how a borderline result was communicated:

Dear Mrs. [Occupant] January 23, 1976

The concentration of radon measured in your home, as determined by sampling followed by analysis in our laboratory, is as follows –

2.9 picocuries of radon per litre of air on January 13, 1976 in Middle of Basement.

Since this is within the normal range of atmospheric concentrations of radon in buildings, we do not propose to take further samples in your premises at the present time. There is no health hazard of any significance in exposure to radon at this concentration.

If you do not hear from us again on this matter, you should conclude that we are satisfied that no abnormal source of radon exists in or near your home.

Yours Sincerely,
J.H. Aitken
Chief, Health Physics Service
Community Health Division, OMH

Other homes, such as Home #13, also in the vicinity of the refinery, showed higher levels than Home #09 above, and received a differently worded letter:

Dear Mrs. [Occupant] September 15, 1976

The concentration of radon has been measured at one or more locations in your home, as determined by sampling followed by analysis in our laboratory, is as follows –

4.2 picocuries or radon per litre of air on August 31, 1976 in the Living Room
5.5 picocuries of radon per litre of air in the Middle of the Basement

Petryna, Life Exposed, 120.
80 OMH to [Occupant], 23 January 1976, RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101636, AO.
These are within the range of atmospheric concentrations of radon commonly found in buildings though slightly higher than average. For this reason, we may wish to resample in your home at a later date.

We will write to you later regarding our final conclusion. I wish to assure you that there is no significant health risk from radon in continuing to occupy your home in the meantime.

Yours Sincerely,
J.H. Aitken
Occupational Health Protection Branch, OMH

The letter to Home #13 is missing the word “normal” when describing the range of atmospheric concentrations of radon. The obverse of normal is abnormal. Radon readings ‘slightly higher than average’ inferred the radiation might be abnormal, but the term “commonly found” qualified this radioactivity as a normal occurrence. However, for all these homes, without including a baseline to assess “normal,” occupants might not have known where their homes stood in relation to a so-called “normal.” Also absent from the letter to Home #13, are the words “If you do not hear from us again on this matter, you should conclude that we are satisfied that no abnormal source of radon exists in or near your home,” words only relatively reassuring when compared to their absence. Residents did not know if, or when, the state would contact them again. They were left to conclude their homes were “normal” only by the state’s absence, or failure to reappear.

This tendency towards vague expressions and lack of commitment was typical of how the nuclear state communicated radiological results to residents. Writing to Home #13, the state simply said: We will write to you later regarding our final conclusion. When? On June 9, 1978 and July 11, 1978. Almost two years later. “In the meantime,” people such as those in Home #13 continued to “occupy” their homes and waited, not knowing if their homes would be tested further, not knowing if, or when, the nuclear state, armed with radon detection devices, would again ask permission to enter their homes, and not knowing if they lived amongst “normal” or “abnormal” radioactivity. Moreover, letters to residents were inconsistent. Some homes with

81 OMH to [Occupant], 15 September 1976, RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101636, AO.
higher radiation levels received differently worded letters. For example, writing to the occupants of Home #58 in 1978, the OMH referred to indoor radon concentrations over three times the criteria as “slightly higher than I would expect as a normal occurrence … it is possible that the higher-than-normal readings are a purely natural phenomenon.” Given that the widespread contamination of Port Hope from the uranium refinery was quite obvious by this time, and hundreds of homes confirmed contaminated, it seems odd to then give the impression that radiation well above ‘background’ inside a private home might be “natural” and not from the uranium refinery. Shifting criteria and explanations further illustrates how official facts may be arbitrary and communications designed to render radioactive waste as banal, a “normal,” “commonly found,” or a “natural phenomenon.” Georges Canguilhem argues “how ambiguous” the term “normal” is, “since it designates at once a fact and ‘a value attributed to this fact by the person speaking, by virtue of an evaluative judgment for which he takes responsibility.’” The use of terms such as “normal” and “common” were normative representations used to legitimate the expertise of the nuclear state and manufacture radiation, as well as radioactive waste, as an ordinary occurrence. They were also means of state power produced by the state to legitimate state expertise and contain dissent.

Letters of reply, sent by concerned residents to state officials, while few, offer clues into the uncertainty that the radioactive contamination of homes caused among the Port Hope community. They are evidence of anxiety in civil society, an unease that the nuclear state had to work to contain. The occupants of Home #54, one of whom was a former employee of Eldorado, expressed significant anxiety regarding radon concentrations in their home, which had “received fill from an unknown source.” Eldorado’s survey of the yard “revealed that most of the backyard [had] contaminated soil in it” while interior radon concentrations were high, between 34 (kitchen) and 48 (basement) pCi/l. A temporary ventilation system was installed to flush out radon. Subsequent sampling again showed high radon levels in the bedroom, sitting room, and

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82 OMH to [Occupant], 28 June 1978, RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101692, AO.  
83 Canguilhem, The Normal and the Pathological, 125.  
84 All correspondence cited for this home can be found in RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101692, AO.
living room. Homes with radon concentrations in this range, including Home #54, received a letter from the OMH:

These are higher than the average concentrations of radon commonly found in buildings such as yours and strongly suggest that there may be radium contamination in or around your home.

This alarming statement was quickly followed by assurance that the contamination would be removed, but:

on a priority basis, within a reasonable period … on this understanding, I wish to assure you that there is no health risk from radon in continuing to occupy your home in the meantime.

Noting these residents were “a little apprehensive,” the OMH recommended they consult their local physician regarding health concerns. In response, the owner of Home #54 wrote back:

Dear Mr. Aitken

March 1, 1976

… You have indicated that in the short run there will be health risk to me. If it is possible I would like to find out what risks there may be to visitors to the house – I have my grandchildren in mind. They will often stay in the house for periods of two to five days …

Writing back got the nuclear state moving. This home was re-sampled on April 7, April 13, April 21, and (but with windows open) on June 9th. When sampled again in the fall, radon concentrations in the basement were even higher (80 pCi/l), despite ventilation fans. Handwritten in this latter OMH report are the words “no letter,” indicating residents were not informed of the results. Other homes with elevated radon showed this trend. Home #33 had a spot reading of 88.0 pCi/l beside the basement furnace. In the internal OMH report, this figure is crossed out in pencil and the words “do not report in letter” and “no letter yet” are hand written. When viewed in context with other property files which also say “no letter” next to elevated readings, there appears a pattern of incomplete disclosure and an attempt to contain radiological results.

85 See OMH Report RPL 76-871, 8 November, RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101692, AO. This chart also contains the correspondence between the resident and the OMH, the AECB Chart, and the Record of Radiation Survey by Eldorado Personnel, both dated 3 February 1976. External gamma readings were up to .03 mr/hr with 2 ½ feet of snow on the ground.

86 OMH Report 76-576, 29 July 1976, RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101637, AO. Subsequent levels were lower, and this latter example could be argued as an omission, yet as noted above, appears part of a broader pattern.
Many homes of Eldorado workers were also found to be contaminated. For decades, refinery workers had unknowingly taken radioactive materials into their homes. In bringing refinery tables, workbenches, lockers, and stairs into their homes, they also unwittingly exposed their families, guests, and tenants to elevated radioactivity. For example, a refinery employee living in Home #27 received contaminated fill from Eldorado in 1968. In 1947, another employee installed a staircase from the refinery in his house, Home #28, where it stayed until it was discovered to be radioactive in 1976. Once identified as contaminated, portable items were dispatched to Eldorado. Others awaited more extensive remediation work. In the case of Home #36, the homeowner requested that Eldorado survey their home because they had received construction materials from the refinery. Eldorado noted “the front steps are concrete and steel similar to those in the U03 plant … Mr. [Occupant] had blocks and other material from ENL in his back yard … a thorough survey should be conducted when the snow has melted.” The AECB termed this property “major contamination, low priority.”

Both Eldorado and the AECB conducted exterior gamma radiation surveys. An analysis of their reports indicate several trends. First, the AECB notified residents of exterior gamma radiation surveys taken around their homes only after the survey was concluded and results analyzed. This means that surveys may have taken place without residents knowledge. Residents were then notified: “you may be requested to consent to further measurements being made at your

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87 Eldorado, “Record of Radiation Survey by Eldorado Personnel,” 12 January 1976, RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101637, AO.
88 Eldorado, “Record of Radiation Survey by Eldorado Personnel,” 5 January 1976, RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101637, AO. The file reads “In 1947, the staircase was obtained from ENL. A survey revealed readings as high as .06 mr/hr beta on upper surface of the steps and on the underside of the staircase, the readings were .03 mr/hr beta and .08 mr/hr. The rest of the house and the yard should be surveyed when time permits it to be done. Radon samples have been taken by OMH.”
89 Eldorado, “Record of Radiation Survey by Eldorado Personnel,” 26 January 1976, RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101637, AO. See Appendix 6 for AECB criteria of contamination and priority.
premises,” but without further explanation. Letters of results were the only tangible, visible evidence of radiation in their homes, yet they were devoid of any context, cause, or consequence. Residents had to rely on information through other sources to try and understand where their homes stood in relation to the more widespread contamination of the community.

Several patterns are evident from the Eldorado survey reports contained in individual property reports. First, the crown corporation was not always forthcoming regarding exterior gamma results. Eldorado records indicate that the crown corporation did not always communicate the actual results to the occupants or owners of homes where they found elevated gamma radiation. In numerous instances, Eldorado recorded “above background” gamma radiation, yet told residents differently. To some residents, they stated the property was “background,” and to others they withheld the results completely. This information is clearly written into their reports, as “above background” radiation is followed by “reported as background” or “not reported.” Secondly, if Eldorado reported results, they did so verbally, leaving residents with no physical evidence other than the word of the crown corporation.

Controlling information is an institutional mechanism to contain dissent. Even though the AECB or OMH may have done follow up sampling of Eldorado’s radiation survey, the crown corporation withheld results from members of the public about their home. In several instances, these homes were in close vicinity of the refinery, a neighbourhood where significantly elevated

90 AECB to [Occupant], 26 April 1976, RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101637, AO. An example of a letter from the AECB to a resident is included in this property file, (Home #034).
91 RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101636, AO. For example, on December 20, 1975, Eldorado noted Home #14 as “above background … recheck recommended” followed by “Results: Not reported … Radiation levels of up to .018 mrem/hr were found along the sidewalk in front of this residence.” Soon thereafter, on January 6, 1976, Eldorado recorded Home #11 as “above background” (0.16 and 0.18 mR/hr at waist and ground level), but reported results “verbally as background.”
92 John Gaventa also observes how institutional practices, such as secrecy and controlling information, are means of containment to delimit dissent among the social body. He argues how delimiting information and setting the agenda influence how the social body makes decisions. John Gaventa, *Power and Powerlessness: Quiescence and Rebellion in an Appalachian Valley*, (Urbana and Chicago: University of Illinois Press, 1982), 254, 199, 217.
readings of radioactivity were later found in numerous homes. These omissions are consistent with Eldorado’s tendency to protect its own interests. In hindsight, that these omissions occurred simultaneous with the launching of its plans for a major refinery expansion, appears as no coincidence. Omission is a means of exercising state power, a coercive means of containment that works to shape public perception of issues upon which decisions are subsequently made. The response of the community to the contamination of their homes and how they viewed the continuing operation of the Eldorado uranium refinery in the community relied on the nuclear state. Residents had to rely on state expertise, including Eldorado, to understand the extent of contamination and to assess its implications. Yet they were not given full and transparent information with which to do so.

Eldorado, the AECB, and OMH also withheld from many residents the history of their property, if it was known or suspected to be contaminated. As one example, Eldorado surveyed the exterior of Home #26 because the previous owner was a former refinery employee who worked with radioactive materials, and the home was built on fill received from Eldorado in 1968. This information was not conveyed to the new owner:

This house is suspected by Eldorado to be a home where a former employee retrieved [radioactive materials] from the plant and took it home with him. No indication of this was given to Mr. and Mrs. [Occupants] at this time.93

Knowledge of the history of a property was also used surreptitiously to target and enter specific homes under the guise of the general survey, without the informed consent of the homeowner. For example, Home #42 was known by Eldorado and the OMH to have been contaminated in the 1940s by a former Eldorado employee. Following up on this information in November 1975, the OMH admitted: “on the pretext of doing a general background survey for Radon [we] gained access to the home.” Here, they strongly imply the former history was withheld from the new occupants. Apparently, “decontamination” of this home in 1946 was insufficient, and the newer

93 OMH, 16 January 1976, RG 7-128, Port Hope Radiological Inspection Files, B101637, OML Fonds, AO. Eldorado did a survey in the backyard of this particular home and found levels ranging from .01 to 0.2 mR/h.
family had been living with elevated radiation for the 20 years they owned the house. Other residents had no idea their house was contaminated at all. One long-term resident of Port Hope lamented:

_A long long time ago they cleaned up along the street right here...and said it was okay ...so I thought well... I’ll get this house [radiological property file] just for fun but I figured an old house and nothing had been changed, it’ll be okay, and the whole back is [contaminated] ...and I’ve worked in that garden for 25 years. And we ate the food out of it and the whole back of my property is contaminated with the radioactive waste. And it’s all leached down [from properties above] ...we’ve been eating the food, I’ve been digging in the garden for 25 years and didn’t have a clue._

Controlling information and public perception of problems that threaten state-capitalist interests through various tactics and strategies is a form of state power, exercised through institutional mechanisms. This type of containment further fosters a dependency on the powerful for the interpretation and solution to the problem. Yet in Port Hope, the nuclear state could not control everything. While residents had no control over radiation in their homes, they could exercise a small degree of power by refusing to let personnel of the nuclear state inside, for permission of the resident was required before the AECB could conduct radon gas sampling inside the private homes and businesses. By 1981, eighteen residents had refused to allow federal authorities to conduct radiological surveys on their properties, and four homeowners refused clean up of known radiological contamination. The federal atomic regulator had no legal means to compel homeowners to comply. This resistance to the nuclear state was dissent by other means.

**Shutting the Door on Liability**

Eldorado’s tendency to distance itself from any fiscal or legal liability for refinery wastes extended to how it treated residents over the contamination of their homes. While the crown corporation paid temporary expenses for residents who were evacuated, Eldorado refused to pay

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94 OMH, 20 November 1975, RG 7-128, Port Hope Radiological Inspection Files, B101648, OML Fonds, AO.
95 Interview #10: Anonymous, Port Hope resident.
96 Gaventa, _Power and Powerlessness_, 199-201.
97 AECB, “Radioactive Contamination in Port Hope, Ontario: Chronological Summary of Recent Actions Taken by the AECB,” RG 60-8, AECB Fonds, 1993-94/093, BMD 76-38 to 77-22, LAC.
for any associated medical costs. Events surrounding Home #15 illustrate this trend. The refinery had received a tip from their truck drivers about possible contaminated fill at Home #15. Here they conducted multiple radiation surveys, not reporting results to the occupants, only to the OMH: “survey of roadway, sidewalk and ravine face and bottom indicated that this residence is built on contaminated material as all areas were above background.” Finding very high interior radon (up to 273 pCi/l in a bedroom), the OMH recommended the family evacuate. Eldorado wrote the family.

Dear [Family] [Date withheld]

This will confirm the discussion at your home …

Dr. Aitken recommended that you and the other members of your household should vacate the house until such time as the source of the radon gas has been found and eliminated. It is very difficult to predict how long this might take but every effort will be made to have it completed as soon as possible. I have made [accommodation] arrangements … for you and your family during this period. The cost of [accommodation] and of all meals and incidental expenses incurred … will be covered by Eldorado Nuclear Limited.

Thank you very much for your friendly co-operation in this matter.

Yours sincerely

ELDORADO NUCLEAR LIMITED
G.F. Colborne
General Manager, Refining

This letter shows Eldorado appearing as a ‘good corporate citizen.’ The town’s largest employer, an arm of the nuclear state, would take care of local citizens. However, this benevolence had limits. Eldorado subsequently refused to pay any medical expenses for this family’s exposure to radon gas (multiple chest x-rays and blood work).

E. Mastromatteo [Date withheld]
Director, Occupational Health Protection Branch, OMH

… The [Family] have incurred medical expenses for tests in connection with their radon exposure and are about to receive bills for these tests.

Mr. Clem Baschenis, Vice President of Eldorado, gave me the above information by telephone today. He tells me that Eldorado are not willing to pay for these medical tests even though they are paying for temporary accommodation for the [Family]. Mr. Baschenis asks if the Ministry of Health is willing to pick up the medical costs.
I wish to recommend that the Ministry cover those expenses … Certainly, the expenses should not all be on the [Family] themselves … I further suggest that the Deputy Minister might send a letter to this effect to [Family] to set [their] minds at ease on the matter.

J.H. Aitken
Chief, Health Physics Service, OMH

Provincial authorities paid the family medical bills ($122.37). Certainly Eldorado, a federal crown corporation selling millions of dollars per year in processed uranium fuel from this local refinery, could afford this amount. Cost was not the issue. Rather, this move was in keeping with their pattern of repudiating any possible association with negative health effects from exposure to the refinery’s radioactive and chemical wastes. Correspondence infers the family first approached Eldorado about these expenses and the crown corporation then informed the OMH, meaning the family had made the connection between their medical tests and the refinery, an association Eldorado needed to stop. Paying medical expenses could be perceived as an admission of causality. Refusing medical expenses was a tactical move to distance the refinery from association with adverse health problems and not set a precedent for future legal and fiscal liability.

Since 1975, the nuclear state has adamantly insisted that the radioactive and other wastes in Port Hope have not, nor ever will, pose a health problem to local residents. These assurances however, do not contain the perception that the waste may be harmful.

*When he said I had to have the biopsy done, and it could be cancer, I was thinking oh maybe it was when I was a kid playing down at my grandpa and grandma’s backyard, or the time I spent playing on Monkey Mountain ‘cause it’s heavily contaminated areas*

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RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101636, AO. All correspondence cited on Home #15 is in this property file.

99 For example, see CNSC, *Understanding Health Studies and Risk Assessments Conducted in the Port Hope Community from the 1950s to the Present*. Penny Sanger details the concerted efforts of local residents to have further, independent health studies done, as well as the efforts of community members to have the radioactive waste removed. For detailed analysis of local activism and health concerns, see Penny Sanger, *Blind Faith: The Nuclear Industry in One Small Town* (McGraw-Hill Ryerson, 1981). In this dissertation, I am not insinuating that the radioactive waste is a health hazard. I have no expertise with which to make an assessment of health risk. Rather, my point is that regardless of whether or not the waste is a public health hazard, it is perceived by some residents as a hazard. Further, its presence and diffusion throughout everyday life has material and psychosocial consequences in Port Hope.
there, and I remember the odd time drinking out of one of the little rivers that runs out of a pond, think that must’ve done it. Luckily it wasn’t cancer.

But that’s the kind of experience that happens in Port Hope too I think, there’s psychological stuff where even if you don’t think there’s a problem with [the uranium refinery] here, you get an illness and you kind of then think it must be from radiation or you know, you’re always thinking you’re going to have a cancer that happens because of some sort of exposure, it’s just another little side line of being in Port Hope.¹⁰⁰

These types of experiences are unofficial knowledge, rendered irrational and emotional by the nuclear state. Yet evident here is the psychosocial element of nuclearity, what Petryna terms as “chronic informational stress” and the endemic uncertainty of nuclear landscapes that manifests as anxiety and fear.¹⁰¹

I think they’re [local residents] so afraid of the waste thing, I think they’re so afraid of it, and it was government, and they’re so afraid of it that they don’t want to get involved.¹⁰²

This comment by one long-term Port Hope resident shows how anxiety and uncertainty can be productive to the interests of the nuclear state, as mechanisms of power. Fear of radiation, and even perhaps of the state, foreclose on dissent.¹⁰³ Fear and lingering anxiety are means of containment.

The ‘Author of His Own Misfortune’

The nuclear state was also uncertain about the extent of contamination and how to deal with its widespread dispersal throughout the everyday spaces of Port Hope:

¹⁰⁰ Interview #5: Anonymous, Port Hope resident.
¹⁰¹ Petryna, Life Exposed, 160.
¹⁰² Interview #10: Anonymous, Port Hope resident.
¹⁰³ Adriana Petryna observes anxiety and fear as power mechanisms that foreclosed dissent in Chernobyl. Petryna, Life Exposed, 161. Matthew Farish also argues that “geographies of panic are also geographies of control.” Matthew Farish, The Contours of America’s Cold War (Minneapolis: University of Minnesota Press, 2010); 195.
We can’t decontaminate every square foot of Port Hope, otherwise we would be lifting the top four feet off the entire town. The total magnitude (of radioactive contamination) is unknown.\(^{104}\)

As indicated in this statement from the AECB, the extent of contamination of Port Hope was potentially uncontainable. Radioactive waste could be anywhere. Yet it was not just the scale of radioactive contamination that was unprecedented, but its dispersal and diffusion into the spaces of everyday life. The breadth of everyday spaces and objects of the home found contaminated with radioactive waste was extensive.\(^{105}\)

Radioactive Spaces of the Home:

<table>
<thead>
<tr>
<th>Under roadway</th>
<th>Edge of road</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sidewalk</td>
<td>Driveway</td>
</tr>
<tr>
<td>Garage</td>
<td>Yard</td>
</tr>
<tr>
<td>Shed</td>
<td>Front porch</td>
</tr>
<tr>
<td>Doorway</td>
<td>Hallway</td>
</tr>
<tr>
<td>Kitchen</td>
<td>Dining Room</td>
</tr>
<tr>
<td>Living Room</td>
<td>Bathroom</td>
</tr>
<tr>
<td>1(^{st}) floor Bedroom</td>
<td>2(^{nd}) floor Bedroom</td>
</tr>
<tr>
<td>Sitting room</td>
<td>Storage room</td>
</tr>
<tr>
<td>Laundry room</td>
<td>Basement</td>
</tr>
<tr>
<td>Crawl space</td>
<td>Attic</td>
</tr>
<tr>
<td>Fruit cellar</td>
<td>Back porch</td>
</tr>
</tbody>
</table>

Radioactive Objects of the Home:

<table>
<thead>
<tr>
<th>Beam</th>
<th>Furniture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staircase</td>
<td>Cabinet</td>
</tr>
<tr>
<td>Cupboard divider</td>
<td>Floor joists</td>
</tr>
<tr>
<td>Board</td>
<td>Brace</td>
</tr>
<tr>
<td>Metal sheet</td>
<td>Workbench</td>
</tr>
<tr>
<td>Scribe</td>
<td>Vacuum cleaner</td>
</tr>
<tr>
<td>Front steps</td>
<td>Railing</td>
</tr>
<tr>
<td>Concrete floor</td>
<td>Wall</td>
</tr>
<tr>
<td>Fence</td>
<td>Foot of children’s slide</td>
</tr>
<tr>
<td>Foundation</td>
<td>Retaining wall</td>
</tr>
<tr>
<td>Lumber</td>
<td>Cinders</td>
</tr>
<tr>
<td>Clinkers</td>
<td>Concrete blocks</td>
</tr>
<tr>
<td>Clothing</td>
<td>Locker</td>
</tr>
</tbody>
</table>


\(^{105}\) These lists were compiled from my analysis of the RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, AO; Blake Fitzpatrick also documented a radioactive doorknob, clock, teddy bear, family photographs, and exterior house bricks in Port Hope homes. See Fitzpatrick, \textit{Nuclear Landscapes}.  

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The extent and dispersal of the radioactive spaces and objects of Port Hope homes are unknowable. Portable everyday items could be anywhere. During the 1970s decontamination, smaller contaminated objects such as desks, tabletops, workbenches, and shoes were removed while structural components such as beams, staircases, floor joists, concrete blocks, and walls awaited further action by the nuclear state. However, even as the nuclear state decontaminated homes of refinery waste, to further repudiate their own culpability, the crown corporation and other state authorities blamed Port Hope residents for the contamination of their own homes. In shifting responsibility and blame onto residents, the nuclear state executed a tactical move that shifted responsibility for “social risks onto the domain of the individual.”106 Blaming the victim is a means by which the state “closes down political intervention.”107 The following examples illustrate how the nuclear state tried to distance themselves from the breadth of radioactive spaces and objects, by assigning blame to the residents.

In May 1976, a resident requested fill from the Port Hope local government for his property, receiving some from a sidewalk replacement. When the MOE sampled the property and found the fill radioactive, they requested its removal, however town officials negated responsibility, shifting blame onto the resident: “it is standard practice for the Town to deliver fill to residents who need it … residents must sign a release absolving the Town of all responsibility for the

107 Petryna, *Life Exposed*, 161. Pierre Bourdieu also argues that “the return to the individual is also what makes it possible to blame the victim, who is entirely responsible for his or her own misfortune,” by which he means individuation deflects political and economic responsibility from the state and corporations. Pierre Bourdieu, *Acts of Resistance: Against the Tyranny of the Market* (New York: The New Press, 1998), 7.
contents of the fill.”  Other residents had also unknowingly received contaminated fill, later removed at their own expense. Incidences such as these shift blame for the causes of contamination from the state onto civil society. This trend rippled down through a chain of state agencies from the Eldorado crown corporation to town officials. Clearly, the uranium refinery gave or sold contaminated fill to the local government for sidewalk construction, which they then gave to unsuspecting residents. By having residents sign a waiver absolving them of responsibility for fill contents, did town officials know it could be contaminated? Did town officials also sign a waiver absolving Eldorado of responsibility for fill contents? One local resident pondered that the issue of responsibility, and whether or not Eldorado, town officials, and residents knew if materials were contaminated is complex:

This stuff often plays out as symbolic behaviour and symbolic communication. It doesn’t always play out as straightforward as person X saying to person Y, “I want you to do this, I want you to put contaminated material in this guys backyard.”  … It often plays out as person X says ‘I got some soil here, um, and I’m taking it out to a site’ and somebody says ‘I got a huge hole in my backyard that really needs to be filled’ and somebody says ‘well you know, I can probably dump it there’ and ‘I wouldn’t say no.’ Well none of that is direct conversation, it’s all innuendo, but everybody knows what they’re talking about but no one has really said anything …if you had to go to court, if this were a court case, a person could say ‘I never offered to give him radioactive soil’ and the person says ‘I never asked for radioactive soil to be put in my property.’  They didn’t in a legal sense, but there’s an assumption [it’s not radioactive soil], or there’s an assumption it’s radioactive soil but it’s not going to harm us. There’s that too in this town …because I know people believed that it wasn’t harmful even though they knew it was radioactive, because it’s a matter of degree.

There was what I would call in retrospect a lack of care around the dumping of this stuff in addition to it just being fill.

These comments indicate there was an implied assumption, even trust, among community residents that materials from the federal government, even if radioactive, would be safe. As a federal crown corporation, the refinery embodied the authority of the state, a form of power that

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108 Canadian Press, “Radioactivity – Port Hope, Ont.,” 20 May 1976, RG 12-45, Minister MOE, Box 140948, File Government Correspondence Waste Sites, July 1975 to May 1976, Port Hope Eldorado, AO. This state correspondence indicates that this was not the first such incident.

109 Interview #12: Anonymous, Port Hope resident.
Bourdieu terms “symbolic capital.”\textsuperscript{110} The refinery relied on the authority of the state to legitimate its actions as “officially sanctioned” and in the public interest.\textsuperscript{111}

Even if residents assumed that fill and materials coming from the refinery were safe, events surrounding one severely contaminated home bring into sharp relief how residents were called ‘authors of their own misfortune,’ blamed by the state for the contamination of their homes. Early on in the survey, Eldorado received information from an employee about a large volume of contaminated material used as construction fill for a private residence in the 1950s: “Eldorado happened to be one [of three] companies that hauled fill to the site.” Radon in this residence, Home #63, were over 700 pCi/l, “greatly excessive for a private home, or indeed a uranium mine.”\textsuperscript{112} Eldorado’s attempt to purchase this house for demolition was refused. As the house then faced extensive decontamination, the crown corporation reluctantly agreed to make this situation public. Once again, however, reimbursing the occupants became a state-to-state bone of contention. While the OMH had paid expenses for other residents in contaminated homes, here they refused, in part because they faulted the residents:

He [Minister] rightly took the position that the Ministry should not pay any removal expenses in this case since our present information is that the occupant is partly the author of his own misfortune and Eldorado Nuclear are also partly to blame.\textsuperscript{113}

Only blaming Eldorado in part, and shifting blame onto private citizens, abdicated the crown corporation from failing to manage and contain radioactive waste under their charge. There was latent power embedded within the refinery’s status as a federal crown corporation, including an assumption among community members that materials distributed by Eldorado were not


\textsuperscript{111} Bourdieu, “Social Space and Symbolic Power,” 21.

\textsuperscript{112} OMH, RG 7-128, Port Hope Radiological Property Files, OML Fonds, B101631, AO. Unless otherwise noted, all references to this home (#63) are in this file. Radon readings indoors were over 700 pCi/l, noted by the OMH as alarming: “allowable average concentrations of radon in a uranium mine would be 30 (pCi/l) … a typical natural background … for Toronto [about] 0.5 (pCi/l)).”

\textsuperscript{113} J.H. Aitken to V.L. Tidey, 21 November 1975, Port Hope Radiological Property Files, OML Fonds, B101631, AO. In subsequent correspondence the OMH rationalizes not paying these expenses as they did not have control of the property, as they did in Deloro, where the OMH did pay expenses resulting from Eldorado’s waste.
radioactive, that a federal crown corporation would not disperse contamination among civil society. Blaming residents behind the scenes for unknowingly accepting radioactive materials is testament to a callous attitude within the state regarding the plight of the local community, and shows cracks in the implied fiduciary responsibility of the state towards civil society. Moreover, as indicated in the previous chapter, trust of Eldorado extended to fellow residents, not abstracted as ‘the state,’ but materialized as next door neighbours and friends:

Many [Eldorado employees] have played key roles in the development of the town, serving on the town council, in the local Red Cross, on service clubs, the chamber of commerce, and children's aid committees. So it was hard for Port Hope people to put the blame on their fellow townsfolk when the full impact of the plant's waste mismanagement unfolded, just as it was hard for them to admit the possibility of getting cancer from breathing the air in their own houses. Even while their backyards and basements were being dug out to dispel the radioactive gases, they encouraged Eldorado's plan to use a particularly pleasant stretch of countryside just west of the town as the site for a second plant.\footnote{Sanger, \textit{Blind Faith}, chapter one. Here, Sanger foreshadows Eldorado’s enclosure of the West Beach for the new UF6 facility, a subject that I analyze in my chapter, \textit{On the Beach}.}

While it may have been hard for residents to blame Eldorado, it appeared less hard for Eldorado and other state institutions to blame local residents.

Even as they blamed residents of Home #63 as ‘authors of their own misfortune,’ the OMH noted “a general feeling of fatigue which the whole family seems to suffer.” They also observed that women in this home were much more susceptible to possible health problems due to longer times spent home indoors. In this case, the OMH worried amongst themselves that radiation levels in this home posed health risks:

[and] must be regarded as constituting a hazard to the health of the [Family]. The nature of the hazard is increased risk of cancer of the lung as a result of inhalation of these radioactive substances. Even if their exposure to inhaled radon and radon daughters is terminated now, the family remain subject to increased risk of lung cancer for the rest of their lives …

As far as the [Family] are concerned, I cannot offer a numerical probability of developing lung cancer. I do, however, think it would not be untruthful to say to them that their increased risk is still fairly small. If possible, it should be determined first that they have no early symptoms of a condition which might be attributable to their radiation exposure.
It would be embarrassing if they were told first that the risk is small and then discover a few weeks later that they already have lung cancer.\textsuperscript{115}

Through this most personal crisis of one family, again, the state was worried about protecting its own interests. External medical experts recommended that their doctor adopt “surveillance” of this family to track future health problems. Internal correspondence between state officials, such as those highlighted above, reveal fissures in the official message to the public that the radioactive waste in Port Hope was nothing to worry about. Like other residents, the family at Home #63 was “shaken by the whole turn of events …numbers which have been quoted to him are meaningless. His concern also includes the financial loss that he feels he has suffered. The publicity that his home has received, he says, would make resale on the open market a severe financial loss.” Foreshadowed in this statement, is what would soon become a core issue among Port Hope homeowners: the deleterious impact of radiation and stigma on property values.

### The Home as Nuclear Space

The home is, as reminded by Domosh, a “rich territory” for socio-spatial analysis.\textsuperscript{116} The home is the space of the everyday, the unspectacular space of everyday life. Everyday spaces and objects of the home are also ordinary, if not banal, and often rendered invisible by their constant presence. As I have shown, hidden within the seemingly mundane space of the home is the outcome of uneven power relations. The radioactive contamination of the home and the state’s response demonstrates how the home is enveloped within practices and discourses of the state. The spatiality of the home is also bounded to the geographies of nation-building and narratives of national sacrifice.\textsuperscript{117} In contaminating the home, the nuclear state brought insecurity into these private spaces, transforming them into measured, delineated, mapped, coded, and anonymous spaces of the nuclear state. They then had to work to render all these practices as banal. In so doing, the nuclear state troubled the assumption that the state had in mind the public interest first and foremost. Gabrielle Hecht argues that techno-politics is a marker of the nuclear industry, yet the “nuclearity of materials, of nations, of systems does not reside in essence. It is not self-

\textsuperscript{115} OMH, RG 7-128, Port Hope Radiological Property Files, OML Fonds, B101631, AO.
\textsuperscript{116} Domosh, “Geography and Gender: Home Again?” 281.
\textsuperscript{117} Blunt and Varley note that scholarly work is increasingly demonstrating how “household geographies” are “bound up with national and international geographies.” Blunt and Varley, “Geographies of Home,” 3.
evident. Rather, it is distributed in things, emerges in practices, and shifts in time and space. The nuclearity of Port Hope gradually emerged in things and practices, over its eighty year relationship with the nuclear state. Yet nuclearity also emerged, while remaining hidden, not just in things and practices, but in the private and public spaces of this community, including the most private of space of all, the body. Radioactivity of the body is implicit in the contamination of everyday spaces and objects.

It’s scary, it’s really scary,

When I found out this property was contaminated and I knew it leaked from [properties above]…especially when I worked with my hands on knees, like I worked with my hands right …it’s the back part along there and that’s where my garden was and because it’s on a terrace and on a hill I would almost think it would come right down, wouldn’t you? They didn’t say that but they’re definitely going to do an assessment, and I’ve already warned [spouse] … I’m saying yes.

I don’t want it near me, I don’t want any of it around, besides my grandchildren play up there all the time. ¹¹⁹

That elevated radioactivity was in the everyday spaces and on the everyday objects of Port Hope homes is testament to the inability of the nuclear state to contain its radioactive materials. Comments such as the one above are also testament of the inability of the nuclear state to contain the psychosocial fallout of its wastes.

Living amongst radiation imbues everyday life with intangible aspects of uncertainty and constitutes a psychosocial shift: “nothing had changed and everything had changed. Family, home and community were clearly intact, but at the centre, uncertainty took the place of a once taken-for-granted sense of residential security.” ¹²⁰ Radiation was the invisible, indiscernible, and

¹¹⁸ Gabrielle Hecht refers to “nuclearity” as a “contested category” contingent on a multitude of social and political factors, and she cautions that nuclearity is “not of things, but in things.” See Gabrielle Hecht, “A Cosmogram for Nuclear Things,” *Isis* 98, no. 1 (2007): 101, 106. Within Hecht’s argument I see elements of Heidegger’s assertion that “what is dangerous is not technology, but its essence” by which he means the real problem is the social relations that bring into being certain technologies that are employed towards certain political-economic outcomes. Heidegger terms the ‘atomic’ industry as such technology. See Martin Heidegger, *The Question Concerning Technology and Other Essays* (New York: Harper and Row, 1977), 28.

¹¹⁹ Interview #10: Anonymous, Port Hope resident.

unwanted occupant in the homes of hundreds of residents. Residents had no way to discern the presence of radiation. For years, even decades, residents lived and breathed amongst elevated radioactivity in their yards and living spaces, and on an astonishing array of their everyday household items. An intrinsic condition of nuclear landscapes is its undetectable essence: radiation could be anywhere and everywhere, yet appears nowhere. Blake Fitzpatrick observes that “Port Hope is a community in which signs of radioactive contamination stand anonymously within the landscape and are made almost invisible by their routine appearance.” Only through the survey, the presence of radiation detection personnel, and letters of results, was radiation rendered visible.

The contamination of the home was a means through which the nuclear state transformed the small community of Port Hope into a nuclear landscape. That community residents unwittingly contributed to contaminating their own homes, by bringing, even purchasing, radioactive materials, speaks to the scope and scale of contamination, and also implies the impossibility of ever discovering its true extent. Contamination had become so insidious as to become an element of exchange in a nuclear economy. As hinted in the state archive, radioactive objects left Port Hope. Certainly people moved, perhaps unknowingly taking contaminated objects along. Others were suspected of moving construction materials and household objects to nearby cottages. Indeed, there appears to be no way to account for the myriad of possibilities. The remnants of Eldorado could be anywhere.

The contamination of the home was also a form of dispossession, most obviously for those evacuated, or temporarily relocated, and for those whose homes were bought and destroyed by the crown corporation. Yet dispossession takes many forms. Residents who were not property owners were also subject to a rupture in their sense of community wellbeing and dispossessed of

Reidel, 1987), 55. I use this comment from their analysis of Love Canal to show a commonality with other communities also materially and psychosocially dispossessed by toxic contaminants. Fitzpatrick, Nuclear Landscapes, 3. He writes about the radon monitoring devices disguised as birdhouses.

Eldorado, 14 January 1976, “Record of Radiation Survey by Eldorado Personnel,” RG 7-128, Port Hope Radiological Inspection Files, B101636, OML Fonds, B101636, AO.
their peace of mind, of the sanctity of private space, even if not privately owned, and of their corporeal and psychosocial security. Contamination of the home was a means of occupation of material and psychosocial space, and did more than bring radioactivity into the private spaces of Port Hope residents. By entering the everyday spaces of the home, as radiation and then as radiation experts, the nuclear state shattered the sanctity of private space. The state arrived first as contamination, then as strategies and tactics of containment. The state was everywhere: trampling through neighbourhoods and across yards, delineating and demarcating these areas into grids to be measured, and calculating radiation levels deemed “socially acceptable” for public exposure. The state also entered resident’s private rooms, their kitchens, living rooms, bedrooms, bathrooms, and basements, using radiation detection devices to sample the air they breathed and everyday objects they touched. The state again entered homes to deconstruct them, to decontaminate by removing contaminated objects, by dismantling and discarding. Still, later, the state arrived again in the mailbox. Letters stated the bare radiological results and little else. For some, the state remained long after the 1970s clean up was halted, residing in their homes as ongoing radiation that escaped the first round, or because radiation levels were not deemed a priority at the time. For others, the uncertainty of radiation lingered, manifesting as the psychosocial insecurity intrinsic to nuclear landscapes.

As another means of containment, letters of radiological results also brought the state into private homes. They disseminated results of the door-to-door radiological survey through what they disclosed and what they withheld. Selective dissemination of results was a means of controlling and delimiting public information, and in turn, their response. Controlling information is a means to contain dissent. Letters from the state to residents were placeless and devoid of context, 123 In this comment, I am not suggesting that the state is not already present in ‘private space’ in a myriad of ways. Rather, this was a process of dispossession in which the nuclear state entered the home in new material and psychosocial ways, a disruption of everyday life and the spaces of the home. Geographers have shown how the state is present in everyday life. See Joe Painter, “Prosaic Geographies of Stateness,” Political Geography 25 (2006): 752-774; Alison Mountz, “Human Smuggling, the Transnational Imaginary, and the Everyday Geographies of the Nation-State,” Antipode 35, no 3 (2003): 628. Mountz argues that “to see some spaces as belonging to the state and other spaces as nonstate spaces is a false divide.” 124 Gaventa, Power and Powerlessness, 199, 217. See Penny Sanger, Blind Faith for further descriptions of how information about the contamination of Port Hope was conveyed to the community by nuclear regulators.

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absent any cause or consequent. They were blameless. They flattened the contamination of the home across time and space. Despite varying assurance that there was “no,” “no undue,” or “no significant” health risk, the letters lacked sensitivity that their contents might be unsettling, even frightening, for some residents. Only communicating a few scant numbers, the letters were cold and carried a flat tone of measured state authority. They contained nothing with which to understand or compare radiation readings. Providing no background information on the radiation problem in Port Hope, residents had to acquire knowledge of the situation through other means. With respect to radiation, what was normal? What was abnormal? What was natural? Why was my home contaminated? In these letters, the state communicated official state results interpreted by state scientists according to criteria developed by atomic state regulators. Radiological results of people’s homes were communicated with the “everyday quality of a railway timetable” thus rendering possible catastrophe as banal.¹²⁵

But banality is produced, and necessarily so. Selective information, withholding results, downplaying the implications of this radiation, the flat tone of letters, and a clean up deferred into the future. All these measures spoke of banality: they represented living amongst ‘historic’ and ‘low-level’ radioactive waste for years, even decades, as normal. In so doing, the state maintained the upper hand: “if you do not hear from us again you can be assured that we are satisfied.” As observed by one resident, some community members simply ignored the letters:

[a] lady …her mom and dad lived in the house…and when they died she moved into the house and when she was cleaning up she found 3 letters …from them saying the whole back yard was contaminated and she threw them away, took out her gardens and put grass down and nobody will ever hear a word from her…

I don’t know why. I couldn’t understand it myself. I’d be furious. But her mother never did anything about it when she got the letters, so I guess she figured it would be alright and her mom and dad lived a long time.¹²⁶

The banality of the letters deflected the contamination of the home into a faceless exchange with no one responsible for its cause. The words “Eldorado,” “uranium,” “refinery,” and “crown corporation,” are nowhere in sight, shielded from further association with the words

¹²⁶ Interview #10: Anonymous, Port Hope resident.
“radioactive,” “contamination,” and “waste” by their absence. Continuing to set the Eldorado uranium refinery, a federal crown corporation, within the context of causality for the contamination of the homes of local residents might have implied negligence, complicity, financial responsibility, or liability, associations that the crown corporation was working very hard to distance itself from. Eldorado did not want further negative exposure when a massive expansion, mere steps from some of these contaminated homes, was on the horizon.

Normalizing radiation as part of everyday life also contained public response to its presence in the home. One resident said the refinery “tells everyone it’s natural, it’s in your potatoes, it’s in your grass, it’s in your soil, everywhere, and people are believing them because they work there.” This comments acknowledges how refinery employment, whether loyalty or fear of job loss, influenced the reaction to the contamination of the home. Further, the stakes in recognizing compensation claims from radioactivity are high, not just for the nuclear state, but for residents. The process of legitimating claims of one’s physical condition have direct manifestations for one’s psychosocial state, or what Petryna terms “chronic informational stress” that is denied or validated by state-authorized expertise. In facing the radioactive contamination of a small community, all state authorities protected their own interests. However, civil society also participates in the legitimizing of state practices, and the contamination of Port Hope is no exception. While some, such as Eldorado, may have participated in blaming the community as ‘authors of their own misfortune’ to accept this causality belies the uneven power field upon which these events transpired. Citizens of Port Hope have dealt with the contamination of their homes without any form of apology, compensation, and definitive knowledge of the status of their own, or neighbours homes.

Restricting the Radiological Inspection files for the door-to-door survey of Port Hope for 100 years is a means by which the extent and severity of radioactive contamination is withheld from the public. I am allowed to access the files, yet cannot contact anyone based on its contents, nor

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127 Interview #10: Anonymous, Port Hope resident.
128 Petryna, Life Exposed, 160.
129 Petryna, Life Exposed, 160.
reveal names and addresses of radioactive homes. I cannot reveal who was evacuated, who was not given actual results, who was acknowledged by state officials to be ill (some seriously), who had medical tests, whose health was recommended for surveillance, who was blamed as “author of his own misfortune,” whose homes were deconstructed, who were anxious or frightened, and who wanted to knowingly develop and sell radioactive property. Keeping these details secret is a means of containment to protect the nuclear state from the potential backlash. I know but am abiding by my Research Agreement. In this regard I suppose I am complicit in processes of containment, yet made so through institutional mechanisms of the state and its effect of self-discipline.

While many names, addresses, and other details are in the public light because of early media stories and Penny Sanger’s book *Blind Faith* that was published in 1981, what remains contained in the state archive is the scope and scale of the problem, and the rationalized, calculable, and often unconscionable response of the ‘good corporate citizen’, the Eldorado crown corporation, its willing enabler, the AECB, and, to a much lesser extent, its reluctant lackey, the provincial government. The state’s internal exchanges and correspondence to the citizens of Port Hope merit public scrutiny. Created between 1975 (the year the crisis began to unfold) and 1988 (the year Eldorado was privatized), this archive is slated to be declassified in 2088, long after those responsible for contaminating Port Hope and containing its aftermath are dead, beyond accountability.

Tracing radioactive contamination in Port Hope “opened a Pandora’s Box.” The lid is still off. Thirty-nine years later, as I write this chapter in 2014, another Radiological Property survey in Port Hope is afoot: 4,800 homes on a “property by property” basis will be surveyed for elevated radioactivity. The previous survey and clean up of private homes was insufficient.

*They say they’re going to get in touch with everybody... I guess I’ll wait and see if they do...but ...they keep telling people there’s going to be 5000 trucks on the road...scaring people, they don’t want that. They definitely don’t [realize the extent of the clean up]*

130 http://phai.ca/en/port-hope-project/port-hope-property-survey. [Last accessed 25 January 2014]. This survey is taking place under the federally funded Port Hope Area Initiative.
...there’s too many people ...parading about ... saying ‘don’t say our town’s contaminated’

Denial that the town has a problem with radioactive waste (regardless of whether or not it is a health hazard) is apparent in Port Hope. This tendency to ignore, or discount, an adverse material reality, is also observed by Zonabend in relation to nuclear facilities in La Hague, France.

But even still, home is home.

*If I were from someplace other than Port Hope I might feel differently but I was born and raised here and have always been here and my family has [always] been here, and it just seems normal to be here, one of the things I talk about with people that aren’t from Port Hope is ‘where else would you go?’ ...the fact that its our home outweighs the negative things because you only have one home and some people choose not to live in their home but for those of us that [do] if somebody has contaminated it, then it’s still our home ...we’ve just always been here and I don’t know where else we’d be ... so I hope this thing goes away, that’s what I’d prefer, I don’t know where else to go that I can call home.*

These comments from Port Hope residents point out that living amongst radioactive waste, even if understood as safe, still carries elements of uncertainty in everyday life, and highlight that both the nuclear state and residents normalize radioactive contamination. The home is the space of everyday life. Mona Domosh argues that home is “the spaces many of us hold close, because so meaningful and dear, are those of the home – of the homes we were raised in, the ones we abandoned, the ones we live in.” The contamination of the home reveals an emotional attachment to place, yet as also demonstrated by Alice Mah the “conflicted place-attachment” of

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131 Interview #10: Anonymous, Port Hope resident.
132 Zonabend, *The Nuclear Peninsula*. Also see Karen Bickerstaff and Peter Simmons, “Absencing/presencing Risk: Rethinking Proximity and the Experience of Living With Technological Hazards,” *Geoforum* 40 (2009): 864-872. Bickerstaff and Simmons draw extensively on Zonabend in their analysis of risk. However, I argue that there is a significant difference between living near a perceived hazard – such as proximity to a nuclear facility – where no adverse event of any magnitude has occurred, and living in a community suddenly proven to be widely contaminated with radioactive waste. I note these observations about risk here to make a parallel with Zonabend’s work. Yet as I make clear in this dissertation, the containment of the social body to the crisis of contamination in Port Hope was contained though a multitude of mechanisms, and, as I demonstrate in the next chapter, a significant mechanism was the fiscal threat of declining property values.
133 Interview #12: Anonymous, Port Hope resident.
communities to their homes in contaminated industrial areas are influenced by lack of choice, despair, and economic dependency on the industry. Even if contaminated, instead of choosing to leave, or to abandon their homes (although some were forced to abandon extremely contaminated homes), people in Port Hope wanted certainty in everyday life, and a sense of security in their homes, restored.

In order to regain a semblance of security in their homes, as in the mid-1970s, in the upcoming remediation of Port Hope, property owners will have to consent before their homes are tested for radon gas and gamma radiation, and consent to decontamination. Protecting their property values is seen as an incentive to comply. Again, the results will be held in confidence by the nuclear state, who estimate that approximately “10% of properties will need some degree of clean up …from a small amount of contaminated soil to a more extensive removal of contaminated building materials from inside a house.” The stated objective is cleaning up “historic” wastes to permit “full, unrestricted use – from vegetable gardens to play areas.” One representative of the nuclear state remarked that cleaning up Port Hope will end government oversight, “problem solved.” Once again, the nuclear state will demarcate and measure this small community, and enter private homes armed with radiation detection devices. Once again, homes will be cataloged and coded, yet this time the address stripped and given a “unique Site Identification Number that will appear on a personally addressed letter to the owner” as a “personal security measure.”

Once again, the radiological results will be subject to strategies and tactics of containment, and, when the survey is long over, likely filed in dusty boxes in the restricted archives of the nuclear state.

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136 Personal communication, AECL, Anonymous.
138 Personal communication, AECL, Anonymous.
139 http://phai.ca/en/port-hope-project/port-hope-property-survey. [Last accessed 25 January 2014]. This survey is taking place under the Port Hope Area Initiative undertaken by the Government of Canada in 2001 to resume the clean up of “historic” and “low-level” radioactive and other wastes in Port Hope.
Conclusion

The contamination of the home exacted a social toll on the populace of Port Hope, producing myriad forms of material, corporeal and psychosocial insecurity. Uncertainty, a psychosocial condition of nuclear landscapes, manifested as anxiety in everyday life in the aftermath of 1975. Invisible and undetectable to ordinary senses, radioactivity resided inside homes and on the material objects of everyday spaces. In this chapter, I demonstrated that multiple means of containment helped the nuclear state to contain not radioactivity, but the response of the community to the contamination of their homes. The uneven power relation between the nuclear state and the community enabled the nuclear state to retain the upper hand, and imbued authority into the measured and technical response of the state to local citizens. State authority denoted legitimacy in the radiological criteria and in the communication of radiological results to residents. The further manufacturing of radiation as everyday and ordinary also helped to quell dissent. These interactions show how, through these events, the separation of the state from civil society was beneficial to the interests of the nuclear state. Yet as I demonstrate in the next chapter, the contamination of the home posed additional threats to the security of Port Hope residents. Transforming the home into a nuclear space is a form of material, corporeal and psychosocial dispossession, yet also, as foreshadowed above, a threat to fiscal security because of potentially declining property values. It is this latter insecurity, the threat of radioactive contamination to property values, to which I now turn.
Chapter 4

Black Wednesday: Radiation, Stigma and Property Values

‘Black Wednesday,’ and not the Thanksgiving weekend, was blamed for a slowdown in Port Hope real estate sales. ‘Black Wednesday,’ and not a nuclear plant in our front yard, was blamed for harming the town’s image. ‘Black Wednesday,’ and not guilt about looking the other way, kindled the anger of well-meaning people all over town. And do you know what else happened? Some began blaming the victim.¹

On Wednesday October 6, 1999, a national newspaper *The Globe and Mail* published an article detailing the struggle of the Lawson family, whose daughter Molly had been diagnosed with brain cancer. Pat and Tom Lawson had long questioned the health and environmental implications of the Eldorado uranium refinery: now their inquiries were “terribly personal.”² Bemoaning an oft-repeated fear that any publicity over radioactive contamination may hurt local property values, residents launched a public backlash against the Lawson’s, fearing that publicity over radioactive waste would harm the economy of Port Hope. The day the article appeared was locally nicknamed ‘Black Wednesday.’ Instead of expressing concern over the plight of the Lawson’s, many residents simply asked: “why don’t they just move?”³

Nicolas Blomley argues that the “territorialization of property serves to displace attention from the violences between social subjects to the territory itself.”⁴ In Port Hope, conflict over the implications of radioactive waste deflected concern away from the nuclear state and onto the implications of the contamination for property values. Pitting concerns over property values against those of health and environment became a dominant pattern in Port Hope following the

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¹ Editorial. “A Time To Choose What We Stand For,” *The Crier*, November 18, 1999: 6. Black Wednesday refers to a severe financial crisis that occurred on Wednesday September 16, 1992 in Britain, resulting in a depressed business and housing market.
³ Editorial, “A Time To Choose What We Stand For,” *The Crier*, November 18, 1999. The Editor lamented that even after 22 years of living with radioactive contamination, the community still “blamed the messenger.”
1975 discovery of radioactive waste. When news began leaking out that local homes were contaminated with radioactivity, it was not just job loss, or health effects people that feared, but loss in the monetary value of their properties. As the radiation survey escalated, homeowners quickly turned towards the implications that radioactive waste and its stigma may have for individual and community-wide property values. Safeguarding their homes and investment in real estate became a core issue for property owners, and for many, eclipsed other concerns. Threat of declining property values was a powerful deterrent for homeowners against publicly acknowledging or pursuing legal actions over the proven radioactive contamination of their homes. Speaking out about the radioactive contamination of the home was admonished by other citizens as leading to a depressed real estate market that would quickly translate into lost monetary value on the sales of individual properties. This message also circulated in local newspapers, and remained an ongoing threat when the refinery or its wastes were publicly criticized. In this chapter, I document the emergence of these tensions, which have deep roots. I analyze correspondence between property owners and the state, as well as media and other coverage of the radioactive contamination of the home to illustrate these patterns.

The institution of private property delineates land into separate alienable parcels that can be bought and sold on the market for individual economic gain. As I analyze in this chapter, the

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5 The institution of private property is founded on a Eurocentric view of improvement that became coded into alienable property rights. John Locke’s view of common lands as “richness lying waste in common” (1690:s. 37) underscores the liberal rationale for the conversion of common rights into exclusive private rights: “whatsoever then he removes out of the state that nature hath provided, and left it in, he hath mixed his labour with, and joined to it something that is his own, and thereby makes it his property…that excludes the common right of other men” (s. 27). Locke continues: “that labour put a distinction between them and common: that added something to them more than nature, the common mother of all, had done; and so they became his private right” (s. 28). This argument rests upon a specific definition of labour that in turn hinges on a particular definition of improvement (see also Mansfield, “Privatization”). For Locke, labour is individualized: “the labour that was mine, removing them out of that common state they were in, hath fixed my property in them” (s. 28). Labour and improvement “puts the difference of value on every thing” (s. 40) and “increase the common stock of mankind” (s. 37), by which he means a hording of resources beyond subsistence needs in order to accumulate capital. This rationale justifies the severance of lands from communal property relations and the codification of lands and resources into private property. Definitions of labour, improvement and property are tied to a specific definition of “value” (s. 40) as that leading to individual profit and accumulation of capital. See Locke, The Second Treatise of Government, 1680; Becky
response of Port Hope residents to the contamination of the community was facilitated through
the self-discipline of individual property owners to protect the monetary value of their property.
Even as the “use value” of their homes was being undermined by radioactive contamination,
protecting the monetary value of property as an alienable commodity (termed “exchange value”
by Karl Marx), became a disciplinary mechanism of containment in the community.\(^6\) Protecting
the value of property was a form of extra-economic coercion articulated by individual property
owners, yet as a dominant pattern, had an aggregate effect on delimiting dissent on a community-
wide basis. Tension over property values rippled across the social fabric of the community,
resulting in adverse effects on social relations. As I further demonstrate, it was not only
community residents who prioritized property ownership. The nuclear state also upheld the
primacy of private property in responding to the contamination of Port Hope as a means to
contain dissent among the social body.

Dear [Government]: Residents Write Back

Community members expressed concerns over property values in letters to governmental
officials. Writing to the Minister of the MOE, one frustrated resident worried the radioactive
contamination would deleteriously affect property values:

We feel that it is time for action on the part of the Government and other concerned
bodies to clear up the problems associated with Port Hope’s radon gas situation.

We demand that the Government take immediate action to formulize a plan of approach
with deadlines outlining intended action and resolution of the situation. The stagnation
and decline of real estate values, the fear of the unknown from people outside of Port
Hope and the general reluctance of people to associate with or in Port Hope will have a
rapid deteriorating affect on this proud community’s functioning.

ACTION NOW IS REQUIRED!!\(^7\)

In response, the MOE deflected responsibility for “matters concerning radioactivity” onto the
AECB.\(^8\) Nowhere in the above letter is any mention of Eldorado, thereby shielding the refinery

Mansfield, “Privatization: Property and the Remaking of Nature-society Relations,” *Antipode* 9,
no. 3 (2007): 393-405.

\(^6\) For further analysis of use value and exchange value, see Karl Marx, *Capital: A Critique of

\(^7\) Letter to George A Kerr, April 14, 1976, RG 12-45, Minister MOE Files, Box 140948, AO.
from cause and consequence. The MOE did the same by shifting responsibility onto the AECB. Other citizens raised alarm at the implications of the radioactive contamination for the value of their property in the local real estate market.⁹

As the news unfolded about radioactive waste in Port Hope, some people also requested radiation surveys, notably those who had:

… grounds for suspicions that they had used contaminated fill or building materials, [and] … realtors or property owners who were about to buy or sell and needed some form of statement on the condition of their property and from property owners who desired ‘peace of mind.’¹⁰

Property values quickly became a core issue in town, spurring dissent from private property owners who worried that radioactive waste would negatively affect their property value. Details of several homes reveals how this pattern played out. Correspondence between residents and state officials show concerns over health being subordinated to concern over the value of property. One home owner, receiving a letter from the OMH stating that radon concentrations were “slightly higher than average [but] no significant health risk from radon in continuing to occupy your home in the meantime,” wrote back:

To J.H. Aitken

March 4, 1976

Dear Sir,
Thank you for your letter dated 26th Feb. 1976. However, I prefer to have a guarantee that there is no health risk, rather than a “no significant” one, especially as our [X] young grandchildren are on their way… Their ages are… respectively.

Yours faithfully,
[Occupant]

In reply, the OMH wrote:

⁸ Letter from George A Kerr, n.d., RG 12-45, Minister MOE Files, Box 140948, AO.
⁹ This correlation appeared in local, regional, and national newspapers, such as the Port Hope Evening Guide, the Globe and Mail, and the Ottawa Citizen. For example, the latter newspaper ran a story, “Port Hope No Love Canal Crisis, Mayor Insists,” making the link between radioactive stigma and property values: “the town’s real estate industry is also faced with regular radioactive reminders.”
Dear Mr. [Occupant]  

March 22, 1976  

... I am sorry that the wording of my earlier letter is unsatisfactory to you. Unfortunately, it is not possible to guarantee that there is no health risk from any radon exposure other than absolutely zero exposure. Since radon is a normal and natural constituent of the Earth’s atmosphere, and since the concentration is normally somewhat higher in any building as compared with the outdoors, the best that can be said is that there is “no significant risk” from small exposures. The concentrations in your house are such that it is justifiable to say that there is “no significant health risk in continuing to occupy your home in the meantime.

Yours sincerely  

J.H. Aitken  
Chief, Health Physics Service

But this exchange of letters did not stop here. Finding the OMH response still unsatisfactory, the owners of this house changed tack:

Dear Sir:  

(no date, received April 2, 1976)

Thank you for your letter, 22nd March. However ... only one reading has been taken by your Dept. and that with the door wide open, allowing the radon gas to become somewhat diluted. The AECB said on 8th March that another reading would be taken, but up to date nothing further has been done and no reading taken. So it could be higher than that stated in your letter dated 10th Feb. Also it is still very much higher than the natural constituent of the earth’s atmosphere at Cobourg. Without a certificate as to freedom from radon gas, we are unable to sell our house. Obviously, prospective buyers will purchase a house without radon gas at any above-normal level however insignificant it may be, in preference to one with a vague “no significant” health-hazard attached to it.

Further, we have spent much time and money in restoring, modernizing and decorating this old property, and we were about to tackle the work on basement when we heard about the contaminated blocks in the walls, so the work is at a standstill. Meanwhile we are expecting to have [guests] ... and will need every inch of space. The matter is urgent. Please do something to get the radon gas level to normal so we can sell the property or build an addition to it to enable us to accommodate our [family].

It is not that the wording of your earlier letter is unsatisfactory for me, (although I don’t like any above normal level) but I fear it would be unsatisfactory for any prospective buyer. I hope that I have made myself clear. Some action must be taken, please.

Yours sincerely  

[Occupant]

Six days later, despite being swamped with hundreds of other homes needing a first survey, or re-sampling because of higher radiation, the OMH dedicated additional time and resources to re-sample Home #30. This time, the property is recorded with lower radon and an OMH letter,
dated April 22, 1976, stated: “these are within the normal range of atmospheric concentrations of radon in buildings. There is no health hazard of any significance in exposure to radon at these concentrations.”

First, this exchange indicates sampling procedures contrary to AECB and FPTFR guidelines. However, other dynamics are at play. The resident’s first letters cite health concerns for family and guests, yet later letters pinpoint the underlying concern is actually property values. Evidence of elevated radiation was a deterrent for resale. Emphasizing health only spurred more explanation of radiation as natural and part of everyday life. Switching emphasis to property prompted immediate action. This home was re-sampled in six days. Many residents whose homes showed much higher radioactivity waited six months, while others waited one or more years for re-sampling. There was no other identifiable reason to quickly re-sample this home other than stifling dissent over a property sale. Further, even though radon levels vary widely, in the final letter, the OMH omitted previous results, which they usually included in follow-up survey letters. Finally, the homeowner was not given a written record of Eldorado’s elevated gamma radiation result for this property, reported to occupants only verbally.

Home #20 shows the same pattern. Located near Pidgeon Hill, this home adjoined a heavily contaminated property. Eldorado found elevated radiation inside and in the yard, yet was “unable to locate a source of contamination” and reported the results verbally. In September 1976, the OMH notified the homeowner of radon levels “slightly higher than average …no health hazard of any significance.” In March 1977, 10 days before wanting to list the house for sale, the homeowner contacted the OMH, who internally circulated this request: “Mr. [Occupant’s] putting his house up for sale April 1 and needs a letter.” Yet the occupant already had a letter. He just did not like what it said. Two days later, two handwritten notes from “JHA” (J.H. Aitken) requested re-sampling and the house was quickly re-surveyed. The new letter reported new results and an earlier one showing lower readings, but the higher result from September was absent. In reproaching the state, this latter homeowner also succeeded in obtaining a letter stating radiation levels were in the “normal range.” Earlier higher results and their implications had been erased. Based on the second letter, presumably requested to replace the first one, a prospective
buyer would have no knowledge of the formers existence. Further, a prospective owner might not be told of the elevated radioactivity found by Eldorado, reported only verbally.\textsuperscript{11} Verbal results are easily contained.

Home #22 shows a similar pattern. Having also received notice that radon was “slightly higher than average [but] no significant health risk in continuing to occupy your home in the meantime” this homeowner immediately wrote back:

\begin{center}
Dear Mr. Aitken \\
February 8, 1977 \\

Received your letter yesterday ...Our house will be sold, would you kindly send us a letter concerning this matter, so it can be included in the deed of the house. Thank you kindly, \\

Yours sincerely \\
Mr. and Mrs. [Occupants] \\

P.S. Re air sample of 3.7 picocuries dining room … 2.7 picocuries basement rec room
\end{center}

Again, they already had a letter. Yet two weeks later, the OMH asked the AECB to re-sample this home. In October, the new report recorded a lower level in the recreation room. The dining room that previously showed elevated radon was not re-tested. The new letter read:

\begin{center}
Dear Mr. [Occupant] \\
October 25, 1977 \\

In addition to the figures on radon concentrations which I reported to you in my letter of February 1, 1977, the following are the results of the resampling: \\

1.5 pCi/l … in the recreation room: \\

These, together with the earlier readings, are within the range of atmospheric concentrations of radon commonly found in buildings and do not constitute a significant risk to health. In the above radon figures and in other information provided to me by the Atomic Energy Control Board, I find no evidence of radioactive contamination in or around your property. \\

Your sincerely, \\
A.H. Aitken
\end{center}

\textsuperscript{11} OMH, 21 March 1977, RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101636, AO.
With full knowledge that radon concentrations vary widely, the OML acknowledged the existence of previous samples, yet omitted details. Similarly, upon receiving a letter from solicitors requesting a re-survey and “necessary certificate” to facilitate another property transaction, the OMH re-surveyed Home #59 within nine days. In the meantime, others waited. Residents at Home #58 waited six months, then another eighteen months. Others waited years. Others are still waiting. In all these examples, without any indication in subsequent letters that earlier surveys showed higher radon, all the information a prospective buyer might have is the second letter from the OMH and the word of the property owner. The rest could easily be erased. This pattern of interaction, for residents to worry about property values and resale; for the OMH to resurvey in response to property concerns; for second results to be lower; for subsequent letters to omit earlier results; and for Eldorado’s gamma radiation results to be communicated only verbally, if at all, were repeated with numerous other homes. Homeowners did not rely on their first letter that contained the radiological results for their property because they were afraid of the negative relationship between radiation, stigma, and property values.

Stigma is the “adverse public perception regarding a property; the identification of a property with some type of opprobrium (environmental contamination, a grisly crime), which exacts a penalty on the marketability of the property and hence its value.” Stigma is associated with

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12 OML to [Occupant], RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101636, AO.
13 [Solicitors] to OMH, 27 June 1977, RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101692, AO.
14 AECL, *Real Estate Market Analysis Port Hope Ward 1 2001-2011*, PHAI (AECL, 2012), 81. AECL is quoting comments of the Dictionary of Real Estate Appraisal. The AECL notes herein that media stories and “increased public awareness” (rather than the waste itself) of the Port Hope contamination negatively affect real estate values. In their discursive analysis of risk perception in Port Hope, Fried and Eyles observe a bifurcation of opinion in the community on the waste, and that stigma (although not specifically related to property values) may be intensified by the widespread nature of the waste; it is uncontained. With the exception of these observations, the general insights of their discursive analysis on risk is of limited application to my analysis as it does not address the conditions and circumstances that underpin these dynamics. My analysis focuses on the latter. See Jana Fried and John Eyles, “Welcome Waste:
“contagion” and does not diminish without corrective action to remove the source of stigmatization, yet even then, there is no guarantee that stigma will disappear.\textsuperscript{15} The effect of pollution and hazardous substances on declining property values is well-documented in other case studies, including Love Canal, an association that Port Hope was repeatedly linked to, and local politicians trying to delimit.\textsuperscript{16} Several other communities located near former radium factories also have parallels to Port Hope. Messer et al document how residential areas built on contaminated soil near the Montclair/West Orange radium site and the Glen Ridge radium site, both in New Jersey, experienced declines in property value due to the stigma of radioactive waste. In their analysis, they differentiate between risk and stigma. Risk is a perception of potential harm, yet stigma affects property values directly through a process termed “shunning,” in which homeowners likelihood of staying in a home is negatively influenced, and prospective buyers may exhibit an unwillingness to locate in not just one house, but whole neighbourhoods and communities.\textsuperscript{17} Stigma increases with publicity of the contamination. But in Port Hope, the reaction of many residents to the negative association of radiation and stigma, manifested not as shunning their home and community, but in safeguarding the values of their property. The fact that Eldorado was the federal government and the town’s largest employer influenced the communities reaction to the widespread radioactive waste.

\textsuperscript{16} Margaret Munro, “Port Hope No Love Canal Crisis, Mayor Insists,” \textit{Ottawa Citizen}, October 17, 1981; In their comprehensive study of contaminated sites and property values in the United States, Messer et al argue that over the long-term, property values will decline because of association with pollution hazards, and that this effect is exacerbated the longer a clean up is delayed. They term this process “progressive stigmatization.” Clean up activities also cause a “steady decline” in property values and heightens property value loss, however, they may start to rebound only after all clean up activities are long over. They note that “property values will increase if no actions are taken and no news generated.” Messer et al, “Can Stigma Explain Large Property Value Losses?” 300, 313, 319, 322. For an analysis of the toxic contamination of the Love Canal community by the Hooker Chemical company in Niagara Falls, New Jersey, see Martha Fowlkes and Patricia Miller, “Chemicals and Community at Love Canal,” in Brandon Johnson and Vincent Covello, eds, \textit{The Social and Cultural Construction of Risk} (Boston: Reidel, 1987), 55-78.
\textsuperscript{17} Messer et al, “Can Stigma Explain Large Property Value Losses?” 307.
“Waste is, of course, the specter that haunts value” and nuclear waste in Port Hope had the potential to annihilate value.\textsuperscript{18} Nuclear waste is associated with dirty, filthy, unclean, blemish and corruption.\textsuperscript{19} Radioactive contamination was perceived as a stigma, rather than as a risk per se, and if risk was associated with the contamination, it was predominantly articulated as fiscal risk. Radioactive contamination in Port Hope indicated there may be a loss in the monetary value of property, but also signaled the psychosocial condition of nuclearity that manifests as anxiety and uncertainty in everyday life. A loss in the security of the home as a safe space of everyday living is also a loss in value. Yet in Port Hope, monetary value held primacy over other forms of value associated with property and increased the material insecurity of residents.

Value became a disciplinary mechanism that affected the priorities of both homeowners and the nuclear state. A re-survey was one mechanism through which homeowners could reduce stigma and a means through which the nuclear state could contain dissent. In every instance, where homeowners who wanted to sell their homes requested an additional survey, the AECB and province complied, rather than advise homeowners to include the original letter with their property deeds. Concerns over property values clearly trumped concerns over health and other considerations on both sides of this equation. The OMH and AECB complied with pressure from residents over property values but not over health and other concerns. The OMH and AECB each had responsibilities in relation to public health and safety, and they could justify their responses to these concerns with quantifiable criteria. Aggregately, the nuclear state was successfully containing dissent over health, but dissent over property values was a new unknown. Despite the fact that neither Eldorado, the OMH, nor the AECB had any authority over property values, each acted to uphold the institution of property.

Other dynamics in containing dissent related to property values are also evident. Nicolas Blomley argues that power courses through the institution of private property. In the interactions between the state and Port Hope citizens over radioactive waste, property ownership resulted in self-disciplinary practices among property owners and non-property owners to behave in accordance with the primacy of property value and the exclusionary tendencies of enclosures.\textsuperscript{20} Homeowners had power to disclose or withhold information; they also had latent power embedded in their rights as property owners to assert and receive privileges from state officials. The institution of private property framed their complaints as legitimate, rather than irrational or emotional, as were health or other concerns. The space of private property is a disciplinary space, it is “produced through performance, but is simultaneously a means of disciplining the performances that are possible within it.”\textsuperscript{21} Contaminated homes were disciplinary spaces of containment, yet self-discipline was not confined to home owners to protect their individualized property values. State officials also acted to safeguard the value of individual private property, even if not the property itself. Protecting individual property values also protects the aggregate property market – which perhaps if severely threatened, could grow into uncontainable seeds of social dissent.

\textbf{Radioactive Homes: Property Rights and the ‘Right of Privacy’}

Property rights were also cited as the reason why state regulators refused to disclose the locations of elevated radioactivity to the public. Despite repeated requests for full public disclosure of the door-to-door radiological property survey, the results were restricted by the state. While several names and addresses of contaminated properties were reported in the local Port Hope newspaper early on in the investigation, this practice quickly ceased, ostensibly to protect the privacy of citizens, but more to the point, to protect their property values. The only visible evidence of a contaminated site were physical practices of remediation. Addresses of contaminated homes would not be revealed without the consent of property owners:

In order to respect the wishes of homeowners, all of whom have been notified, the exact addresses are being withheld pending cleanup action. All Port Hope property owners may

\begin{itemize}
\end{itemize}
request, through the AECB’s Port Hope office, that checks be made of radiation fields and radon concentrations on their properties. The AECB has already fulfilled a number of such requests.22

But many residents wanted radiological results made public to make informed decisions about which locations to frequent or to avoid. Moreover, radon gas could migrate through the environment and seep between attached residential dwellings.23 Public disclosure was seen as a means to protect the public interest. The environmental organization Energy Probe also requested release of all radiological results: “for the full protection of residents, there must be an immediate and full disclosure of all radiation surveys in the town of Port Hope.”24 Energy Probe criticized the emphasis being given to real estate values.25 Denying all requests for public disclosure, the AECB kept radiation results confidential. Contaminated sites would only be revealed to property owners.

Another reason for withholding information from the public is simply the right of the homeowner for privacy. A measurement made on his property is his business, and since radon in his house has no effect on other members of the public, the homeowner has the right to disclose or withhold the information as he chooses.26

The state’s rationale for “withholding information from the public” privileged property owners and the hegemonic construct of privacy that is attached to property ownership. Adopting a code system for identifying home locations further afforded property owners this “right of privacy.”27

In 1980, the AECB again refused to publicize the locations of radioactive sites, claiming the Board would “find itself in legal hot water with property owners if locations were made public

26 AECB, Memorandum “Questions and Answers about Radon and Radon Daughters,” April 21, 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-38 to 77-22:8, LAC. However, even this right for private property owners for full disclosure on their homes had limits, for as I point out in the previous Chapter, even they were not always given accurate or complete radiological results of their own homes.
and later investigation found no contamination.”

While the AECB claimed this secrecy was to protect property owners, it was also to delimit the state’s legal liability and contain public outrage. Institutional mechanisms enabled the state to enact, legitimate, and enforce this means of containment.

Rights of property owners trumped rights of members of the public, including prospective buyers, to know if a space was contaminated. Affording property owners ‘rights’ of non-disclosure privileged property owners over tenants and non-property owners. The secrecy and silence of which spaces might be contaminated shrouded residents in a fog of uncertainty. Publicizing the addresses of contaminated homes would enable people to make informed decisions about purchasing property. Yet the right of property owners “to disclose or withhold the information as he chooses,” extended to resale, a murky, grey area in which the law was ambiguous, at best. The rights of prospective buyers were thus delimited by a lack of legal mechanisms to prevent contaminated homes from being sold or built upon.

Laws respecting disclosure and the rights of prospective buyers or tenants were also ambiguous for vacant land. Potential buyers of vacant parcels of land had limited rights and means with which to acquire knowledge about whether or not the land was contaminated. The law favoured the land owner. In a few instances, land owners lobbied to have their contaminated parcels of vacant land developed into residential areas. The following example illustrates this particular legal gap and its potentially grave implications. Vacant land slated for development was also surveyed for exterior gamma radiation. On three parcels of vacant lots, one of which had a vacant house, Eldorado recorded concern about future construction, remarking: “These three locations are for sale on the real estate market. No development should occur on the vacant lot until the contaminated material is removed. Under “Results reported” Eldorado wrote “No

Another undeveloped lot near Pidgeon Hill was deemed too contaminated for residential use, prompting the AECB to report: “any use of this land that would result in enclosures for human use should be withheld until further decontamination of the area to acceptable levels is completed to the satisfaction of the board.”

Despite this warning, there were scant legal means to ensure property owners did not build on, nor sell contaminated land to unsuspecting buyers, and the AECB and Ontario government were unsure who had jurisdiction over these issues. One property cluster highlights this problem. When several empty duplexes intended for demolition and vacant land slated for new housing development were found to have unacceptable levels of gamma radiation and radon concentrations, the AECB, OMH and Eldorado all agreed: “no development should occur until the land is decontaminated.” Referring the owner to the AECB for further information, the OMH wrote the owner, stating significant concerns with plans to sell and build on these lands:

I have to advise you that I have preliminary information that the land on which these houses stand, or land adjacent to it, is contaminated with radioactive material. It will require extensive effort to survey the degree and extent of contamination. If the adjoining land is contaminated, a low figure for the radon concentration at the time of our visit does not guarantee that the concentration will not become excessive at a later date. Also, construction of new houses on contaminated land may well result in unacceptable radon concentrations in the new structures. I am sorry that this is all I can tell you at present.

This property owner reluctantly “agreed to wait until Easter” before beginning construction. They had a valid building permit from the municipal offices in Port Hope that the AECB could not revoke: “Apparently [the] AECB has no powers to force [Owner] to stop construction … an injunction issued under the Public Health Act is the only way this chap will be stopped.”

30 Eldorado, “Record of Radiation Survey by Eldorado Personnel,” March 17, 1976, RG 7-128, Port Hope Radiological Inspection Files, B101648, OML Fonds, AO. Exterior gamma at Home #39 was up to .2 mr/hr with 2 feet of snow cover.”
31 AECB, n.d. RG 7-128, Port Hope Radiological Inspection Files, B101648, OML Fonds, AO. The Pidgeon Hill lots were deemed “major contamination, high priority.” I cannot verify if this lot was remediated before further development or not.
32 Eldorado, “Record of Radiation Survey by Eldorado Personnel,” 23 March 1976, RG 7-128, Port Hope Radiological Inspection Files, B101648, OML Fonds, AO. Other correspondence cited regarding this property is from this file.
33 Eldorado, “Record of Radiation Survey by Eldorado Personnel,” 23 March 1976, RG 7-128, Port Hope Radiological Inspection Files, B101648, OML Fonds.
Behind the scenes, the AECB and OMH consulted their legal advisors and deliberated on whose responsibility it was to stop work on lands known contaminated with radioactive waste.\textsuperscript{34} These examples highlight the possibility that property owners would sell homes known to be contaminated with elevated radioactivity, and knowingly build homes on contaminated lands for sale to others. For some, it appears the economic incentive of property value outweighed the rights of prospective buyers and future residents. They also demonstrate the absence of legal mechanisms to contain the afterlife of radioactive waste from the Eldorado crown corporation. This exchange further reveals that it was not always possible to contain the response of civil society who sought to exercise their “assumed right of complete control” to use lands and resources for capital accumulation.\textsuperscript{35}

This issue remained a significant concern. In 1979, the Ontario Ministry of Housing (MOH) recommended a mandatory program to give the AECB clearance authority on all new construction in Port Hope. Potentially extensive contamination in undeveloped areas was deemed “prohibitively costly” to survey and re-mediate, therefore a project specific compliance program was proposed. The main problem however, was that authority rested with the province and the local municipality who issued building permits. Likely being aware of contaminated properties being sold or developed in Port Hope, the MOH warned the MOE:

> In situations where the developer is constructing a rental building, it is conceivable that he might not want to be bothered with the inevitable delays and possible adverse publicity involved in the AECB clean-up program. In such cases, tenants would be unknowingly exposed to radiation. This possibility becomes more likely with the passage of time and the waning of public awareness.\textsuperscript{36}

The MOH stressed that “protection of property owners and tenants, who, in the future, may be unaware of the radiation hazard” was needed. Indeed, these risks were higher for tenants. For example, one owner of a rental property rebuked the OMH for providing tenants a radiological

\textsuperscript{34} Eldorado, “Record of Radiation Survey by Eldorado Personnel,” 23 March 1976, RG 7-128, Port Hope Radiological Inspection Files, B101648, OML Fonds.

\textsuperscript{35} Mansfield, “Privatization: Property and the Remaking of Nature-Social Relations,” 399.

\textsuperscript{36} Donald Beveridge to R.M. Dillon, 12 January 1979, “Protection of New Construction from Radiation in Port Hope,” RG 12-45, Minister MOE Files, B255904, File Water Pollutants 1980 Radiation Port Hope, AO.
letter of results for their apartment. In responding to this irate landowner (Home #41), the OMH asserted the right of tenants:

It is our normal practice to give the results to the occupant of the premises, be he owner or tenant, on the grounds that the occupant is the person who is exposed to whatever radon concentrations there may be. If any remedial measures are necessary or if the owner is interested in the results, the information is given to the owner also.37

Here, at least the OMH had the rights of tenants in mind, although it lacked mechanisms to enforce them. This situation created further uncertainty and insecurity, the hallmarks of nuclear landscapes.

A characteristic of nuclear landscapes is their tendency towards the production of “zones of exclusion” what Valerie Kuletz describes as a dehumanization of the landscape.38 Evoking the metaphor of “wasteland,” Kuletz terms radioactive waste as rendering landscapes literally wasted, their potential uses delimited into futuristic timeframes.39 Wasteland also means expendable, a material byproduct and condition of sacrificial landscapes. Waste is not containable. The above examples of contaminated homes and lands reveal that the uranium refinery rendered residential homes and vacant lands unfit for human habitation – yet the nuclear state could not prevent its use for residential homes. Indeed, there was no guarantee that a decontaminated property would not again have elevated radiation with future excavation and construction. Every new excavation, renovation or building posed this dilemma. In 1979, the MOE, acknowledging the “inconspicuous nature of radiation hazards,” recommended a mandatory program to protect citizens.40 However, no mandatory program was put in place. In 1980, the AECB again asked the Port Hope local government to institute a by-law requiring

37 Aitken to [Owner], 10 May 1976, RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101648, AO.
39 Kuletz, The Tainted Desert, 13; See also Danielle Endres, “From Wasteland to Waste Site: The Role of Discourse in Nuclear Power’s Environmental Justice,” Local Environment 14, no. 10 (2009) for further analysis of wasteland in relation to nuclear colonialism. Endres notes that the term may justify both strategies of control and resistance – wasteland is a contested category.
40 W. Bidell to W.B. Drowley, 5 February 1979, “Protection of New Construction from Radiation in Port Hope,” RG 12-45, Minister MOE Files, B255904, File Water Pollutants 1980 Radiation Port Hope, AO.
AECB testing for radon gas before issuing building permits, hoping mandatory controls would protect both tenants and prospective buyers from contaminated homes.\(^{41}\) This was to no avail. No mandatory program was put in place to protect the public interest from individual property owners who would sell or develop contaminated land and homes.

C.B. Macpherson argues that implicit in the institution of private property is a tacit acceptance of its consequences, and “an individual is justified in appropriating land even when it does not leave enough and as good for others.”\(^{42}\) Macpherson means that the economic incentives of individual capital accumulation that are built into the institution of private property privilege property owners, even if others are dispossessed as a result. An extension of this argument is that the justification for knowingly developing or selling contaminated lands stems from the institution of private property in which maximizing exchange value is paramount. Land may be “merely a form of capital.”\(^{43}\)

Private property featured prominently in containing dissent. Timothy Mitchell terms private property as a power relation brought in by the state to create certain types of social order. The case of Port Hope demonstrates that private property values shifted the terms of debate from public dissent aimed at Eldorado over the contamination of homes, to quell this same dissent. Self-discipline and self-censure accompanied private property.\(^{44}\) As a power to exclude, property ownership entails the power (within the bounds of the law and through self-disciplinary mechanisms of boundary-making) to make people do as the owner wishes.\(^{45}\) Yet I have also demonstrated the inverse in this analysis. Private property and the attendant right of privacy may

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\(^{41}\) “AECB Asks Bylaw To Test,” *Port Hope Evening Guide*, September 17, 1980.

\(^{42}\) C.B. Macpherson, *The Political Theory of Possessive Individualism: From Hobbes to Locke* (Oxford: Clarendon Press, 1962), 211, 213. Macpherson further argues that as a natural right, unlimited appropriations of land and resources are then justifiable for the greater good of capitalist accumulation, regardless of how anyone else is disenfranchised.

\(^{43}\) Macpherson, *The Political Theory of Possessive Individualism*, 206. In this comment, Macpherson is describing a Lockeian view of property. His full quote is, “To Locke, land is merely a form of capital.”

\(^{44}\) See Blomley, “Law, Property, and the Geography of Violence.”

also be used to make the owner comply (acquiesce), through fear of loss to the monetary value of their property. This too is power. Yet as observed above, self-disciplinary tendencies to protect ones’ property value can have unanticipated and uncontainable results – people will knowingly sell contaminated land. Stemming from processes of individuation, arguably also a result of the relations of state-mediated capitalism and private property, are the ways in which residents engaged in forms of social coercion to stifle public dissent.

**Containing Compensation**

Fear over the value of property prompted Port Hope residents to request compensation for the radioactive contamination of their homes. These fears were acted upon by groups such as Energy Probe which recognized that property owners may suffer financial loss, and they called on the federal government to instigate “full compensation of all property owners in Port Hope and Welcome whose property values have been adversely affected by the radioactive contamination.” Elaborating on these demands, this environmental organization cited a dilemma of property, radiation and stigma:

> Of a more general nature, but equally serious, is the question of the adverse affect on all property values in and around Port Hope. It appears that the average property value may be depressed by up to 20% just due to the threat of local radiation contamination. As well, owners appear to be in a very difficult situation. If they want to sell a property, the onus is upon them to sell a ‘safe’ property. Selling property which has associated radiation greater than legal limits cannot be interpreted as safe. Consequently many properties and homes are ‘frozen’ until the clean-up is complete. Compensation must be made to residents suffering such effects.

Energy Probe also demanded “full compensation of all individuals who have been directly affected or inconvenienced by the radioactive contamination,” not just property owners.

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Alastair Gillespie, Minister of EMR, sought to assure local officials that the federal government would act quickly to remediate contaminated homes:

I and the Government are committed to the quickest possible clean-up and all other remedial actions necessary to restore Port Hope properties again to a state of normalcy … You may be assured that our watchword will be consultation, both with the Town Council and more specifically with individual property owners.  

The emphasis of the state on individual property rights is again apparent. But property law upholds the institutions of property, not necessarily the rights of individual property owners, leaving property owners whose homes were contaminated with limited legal recourse. The residents of Port Hope had few options for suing the state, including Eldorado, for any loss of property value. Environmental lawyer David Estrin pointed out that in addition to a six-month limitation on proving damages:

Very few people will be able to sue for loss of property value. They will have to have tried to sell their house first, and then prove the price was lower than what it might have been … As far as suing for damage to their health, how much is health worth in legal terms? And again, they must show the damage occurred within six-months … Mental suffering is a tricky reason for suit. It probably needs to manifest itself in a physical ailment. Then you [are] back to number two again.

Residents also observed little recourse for holding Eldorado or the federal government accountable for contaminated property, or for illnesses and mental anguish:

For me it breaks down to accountability and truth and I see very little of either in the industry … it’s an impossible battle for compensation, especially now … they’re not going to admit to anything, and they’ll certainly wait until me and all my family members are dead before, that’s the way I see it.

Nobody clues in you can see why I get frustrated, I get so angry, like everybody says well why do you care, well I think, well Eldorado especially affected my life, I can’t prove they did, but I really do believe that, that they’ve affected my life a lot. I don’t know how to fight it anymore, my [children] call me an activist but I’m not, it’s, I said, if you knew at all how much it affected my life then personally.

49 Alastair Gillespie to Mayor Hewson, April 15, 1976, RG 60-8, AECB Fonds, 1993-94/093, BMD, File 76-38 to 77-22, LAC.
51 Interview #11: Anonymous, Port Hope resident.
... My [husband] always told me it would only take one person to sue the government and get it straightened out but I don’t know, when people get sick they don’t even blame it on that.52

An absence of legal mechanisms to compensate people for contaminated properties upheld the rights of the polluter, in this case, the nuclear state. It is also improbable that Port Hope residents will ever receive compensation for health and mental anguish, which are much harder to substantiate than declines in land value.

Rights of private property owners extended to refusing to allow state officials into their homes. While the AECB investigated properties and oversaw decontamination, they did not have jurisdiction to enter and clean up contamination in private homes without the consent of the homeowner. As summarized in a brief by Alastair Gillespie to the AECB, this situation was potentially quite problematic:

In view of the advice you’re received from your legal advisor that the present legislation does not provide you with the authority to move in and order a clean-up of a property found to be radioactive I would ask you to prepare a very brief memorandum for Cabinet seeking authority …to introduce amendments to the Atomic Energy Control Act. I would propose that these amendments should go forward as part of our programme in the Fall of this year.53

This legal gap has still not been solved. Instead, a voluntary program in Port Hope was implemented in the late 1980s, ostensibly to protect the public, yet more to the point, to ensure that the halting of the radioactive cleanup did not stop development.54

52 Interview #10: Anonymous, Port Hope resident.
53 Alastair Gillespie to Allan Prince, “Legal Powers of AECB,” April 12, 1976, R1526 Energy, Mines and Resources Minister’s files, Volume 324, Correspondence File 15, LAC. In a separate correspondence two days later, the Minister requested that the AECB look into clarifying federal powers under the Environmental Contaminants Act for contamination in the nearby community of Deloro.
54 LLRWMO, “Construction Monitoring Program,” http://www.llrwm.org/wpcontent/uploads/2012/12/Construction_Monitoring_Brochure_EN.pdf , [Last accessed January 29, 2014]. Through the program, property owners can arrange for radiological testing before new construction and excavations. For building projects and construction that need a building permit, the owner is referred by local authorities to the LLRWMO, who check the property file and make a determination if the site needs testing for elevated radioactivity.
The Bergeron Family: ‘Victims of Circumstance’

Several highly publicized cases over contaminated homes put particular pressure on the Eldorado crown corporation. In the following section, I describe the conflict over one property as experienced by one family, as a welcome and necessary departure from the overall anonymity of this chapter, and to make several points. First, actual persons (not Occupants) struggled to assert their rights against a powerful crown corporation and the nuclear state; second, while I am prohibited from revealing identities from the state archive, I am not from publicly available sources, such as newspapers. Therefore, in the style adopted by Penny Sanger in her book on Port Hope, *Blind Faith: The Nuclear Industry in One Small Town*, I detail the plight of the Bergeron family to bring a personable face to this otherwise faceless exchange on property, that is preferred by the nuclear state.

The Bergeron family bought a home on a 5-acre parcel of land on the outskirts of Port Hope. The family was from Toronto, and had lived for a short time in Whitby, approximately sixty kilometers from Port Hope, before moving to the Port Hope area. They were unaware of the local problem with radioactive waste, or that a nearby property, about 400 metres away and which sloped towards their home, was the Welcome Residue Area for radioactive waste. The local real estate agent had not disclosed these facts. The previous homeowner did not disclose these facts, nor that the AECB had installed a sub-floor ventilation system for radon gas. The Bergeron’s assumed this was a “common vent.” The day after purchasing the home, the Bergeron’s found signs in the bush a mere 20 feet from the property line, notice that their neighbour was a dump site owned by Eldorado Nuclear Limited. A flurry of phone calls to Eldorado, the OMH and the AECB ensued.

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Eldorado and the AECB stated the property was within the FPTRF criteria. Yet as became obvious to the Bergeron’s, the house had previously been contaminated (hence the ventilation system). Meanwhile, the family waited for their house to be re-tested for radon gas. Their requests for Eldorado to “guarantee in writing that [their land] is safe” were refused and instead they were told that “a two-metre fence will be built when money is available to separate the property from the Welcome waste site.”

Building a fence was not an economic priority for the crown corporation. In the short-term, Eldorado installed yellow “Radiation Danger” warning signs around the property. Previous signs reading “Keep Out” contained no information as to why. Not taking Eldorado’s response lightly, the Bergeron’s mounted a public protest, placing placards reading “Danger Radiation – Eldorado Waste Site” along Highway 401, a busy commuter highway between Port Hope and Toronto. Re-testing of the indoor air by the AECB showed 23.6 pCi/l, a figure the couple termed “terrifying.” Apparently, the ventilation system had not been working properly. Their well water showed traces of uranium, radium and arsenic.

The Bergeron family was blamed for causing undue publicity. The real estate firm who sold them the property also blamed “much of the town’s radioactive reputation on big city reporters who are continually ‘making a mountain out of a mole hill.’” Local authorities were no help; indeed they may have withheld key information from the family. After leaving a local council meeting at which the Bergeron’s requested help in compelling a reluctant Eldorado to purchase their property, a local reporter noted:

In the discussion after Bergeron had left, Reeve Howard Quantrill stated that council had tried to discourage Cole [previous owner] from building. Council had advised Cole that it was concerned about being so close to the dump site and asked him to check with the environment ministry and health department.

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61 Margaret Munro, “Port Hope No Love Canal Crisis, Mayor Insists,” *Ottawa Citizen*, October 17, 1981.
As far as the township’s bylaws are concerned, there was nothing to stop Cole from getting a building permit. The township will send a letter to the Bergeron’s stating council cannot take action.62

The Bergeron family understood that the former owner sold the house because country life was ‘boring.’ Perhaps it was, but it was also contaminated and located adjacent to radioactive waste. This case again demonstrates that a local resident withheld the radiological history and the home’s vicinity to a radioactive waste dump to facilitate a property sale. The local government facilitated this transaction by processing the property deed without informing the Bergeron’s of the radioactive dump, and then by hiding their concerns about the contamination from the family.

With no other recourse, the Bergeron family decided to abandon the house. Dispossession had taken yet another form. Not liking the increased publicity, Eldorado purchased the empty Bergeron home on June 16, 1981, later noting they had previously considered buying this home anyway, because of “the possibility of surface run-off.”63 This was not the first time Eldorado bought the homes of local residents who focused public and media spotlight on their contaminated homes.64 Once again, it appears publicity provided the necessary incentive for state action towards containing dissent. As remarked by one newspaper reporter, “the noisy couple and their two children left town.”65 Eldorado called the Bergeron’s “victims of circumstance.”66

While the Bergeron’s succeeded in having Eldorado purchase their home, putting a contaminated home in the spotlight was an unusual move in the Port Hope area, where concern over property values was a reason for quiescence. However the Bergeron’s were from out of town, moving to

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64 In the mid 1950s to mid 1960s, Eldorado had negotiated settlements with several farmers whose lands and cattle had been contaminated by Residue Areas, including purchases of the Moore family parcels adjacent to the Welcome Residue Area in 1955 and 1967, lands that the crown corporation knew were contaminated since at least 1951. See for example, OMH, “Water Pollution – Welcome Residue Area,” RG 134, Vol. 162, File 370. Similar to the Bergeron’s, the Skinner family went public with complaints about Eldorado pollution at their home near the refinery, were bought out by the crown corporation in April 1980, and left town. See Sanger, Blind Faith, for details on these events, and Eldorado’s “quiet negotiation with anyone who complained,” a pattern it began as early as the 1950s; Also see “Port Hope Mishaps Make Long List,” Ottawa Citizen, October 19, 1981.
65 Margaret Munro, “Port Hope No Love Canal Crisis, Mayor Insists,” Ottawa Citizen, October 17, 1981.
Port Hope for nearby employment unrelated to the refinery. For the Bergeron’s, the stakes were different than many Port Hope residents. Other than living in a home contaminated by their waste, the Bergeron’s had no other connection to Eldorado and did not rely on the uranium refinery for employment.

**Radioactive Waste in Scarborough Homes: The Nuclear State Springs into Action**

The stakes were also different for another community in Scarborough, Ontario that was contaminated with radioactive waste linked to the uranium refinery, yet not dependent on Eldorado for employment and economic contributions to the community. Public response to the contamination of this neighbourhood, and the swift response of the state to remediate these homes, was markedly different from what took place in Port Hope. While an in-depth analysis of Malvern is beyond the scope of this dissertation, I briefly highlight a few main points in the Scarborough example to further illustrate a pattern of dependency and acquiescence in Port Hope concerning the Eldorado uranium refinery, and the effect of uneven power relations between the nuclear state and this small community.

In 1980, over twenty private residences in a Malvern sub-division of Scarborough were found by two investigative reporters to have elevated radioactivity, a situation Eldorado and the OMH were previously aware of, yet had not followed up on. The ensuing publicity included court challenges, political pressure, media campaigns, and staged protests such as residents dumping radioactive soil from their homes at the Ontario Legislature. Malvern residents were intent on having this situation immediately rectified, and they succeeded in having radioactive waste (about 4,000 tons) removed from their homes in a short period of time. Port Hope is still waiting. An oft-cited rationale for swift action in Scarborough, yet abandoning the clean up in Port Hope,

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67 The radioactive contamination and ensuing court cases of this sub-division, homes sold under a Canadian Mortgage and Housing Corporation program, is one subject I plan to analyze in my post-doctoral research.
is that the lower volume of Scarborough wastes could be more easily accommodated. I argue that other factors were at play.

Scarborough residents were successful because they intensely lobbied politicians, launched multiple lawsuits, and garnered media attention. Conversely, in Port Hope, as reported by Kirk Makin, a journalist for *The Globe and Mail*, “the reason they have waited so long in vain, some of the more vocal ones say, is because Port Hope residents will never do what the Scarborough subdivision people have done – scream for action.”69 While some in Port Hope have certainly tried and persisted over the years, protesters have always been an isolated, ostracized minority in a tide of support for Eldorado.70 In Scarborough, critics of radioactive waste were concerned citizens protecting their homes. In Port Hope, critics of radioactive waste were critics of the town’s largest employer, Eldorado the ‘good corporate citizen.’

Referring to these differences, one community member in Port Hope observed: “right here people are so utterly inured to this kind of thing … Plus, those people are making noise in a big city where no one is making their living from the process which generated the waste.”71 Other residents also noted the reluctance of residents to speak out: “Why is the town so deadeningly, frighteningly quiet? The plant (Eldorado) casts a long shadow.” One long-term resident likened the predominant silence among the Port Hope community to social and economic coercion:

> a lot of people are really scared of opening their mouths, they’re scared to speak in public, they’re scared to write things down for fear they’ll be ridiculed … [they say] ‘I’m just not knowledgeable enough’ I don’t know enough about it,’ I’m not an expert of any kind’ and … do they [government] ever work in public groups in getting people to feel ignorant in the face of their extreme knowledge, it’s classic … it’s all designed to shut you up and when you won’t be shut up they …somehow or other discredit you, that’s the

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usual thing to do, or buy you out if they think you can be ... they’re very clever at buying people out.”

Others note this dynamic has been in place for decades:

When [Eldorado] were challenged in the 60s, I can remember they were attacked, and ... a dominant family in town, criticized [them] in public, lost well 5 figures in his business right away for doing that, and they had every store in town having to put a sign up saying ‘We support Eldorado.’ That was before it was Cameco, otherwise by God it was East Germany, it was just like East Germany in the old days, it was an appalling situation, and what they’ve done now is to dominate enough again through massive handouts and through attack of anybody who opposes them with any courage and any intelligence. So you keep at it because you don’t lose them all.

Social coercion does delimit dissent, yet this form of containment is not totalizing. Others cite tension over property values as a core negative incentive in Port Hope: “whenever the dumps are mentioned, it’s not Eldorado that’s blamed; it’s the media that’s blamed for ruining this town – for lowering the real estate value. And those responding to journalists are painted with the same brush.” In Scarborough, in addition to health concerns, real estate values had been a positive incentive for action, rather than a reason for quiescence. Residents in Scarborough were not subject to social exclusion for speaking out; rather, their unified and very public outrage was a form of strength against the nuclear state. My comparison of Port Hope to Scarborough shows that the nuclear state will respond to social pressure, if dissent is deemed uncontainable. Legal action is a risk for the nuclear state and could have unfavourable outcomes. Intense social and political pressure also cast an unwanted eye on the nuclear state during a key moment in refinery expansion plans. Uneven power relations between the state and civil society are not always insurmountable barriers to effecting change.

The Port Hope Property Value Protection Program

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72 Interview #3, Anonymous: Port Hope resident. Tensions are also evident throughout local newspaper articles. See for example, Port Hope Evening Guide, “Praised Courage of Speakers,” December 12, 1980.
73 Interview #4: Anonymous, Port Hope resident.
As the nuclear state once again prepares to conduct a door-to-door property survey in Port Hope, the rights of private property owners still prevail over tenants and non-property owners. Private home and business owners may still refuse testing for elevated radioactivity and decontamination. Again, it remains possible for homes with elevated radiation to remain contaminated. However, as before, the incentive of protecting real estate values is thought to be sufficient incentive for compliance, yet is being handled differently by the state this time around.

All properties undergoing testing and decontamination (if necessary) will receive a letter of compliance declaring their property clean and safe. The AECL, the lead agency on the proposed clean up, notes that it is in the best interest of property owners to allow the state to enter, survey and decontaminate properties. Refusing a survey and remediation will affect a property resale.

Overcoming the perception of contaminated homes however, may still present obstacles:

So they’re supposed to be going around now and giving all the houses in Port Hope a notice so they can come in and check, and I’m going to say yes, and they’re darn well going to clean it up … I know people who won’t mention it in case someone’s selling their house they won’t talk about it, and they’re hiding it, but I’m not like that, I want it cleaned up.

... there’s too many people like me that have it in their back [yard], and they’ll say no. If you say they can’t come then they don’t. I could [refuse] but I won’t…but I definitely think some people will.

As observed by another concerned citizen, as the AECL can only survey properties without permission if there is a health risk, and, as the government has consistently denied any health risk associated with Eldorado’s wastes, the AECL is “screwed.” The nuclear state cannot compel homeowners to comply.

In 1981, the radioactive contamination of homes was noted to create a climate of uncertainty: “it’s buyer beware,” although prospective buyers could ask the homeowner or inquire with the

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75 Interview #12: Anonymous, Port Hope resident.
76 AECL, personal communication.
77 Interview #10: Anonymous, Port Hope resident. This resident knows that their backyard is contaminated and attributes family health problems to radioactive waste.
78 Interview #13: Anonymous, Port Hope resident.
town registry office about “whether a home had been checked or decontaminated.” A local realtor organization recently stated:

All properties that are bought and sold in the Town of Port Hope require a radiological test and status letter. People are made fully aware of all of the facts and test results prior to purchasing. The Port Hope Area Initiative Office has always been available and willing to answer any questions that the public may have. The facts are readily available to anyone who wishes to review the information.

Others admit that full disclosure on the radioactive contamination of properties in Port Hope is still a “grey” area and the onus is on prospective buyers to do their own due diligence. The AECL notes that people should be familiar enough with the contamination of Port Hope to request information on prospective properties, but it remains “buyer beware.” Residents note this tension persists.

Well I know a couple of people are quiet because they’re going to be selling their house and they don’t want anybody to know that it’s really bad, I know that’s one reason. New people of Port Hope retire here and they don’t’ want anybody to know because they’ve just bought a house.

A lot of them think they might want to sell it one day, now the real estate agents have to tell you its there, so they say ‘oh well there’s a bit of radiation there but no problem,’ people buy it right, they don’t say, ‘the back part of your property is contaminated,’ they don’t do that, but they do tell you it’s there.

They never said a word (about my property - contaminated).

Reaction to publicity over the contamination of Port Hope continues to be linked to property

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79 Margaret Munro, “Port Hope No Love Canal Crisis, Mayor Insists,” Ottawa Citizen, October 17, 1981.
81 AECL, personal communication. Prospective buyers can request the radiological property file of a home. The homeowner will be notified and will also receive a copy of the file, but the identity of the applicant will be confidential. Knowledge of the radioactive contamination of Port Hope was said to be assumed as common knowledge through media sources, however this is not a guarantee that people are aware, nor is it any guarantee for prospective buyers from out of town. In my 2014 review of properties for sale in Port Hope, the central MLS real estate organization shows properties for sale in which the property listing states that the onus is on the buyer to do due diligence with regards to the radiological history.
82 Interview #10: Anonymous, Port Hope resident.
values. Yet private property owners may now apply to a compensation program called the Property Value Protection Program (PVP). The program sets out criteria for compensating property owners:

This program provides assurance to property owners that, if activities arising from the Port Hope Project affect the value of their land, home or business property, compensation is available. The PVP program covers financial loss on the sale of property, loss of rental income or mortgage renewal difficulties as a result of the Project … The PVP Program is in effect and will continue for at least two years past the completion of the new Port Hope Long-Term Waste Management Facility. Losses in value that may result from transportation or construction activities are expected to be temporary.

Note that compensation is only for “[realized] financial loss” on a property sale or rental because of financial losses incurred due to the clean up project. Compensation is not for the inconvenience of the project itself, nor for the presence of radioactive waste. Again, private property owners are privileged over tenants and non-property owners who are not afforded any compensation for the tangible and intangible effects of living years, even decades, in a contaminated community.

83 The following example illustrates that publicly raising the contamination still leads to concerns over property values. In November 2010, a local concerned citizens group, FARE invited the renowned anti-nuclear activist Helen Caldicott to speak in the community. Not wanting her speaking in the community, local residents cancelled her hotel, dinner and church venue, and the talk was then moved to Oshawa, about 50 kilometers away. Approximately 350 people, including myself, attended her speech that lambasted government officials about health effects, and she recommended, among other things, the relocation of the town and a class action lawsuit. These comments fueled the already tense backlash over her visit. Mayor Thompson termed her visit “sensationalism.” Among the concerns were property values: “the comments have real estate agents worrying deals will fall through and people will cancel showings.”

http://www.cbc.ca/news/canada/port-hope-mayor-criticizes-anti-nuclear-activist-1.912615 [Last accessed January 29, 2014]. Also see http://www.northumberlandnews.com/community-story/3778518-port-hope-housing-sales-dip-while-population-rises/. As noted by one Port Hope resident about Caldicott’s speech, “when she said the town should be moved, and I was thinking I wish she said that Cameco move, not the town,” Interview #2: Anonymous, Port Hope resident.


Only property owners are eligible for consideration for compensation from Eldorado’s “historic” wastes. Non-property owners in Port Hope have no means, other than litigation, to try and receive compensation from the federal government for living amongst radioactive and other wastes from a federal crown corporation. As one long-term resident remarked, “my [spouse] always told me it would only take one person to sue the government and get it straightened out but I don’t know.”

But coercion does not just occur between the nuclear state and civil society – although suing a crown corporation and the federal government (who are also the town’s largest employer) is certainly intimidating – coercion also ripples across the social fabric. Silence and threats of social exclusion, such as experienced by the Lawson’s, are forms of coercion, and quite effective means of containment. Silence guarded ones financial investment in property where threat of monetary loss trumped other fears. Silence also helped ensure the expansion and intensification of a very powerful crown corporation.

Several long-term residents observed that those who speak out still experience intense public backlash:

People do attack us, I don’t know what they think, all we want is what’s best for Port Hope, our land, our air, our water, our people, our business, and they attack us, and it’s just so wrong, and they tell lies about us.

I’d be very worried about what would happen [if I spoke out] and I don’t need death threats from anybody. I just really don’t want to hurt the kids…if it was just me I

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87 Interview #10: Anonymous, Port Hope resident.
89 In contrast, Alice Mah observes how, despite low property values of homes in the contaminated community of Highland in Niagara Falls, New York, the situation was informed by social cohesion in the community to make improvements. Mah acknowledges that social cohesion and ‘community’ does not imply lack of contestation, but was the dominant trend. Alice Mah, “Devastation But Also Home: Place Attachment in Areas of Industrial Decline,” Home Cultures 6, no. 3 (2009): 287-310.
90 Interview #2: Anonymous, Port Hope resident. Elements of coercion, including social exclusion, death threats, physical violence, verbal abuse, nasty public comments in local newspapers and on social media are clearly evident in discussions pertaining to the uranium refinery in Port Hope.
wouldn’t care about it but because of my kids...I don’t want to hurt them or anything to happen to them.\textsuperscript{91}

I mean literally ...some people have been, oh man they’ve been threatened, they’ve been beat up, they’ve had all kinds of problems ...I’ve been lucky to escape that but still it gets difficult to go into some of the businesses downtown.\textsuperscript{92}

If a lot more people come forward, if they weren’t intimidated by even the people they live next door to ...threatened with this or that. ... Even the local news media personnel have to live next door to [refinery] employees and nuclear employees and the Mayor’s friends.\textsuperscript{93}

You know the benefit, or the thing that the government relies on is that there’s not a whole lot of people like me ... that actually have the time and make it our hobby to look into what’s going on ... I did have one guy who told me to get the fuck out of town, the town would be better off without me. I had one guy that told my wife that if he sees me ... if he sees me he’s going to punch me.\textsuperscript{94}

There’s been a lot of people come to Port Hope, found out about the problems and said ‘I’m going to get involved and help fight this thing,’ and before you know it they’re like ‘we’re putting our house for sale and getting the hell out of here.’\textsuperscript{95}

Everybody’s afraid to talk or say anything in case their property value goes down, and that’s why they were so mad at us [for speaking to media], we were driving the property value down. Well we didn’t, Eldorado or Cameco, they’re the ones that caused the problem.\textsuperscript{96}

Long-term residents observe that the contestation has intensified and social divisions widened:

There has been this kind of reverence for democracy and value of public debate in the town that I see has shifted, it’s turned into screaming and intolerance here now and it saddens me when I see screaming and intolerance versus public debate, cause I don’t think that’s in the best traditions of what this town was about.\textsuperscript{97}

Clearly evident in these comments is that the Eldorado crown corporation has had deep social impacts on this small town. Another resident laments that all the problems should not be burdened onto the community:

\footnotesize{\textsuperscript{91} Interview #10: Anonymous, Port Hope resident. \textsuperscript{92} Interview #6: Anonymous, Port Hope resident. \textsuperscript{93} Interview #11: Anonymous, Port Hope resident. \textsuperscript{94} Interview #5: Anonymous, Port Hope resident. \textsuperscript{95} Interview #5: Anonymous, Port Hope resident. \textsuperscript{96} Interview #1, Anonymous, Port Hope resident. \textsuperscript{97} Interview #12: Anonymous, Port Hope resident. A review of online exchanges in social media also indicates that the social divides have intensified. See, for example “This is Getting Dangerous,” http://burdreport.ca/?p=735 [Last Accessed March 31, 2014].}
It’s not the people of Port Hope’s fault that this happened, it’s the government’s fault and they should be looking after the people of Port Hope ... of course you know, I’d be worried too if I lived on contaminated property, I don’t know what the hell I’d do.”

Yet, as demonstrated since the mid 1970s, blaming each other was safer than blaming Eldorado.

Moreover, property owners see the PVP as inadequate to cover the range and severity of the effects that the refinery has had on the town, as well as the upcoming clean up of radioactive waste.

“They don’t compensate you just because you have historic waste on your property, ... you might be trying to sell your house and your neighbours backyard is full of the stuff and they’re going to be digging all this stuff out and moving it and everything else, [and what they tell you is] ‘but it’s not really an impact because it’s just like someone’s building an addition, it’s going to be the same amount of noise,’ and so I say, ‘okay, but the only difference is they’re not building an addition, they’re removing radioactive waste, that’s a big difference’ and they’ll say ‘well we don’t compensate on stigma.’

If you’re going to compensate people, compensate everyone and do it fairly and equitably or have no compensation at all and if you’re going to come out with bullshit real estate analysis studies that say that their activities and the largest radioactive cleanup has no impact then you can’t give people compensation.

Just wait until they start and wait until people try to move, wait until people try to sell their house, wait until people try to seek compensation, and there’s going to be a shit storm here.”

The relationship between radiation, stigma, and property values is clear, even if it is termed an illegitimate claim by the federal government. The property value program is a technique of government to attempt to contain and control dissent: it targets population, yet is not totalizing. Another resident, residing in the vicinity of the refinery, commented on stigma, heavily criticizing the implementation of the PVP:

Why would the federal government hire an appraiser to ditch the value of peoples real estate in this town ... people in Port Hope are making a great sacrifice solving the problems of the federal government by hosting the low level radioactive waste here for a

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98 Interview #2: Anonymous, Port Hope resident.
99 Interview #8: Anonymous, Port Hope resident. Also see AECL, Real Estate Market Analysis Port Hope Ward 1 2001-2011. This analysis valued Port Hope homes to determine compensation claims under the PVP.
100 See Foucault, The Birth of Biopolitics.
minimal amount of money for a 500 year process, and that we get turned around and treated so badly ...the people of Port Hope are making a greater sacrifice in this project than the other people that live in Canada.

The house has been listed on and off for a year, I haven’t had an offer, and look at the location ...I think that the federal government deliberately went and valued the properties in Port Hope for $30,000 less so when it comes to the PVP they can pay the people $30,000 fucking less... We got fucking ripped off and I’m pissed off about it. And unfortunately what’s happened too is the fact that some people, residents of Port Hope that did work at the Port Hope Area Initiative have drank Kool-Aid, and they’re against the people of Port Hope.... so here is a little guy like me going up against the big guns and there’s no lawyers in town, there’s only one lawyer in town that you can get that’ll help you on this problem and that’s John Morand, that’s it. Nobody else touches it, it’s too complex.101

What is striking about these latter comments is that the speakers are refinery supporters, not associated with local citizens groups who are typically accused of raising ire about the contamination. Another refinery supporter noted intense frustration with trying to get answers from the PHAI.

I just think that the clean up is kind of bizarre. It seems like it’s a make work project and the way the Port Hope Area Initiative operates is, it’s like a toxic, weird culture, everyone’s like freaked out, they’re all like, it’s like the former Soviet Union, they’re all like they’re compartmentalized in boxes and no one knows the full picture but they just have their little picture, and they’re very secretive, I mean they don’t answer questions. They pretend to be transparent, on their Facebook page and you can ‘like’ it and you can be part of it and you can ask some questions, and you get non-answers ... and I’ve asked these questions over and over again.102

Concerns over property values transcend bitter social divides about the refinery. One resident pinpointed property values as potentially bringing together the people of Port Hope:

Even though we couldn’t get people interested in the health effects of what’s going on ... I did think that the property value thing would sort of get people to come together ... but it looks like PHAI and AECL so far has done a pretty good job ...of avoiding that sort of protest or revolt that could happen, it still might happen.103

Another property owner who is outspoken about the radioactive waste recently noted that the PHAI and PVP was a temporary cure, but may only,

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101 Interview #7: Anonymous, Port Hope resident.
102 Interview #8: Anonymous, Port Hope resident.
103 Interview #5: Anonymous, Port Hope resident.
pacify the people of Port Hope for the time being. Once they find out all the little tricks they’re playing on them though, I think there’s going to be some townsfolks with pitchforks and torches looking for somebody’s head to roll … The people of Port Hope didn’t cause the situation, it was the federal government and the federal government should be responsible to manage it properly and they haven’t … they’ve done all kinds of things wrong … when a little old lady from Australia [Helen Caldicott] can come to a town like Port Hope and create the scene that she created, you gotta think to yourself that something’s wrong.

Well I’m concerned about stigma and property values … because I am a property owner in Port Hope … and now people are blaming [Helen Caldicott], it’s because of her that we are suffering stigma, well no, no, stigma in Port Hope predated her, it’s just that that’s the convenient scapegoat, it’s just that Helen Caldicott was certainly a spark but she wasn’t the pile of oily rags you know, somebody else left that pile of oily rags there for the spark to hit and ignite … and I’d say to people if one person from outside of Canada could come here and create that kind of controversy about Port Hope, then there’s got to be a problem and somebody hasn’t managed the Port Hope situation very well and there’s always been a negative perception, since I was a kid about Port Hope called a stigma … the PHAI is looking out for the rights and representing the rights of the government with regards to this low level radioactive material in Port Hope … there’s nobody that’s actually looking out for the rights and concerns of the people of Port Hope.  

These examples highlight that partial concessions only “temporarily alleviate grievances” in order to ensure the relations of production continue. They also reveal how individuals are disciplined into a perpetual economic “game” wherein the role of the state is to ensure that “no one loses everything and can no longer play.” Partial concessions (e.g. property value protection programs) help contain the political and social response based on an individuated fear of economic loss, which in turn, facilitated the refinery’s expansion.

Importantly, however these tactics of containment are not totalizing – residents resist these partial concessions. Some residents also feel a sense of betrayal, mistrust and frustration with the federal government, who in their view, are marginalizing community compensation, a blow after

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104 Interview #5: Anonymous, Port Hope resident. See footnote #83 and my description of the meeting in the Methods section for an account of the visit of Helen Caldicott, a world renowned anti-nuclear activist, to Port Hope.


the town’s decades-long sacrifice living amongst uncontained wastes, and then agreeing to be host to the long-term containment facility. Francoise Zonabend also observes this sense of betrayal in La Hague, France, where residents “feel that they have been had” by hosting the nuclear facility and its wastes.”  

107 Similar to Port Hope, Zonabend argues “the nuclear industry has dramatically altered the political, geographical and sociological landscape.”

John Gaventa asserts that “conflict can be contained through the ‘hidden faces’ of power.”

109 The case of Port Hope demonstrates that property value is a hidden face of power – it raises dissent with one hand, yet firmly squashed it with the other. One resident argues, however, that in actuality, the community held the power, not Eldorado, and not the nuclear state, but the community chose not to exercise it:

If people in Port Hope don’t put pressure on the politicians, and in turn if the local politicians don’t put pressure on the federal government, nothing will happen ... if the local people are up in arms then the local politicians are going to respond positively to the local peoples’ concerns, if there are enough of them, I mean if it becomes a point where there are riots in the streets of Port Hope, local politicians are going to say ‘holy cow, we’re on the wrong side of the argument.’ The local mayor of Port Hope calls a press conference and says ‘I want this radioactive crap out of there and Ms. X who is the federal Minister better get her ass on it,’ you bet things are going to happen because that moves the federal government into an uncomfortable position.

So the local politicians have huge power in terms of the federal state but they don’t exercise it here because the local citizens don’t think it’s a danger, and it’s not as if this couldn’t happen, it would happen overnight if 5,000 Port Hopers went down to the politicians and said ‘we’ve had it with this radioactive stuff, we want it out of here, and we’re going to camp out, we’re calling all the television networks and we’re going to camp out on the front lawn of Port Hope town hall, all 5,000 of us until you make a call to Ottawa.’ The call would go to Ottawa in 2 hours and Ottawa would be here in 5, and there’d be a plan in place in 6, because it would just get out of hand ... but it never happens and so it’s not as if they’re powerless to do it, it’s not as if they’re powerless in Port Hope to get rid of the nuclear industry, they choose not to, so they have the power either way, and it’s interesting that the power has always been exercised to keep it.

108 Zonabend, The Nuclear Peninsula, 70.
110 Interview #12: Anonymous, Port Hope resident.
Other residents agree that the local community could effect change if they chose to, but power is instead exercised to contain dissent. However, the ability to effect change in the nuclear state’s response to civil society was made clear in the differential response of the state to Scarborough and Port Hope. Robert Bullard argues that “decisions to take direct action or to tolerate a stressor often depends on how individuals perceive their ability to do something about or have an impact on the stressful situation.”\textsuperscript{111} In Port Hope, Eldorado’s status as a federal crown corporation, and that they were the town’s largest employer, contributed to a sense of powerlessness: “[Eldorado was owned by the federal government, so what do you do?”\textsuperscript{112} One long term resident observes solutions rest within the community, not the state, seen to have caused Port Hope’s problems in the first place.

\textit{The government is not working on behalf of the people anymore, the government’s working on behalf of the corporations, we’re no longer in what we think we are, we’re in a fascist corporatism ...I don’t know how to break that myself ...I don’t think it’s through a political process, I think it’s more through individuals voicing their opinion and then coming together as a group ...our whole problem is politics, i.e. government, and government bureaucracy and so on and so forth, and the solution has to happen somewhere else outside of politics.}\textsuperscript{113}

These comments point to a perception of powerlessness among the local community, not actual powerlessness, yet highlight that uneven power relations are difficult to overcome. Also implicit in these comments is that the state is seen as separate from, and above, civil society. The political is separate from the social, and this separation is productive to state interests.

Even though the nuclear state is now planning a massive, lengthy, and very expensive clean-up of Port Hope, there is evidence of distrust from both refinery supporters and its detractors in the state’s motive.

\textit{1.28 billion dollars ... that’s an awful high price to bring a few acres of land back to Port Hope so we can use it for development, there’s something bigger going on. They keep

\textsuperscript{112} Interview #9: Anonymous, Port Hope resident.
\textsuperscript{113} Interview #5: Anonymous, Port Hope resident. Jamie Peck and Adam Tickell also note the importance of resistance at what they term the “extra-local” scale. Jamie Peck and Adam Tickell, “Neoliberalizing Space,” \textit{Antipode} 34, no. 3 (2002): 401.
telling us ‘Oh there’s no problem, it’s safe, you know, everything is safe, it’s within limits’ and you have to ask yourself again, the actions don’t seem to combine with the words here, ‘cause if it’s so safe why are we digging it up and moving it in the first place? ‘Well because we want to make this developable land for Port Hope.’ Well, if it’s safe why don’t we just develop it?‘

When the federal government, you know when they’re in austerity times are saying ‘hey, we’re going to spend 1.5 billion to clean up a problem where Health Canada says there’s no problem, ‘it does unfortunately [add to stigma], and most people are smart enough to know ‘why are they spending one and a half billion if there’s not a problem?’ and so that leads to more stigma and people don’t come here, so that’s a problem too.

Other residents also question the motives for the PHAI remediation:

Governments in a time of fiscal restraint don’t generally spend a billion dollars on a low glamour project, this is very low glamour ...nuclear tends to be ...it’s not just generally a very happy topic, and politicians in my experience like happy topics, they like to do good works ...and I think for the most part they’re pretty good people...but they tend to like to get re-elected, they do tend to like projects where they’re perceived as good people doing good things and they tend not to like to get into the messy ones ...nuclear is generally a messy one, so it’s far better to build a new hospital if you’re a politician than it is to come and sort out whether that nuclear soil is going to do health damage to 5 year old children, that’s kind of a no win situation because the question has to fall ‘what the hell was it doing [there] in the first place, who is responsible for this?’ and if you’re a federal politician, the answer is ‘you are’ so governments do not spend a billion dollars on something that’s just going to land in a mess, so my view would be that the federal government believes there’s a health issue or they wouldn’t spend that much money, so there can’t be any argument about whether there’s a health issue or not, there is a health issue.

Whether or not there is a health issue is believed by other residents, even those who support the refinery, to be beside the point anyway, because:

This [the uranium refinery] is a lynchpin for the industry in many ways. As far as they’re concerned there’s nothing to worry about ... that there’s no health hazard in this stuff. It’s nothing but perception and to remove that perception we’re going to spend 1.28 billion dollars in this one little town to clean it up, and then Port Hope’s going to have a pristine, recognized as a pristine community, whose kidding who? ... Our stigma is going to be worse than ever after 10 years.

Question: ‘Do you think they can ever get rid of that stigma?’

No, no I don’t. No, of course not, not when it’s [radioactive waste] everywhere you look in town ... But their stand is that it’s only perception, and therefore what does it matter;

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114 Interview #5: Anonymous, Port Hope resident.
115 Interview #8: Anonymous, Port Hope resident.
116 Interview #12, Anonymous, Port Hope resident.
as long as we get people to believe that Port Hope is clean, that’s all we need, it’s all a matter, in their minds of not contamination, of not health hazard, it’s a perception of health hazard that they want to remove, and they’re willing to spend 1.28 billion dollars doing it.¹¹⁷

**Black Wednesday Revisited**

*I was just reminded of the councilor who said to me if you don’t like it around here, why don’t you leave? And I said ‘oh, so you’re a councilor and that’s your idea of good citizenship? When your place on the earth that is yours and has been all your life ... is in real trouble, run away, that’s good citizenship, is it?’* ¹¹⁸

*Oh boy, I love saying that to that woman.* ¹¹⁸

I have demonstrated in this chapter that property values were a significant reason for the overwhelming silence among Port Hope residents that their homes were contaminated with radioactive waste. Not many people wanted to be blamed, as were the Lawson’s, for causing another ‘Black Wednesday.’ Non-disclosure and silence in its various forms, was then (and continues to be) acts of containment, intended to safeguard property values and contain public outcry, rather than public safety, per se. Stifling a potential uprising over property values due to radiation stigma helped contain public dissent over the contamination of their homes, and, in turn, helped ease public pressure on the nuclear state. As I have also shown, individualized fiscal incentives become group incentives, and social pressure to protect property values can become a powerful form of extra-economic coercion. Indeed, radiation and its stigma were affecting more than property values, they were destroying relations among the social fabric of the local community as dissenters were socially ostracized.

David Harvey argues, however, that people are not intrinsically dominated by rational economic calculation; rather, capitalism, and its institutions such as private property “forces such rationality upon us.”¹¹⁹ The institution of private property lent a rationality to the response of the community and the state to the contamination of their homes, and of the town. Seen as private property to be eventually converted as exchange value on an open market, the fundamental tenet

¹¹⁷ Interview #3: Anonymous, Port Hope resident.
¹¹⁸ Interview: Tom Lawson, Port Hope resident.
of property values – homes as exchange value, rather than use value - were important to protect. Perhaps if these contaminated homes were not within a private property system, if homes were not alienable property, then the response may have emphasized social factors other than economic concerns.

The continued dominance of Canada as a nuclear state depended on the planned refinery expansion, and the legitimacy of the Eldorado refinery to operate in the heart of this small community depended on its continued loyalty. With the contamination of the home, this loyalty manifested as stifling their alarm at the contamination of their homes, to continue to trust the same crown corporation they just learned was the culprit, and to imbue further confidence in the power and authority that ‘crown corporation’ implied. The disciplinary mechanism of private property, a tendency towards “self-restraint,” was “powerfully operative” in Port Hope. As the nuclear state once again arms itself to survey and demarcate Port Hope, again, the nuclear state will count on the community to follow an individualized economic interest, to adhere to a hidden tenet of liberalism and an effect of uneven power relations: that “people who are acting in their own self-interest will do as they ought.” The disciplinary mechanism of property values imposed quiescence, noted by Gaventa to be a marker of a sense of powerlessness. I argue this disciplinary mechanism, emanating from a triad of radiation – stigma – and property values - was a form of extra-economic blackmail to secure acquiescence.

Conclusion

Certainly some Port Hope residents experienced a measure of shock, disillusionment, and even betrayal, over the radioactive contamination of the everyday spaces and objects of their homes. However, the triad of radiation – stigma – and property values kept a lid on the response of the social body. Keeping radiological results secret was also a means of containment articulated through fear of property values. Controlling fear and anxiety over property values was in the best

122 Gaventa, Power and Powerlessness.
interests of the refinery and the nuclear state. Shielding one’s own property results from the stigma of radiation helped contain the response of the social body. For residents, property values and associated stigma became reasons to remain quiet. Yet in so doing, citizens helped to contain the secrets of the nuclear state.

In Port Hope, the triad of radioactivity – stigma – and property values – culminated to give property owners financial incentive to quell fear and outrage to the radioactive contamination of their homes. Fear of losing their property values also made community members participate in means of social exclusion, to stifle not only themselves, but fellow community members, and to blame each other rather than the Eldorado crown corporation. As I demonstrate in this chapter, both were mechanisms by which the public response to the contamination of the home was contained. As I also show in the next chapter, *On The Beach*, economic coercion is not limited to private property, it also rippled through public space in Port Hope through processes of enclosure that also resulted in the dispossession of the local community.
Chapter 5
On The Beach

Eldorado had expansionary tendencies. Having recently acquired and demolished all the residential housing in the John Street neighbourhood immediately west of the refinery, the Eldorado crown corporation appropriated publicly owned lands, including an historic beachfront park, known locally as the West Beach park. Since the 1930s, Eldorado had incrementally increased its control of the waterfront, but intensified its spatial growth in the 1970s as part of refinery expansion plans. Eldorado subsumed the West Beach park through a controversial negotiation. The crown corporation justified the deal as critical for refinery expansion, which, in turn, was positioned as necessary for the survival of the refinery, and thus the town itself. Scrutiny of the process indicates that other motives were at play. Expansion into the public park facilitated the establishment of a securitized perimeter that enclosed the uranium refinery and delimited public access.

The West Beach area had figured prominently in Port Hope as an open space for community gathering. In 1929, the local newspaper described the park as:

- a real pleasure resort for the people of Port Hope … an excellent beach for bathing, and the building, formerly used as a dance pavilion, will be devoted to the use of the public … tables and hot water will be provided and an up-to-date canteen will be opened. The local beach is a very popular spot, especially in mid-summer and it is believed that a great many will take advantage of the facilities this year.¹

By the 1970s, the West Beach park housed a ball diamond with lights and bleachers, a pavilion, beach house, park area, and public swimming beach. As the refinery “obliterated the John Street neighbourhood by “picking off houses one at a time,”” the West Beach park became hemmed in to the east and north by Eldorado property.² The public park therefore increasingly developed a

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¹ The title On the Beach is a nod to the 1959 post-apocalyptic nuclear film of the same name.  
² The Evening Guide (May 18, 1929).

² http://www.porthopehistory.com/johnstreet/johnstreethouses.htm [Last accessed August 28, 2013]. Photographs of this former neighbourhood, including the houses and names of the families that lived there, can be seen at this Port Hope history website, which describes the refinery as “an atmosphere of eminent domain.”

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proximal relationship to the refinery, yet continued to be used as public space until its acquisition and destruction by Eldorado in the early 1980s. The loss of the West Beach park generated a local debate that hinged on a tension between economic interests and other social values.

In this chapter, I detail how Eldorado purchased an historic commons that was considered by many to be an important part of the town’s social fabric and converted it into an industrial site for the nuclear state. Dissecting these events reveals the underlying motives and stakes behind this land deal, one that transformed a community commons into an industrial space for the nuclear state and a zone of exclusion. I demonstrate how, as a form of accumulation by dispossession, enclosures were used to enact more enclosures, which in turn, could lead to more enclosures. This property dealing was a dispossession of civil society that was enacted through extra-economic means of containment. What I also make clear in this analysis of enclosure is how Eldorado, as an arm of the nuclear state, was separate from the local community and how this separation was a position of power. Uneven power relations and the community’s economic dependence on Eldorado were used to achieve outcomes in favour of the refinery.

David Harvey argues that “the case of changing territorialization clearly shows that there is nothing ‘natural’ about political boundaries even if natural features have often played some kind of role in their definition. Territorialization is, in the end, an outcome of political struggles and decisions made in a context of technological and political-economic conditions.” In my analysis of the enclosure of the West Beach park, I demonstrate how shifting territorial boundaries that are the outcomes of political-economic struggle also play out on a micro scale. This does not mean, however, that the implications are minor. Territory functions to exclude or include, as boundaries and “spatial partition[s] that allow them [people] to be contained within.” The acquisition of the West Beach park was a process of enclosure to expand the material and symbolic influence of the nuclear state and further consolidate its power. Stuart Elden is explicit in the material and symbolic significance of territory and space in enclosing and containing –

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3 David Harvey, *Spaces of Hope* (Berkeley: University of California Press), 75.
controlling, disciplining, and securing both territory and populations: “discipline requires enclosure” and specific forms of spatialities that function to regulate, circulate, isolate, and bring together. In short, territory functions as a “social-spatial ordering,” as political space. Territory also functions to exclude. The West Beach sale was a process of enclosure – an ordering of social and political space. As I also demonstrate through this analysis, enclosure disrupts not just territory, but social relations, and re-configures them in the image of the dominant.

Eldorado’s Plans for Beautification

In December 1978, in the midst of investigation over radioactive waste in Port Hope, Eldorado contracted the firm Hough, Stansbury and Associates Limited (Hough et al), a landscape architectural firm to develop plans for “improving the appearance” of the refinery and assess “future use of refinery lands.” The plans were to be discussed with the Town of Port Hope which was undertaking long-term waterfront planning, but Eldorado did not want public consultation. The planning process and report, the Refinery Beautification Study, shed further insight into Eldorado’s objective to improve public perception of the refinery following adverse publicity over wastes. Hough et al observed the refinery’s visual appearance as

foreground views of storage materials, fences, semi-derelict buildings of the Crane property, and a general unkept appearance… Most of the buildings are old, some dating back to the 1940s, and vary considerably in style and materials. The general impression of the complex, architecturally, is one of dowdiness. It lacks the great drama of oil refinery ‘plumbing’ engineering that makes its own aesthetic; and it does not have a coordinated architectural style.

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8 D. G. Cox to A. F. Roake, “Inter-office memo: Landscaping,” ENL, December 14, 1978, F4521-37, B443420, ENL General Correspondence #4, AO. Roake was the Superintendent, Waste Management and Environmental Control for Eldorado.
9 Hough et al, Refinery Beautification Study, 3. The Crane property is a strip of land on the waterfront, adjacent to the east side of Eldorado and the town boat harbour.
The uranium refinery was drab and ordinary, a dowdy, yet unspectacular place. The firm recommended landscaping to improve their image, not just to the local community, but to passersby on the railway.\footnote{Hough et al, \textit{Refinery Beautification Study}, 4.}

These plans also reveal Eldorado’s ambitions for control of the area surrounding the refinery, including the West Beach park, described in the study as “a lightly used facility.”\footnote{Hough et al, \textit{Refinery Beautification Study}, 2.} Port Hope officials appeared amenable to accommodating Eldorado’s interest in encroaching further west. While the town considered altering public access and moving park infrastructure, they clearly wanted an improved public beach park, not its destruction. At the time, the town wanted “to maintain the integrity of the beach area” although “the beach house could be relocated” along with access routes.”\footnote{Hough et al, \textit{Refinery Beautification Study}, 35.} Closed discussions then took place to significantly alter public traffic routes and access points to the refinery and the beach, including closing John Street (the beach access road) and Smith Street, designating Choate Street as the new refinery access, and centralizing all parking. These alterations would establish a perimeter around the refinery. Indeed, the crown corporation explicitly contemplated delimiting public access: “new controls for the refinery may include an exclusion area around the refinery.”\footnote{Hough et al, “Minutes of Meeting,” December 12, 1978: 3, F4521-37, B443420, File Eldorado Report – Originals #438, AO.} A zone of exclusion would effectively contain the refinery from within and delimit public access from without.

Increasing refinery security was on Eldorado’s agenda. In the spring of 1978, they also expanded security through a request to the AECB that the refinery be designated a Protected Place pursuant to the Atomic Energy Control Regulations. Citing the need for a “more effective security posture,” the AECB immediately granted the request on the grounds “that designation should proceed immediately on the basis that a very large quantity of special fissionable material is stored and processed in the Eldorado Nuclear Limited, Port Hope Refinery … the [refinery] contains a potentially high degree of hazardous material which requires a maximum amount of
The Protected Place designation put in place legal controls to restrict access to refinery property to authorized employees and persons.\textsuperscript{15}

Shortly thereafter, Eldorado furthered plans to enclose the refinery. On December 12, 1978 they held a meeting with Hough et al., noting the town was “extremely anxious” to regain lands to the east of the refinery (the Crane property) that were leased to Eldorado. The refinery stored radioactive waste on this prime waterfront site. In reply, the crown corporation asserted its authority:

the Crane property is and will be in constant active use for at least ten years for storage purposes, and at present is used for stockpiling of contaminated fill until it is exported to Chalk River.\textsuperscript{16}

Two days later, Hough et al held a meeting with town consultants Barton Meyers to discuss Eldorado’s ‘beautification’ plans. The consultants planned “to propose to the town and to Eldorado that the refinery trade the Crane property for the town park area [the West Beach park], and then Eldorado to pay for a replacement beach … the town could be convinced to have a new orientation of the park’s use.”\textsuperscript{17} Losing the West Beach park was rationalized on the grounds that the park was infrequently used, a reason attributed to Eldorado: “the park itself does not get a lot of use according to Eldorado. Few people use the boulder and sand beach, preferring to use the


\textsuperscript{15} AECB, “Protected Place Order No. 3,” RG 60-2, AECB Fonds, 1993-94/093, BMM, June 1983-1990, LAC.

\textsuperscript{16} Hough, et al, Minutes of Meeting, December 12, 1978, 1, 3. The minutes note that the Crane property is under lease to Eldorado until 2025. At the time of writing, the uranium refinery under Cameco leases the Crane property and the site still contains mounds of radioactive waste under tarps, placed there during the partial remediation of Port Hope’s radioactive waste, as well as the Crane buildings contaminated from the storage of radioactive waste. The Crane property is a popular fishing spot as the Ganaraska River flows into Lake Ontario along its east edge.

\textsuperscript{17} Hough, et al, Minutes of Meeting, December 14, 1978, 1, F4521-37, B443420, File ENL General correspondence #4, AO. Barton Meyers position the Town as wanting the Crane property for an enlarged marina and expanded tourism. The issue is still a subject of contestation.
Cobourg beach.”

These meetings indicate that in December of 1978, discussions took place on a land swap that would relinquish the West Beach park to the crown corporation.

By February of 1979, Eldorado was in negotiations to close John Street and reorganize public access to the beach park. Yet it is clear that, in exchange, the town wanted increased public access to an improved beach further west. Eldorado summarized one meeting as follows:

There was no expressed opposition to closing the streets, however, in return for approving this the town would like Eldorado to expand their proposal to include improvement of the beach area to the west of the waterworks …Extend Marsh Street to the west and onto the beach providing vehicular and pedestrian traffic routes terminating in a park.

Move the beach house to the west and give Eldorado the existing beach house parking lot … close John Street south of Marsh Street.

 Provision of break wall along beach front with landscaping between beach house and break wall.

Eldorado also stated: “discussion revolved around providing access other than John Street to the beach thus encouraging more use of the area by the public which has in the past been intimidated by the proximity of the Refinery to the public beach.”

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18 Hough, et al., Minutes of Meeting, December 12, 1978, 2. Cobourg is a town on the shore of Lake Ontario, approximately 11 kilometres to the east of Port Hope.
19 At the time, Eldorado did not yet explicitly state they planned a property take-over of the public park. In an internal memo, Donald Cox, Manager of Environmental and Health Protection for Eldorado, wrote, “the consultant should also consider off-property landscaping where this would result in an improvement to the general public’s view of the refinery. One area considered for this type of approach was the beach area opposite the metal plant.” These comments infer a need for improvement of this area, albeit to benefit the refinery’s appearance. D. G. Cox to A. F. Roake, “Inter-office memo: Landscaping.”
20 J. B. Corden to W. E. Tranmer, “Inter-office memo: Meeting with Plans and Development Committee,” ENL, 27 February 27, 1979, 1-2, F4521-37, B443420, File Minutes of Meetings #438, AO; In this file, also see N. Bogart to A. Roake, “Telephone conversation: Eldorado,” February 27, 1979. The meeting was attended by the Port Hope Plans and Development Committee, the Port Hope Waterworks Commission, and Town of Port Hope.
21 J. B. Corden to W. E. Tranmer, “Inter-office memo,” 1-2. “Both Don and Claude [Eldorado employees] questioned the validity of this reasoning.” While it is possible that Eldorado employees questioned the need to improve public access, the context indicates that this was not the case, rather, the last statement appears to infer that Eldorado objected to the suggestion that the refinery “intimidated” the public from using the beach.
crown corporation’s message that enclosing the refinery would benefit the community. In June 1979, negotiations were ongoing:

Efforts are all concentrated and related to negotiation with the town before they agree to close John Street. The town wants a lot done to improve the other roads. They don’t think that the negotiation will be finished until the end of the year, so that the parking lots etc. won’t be done until next year.\(^\text{22}\)

Five weeks later, it appears that Eldorado had made a deal on the closing of John Street: “worked out with the Town Council – still not official. Construction scheduled next spring for road closing.”\(^\text{23}\) A formal agreement to close John Street was finalized in December 1979.

Word of these closed-door negotiations soon reached the Editor of the local newspaper, who speculated on the need for secret meetings over John Street:

Frankly we think something else is brewing … What concerns us is whether Eldorado has secret designs on taking over the town beach baseball diamond area, the beach pavilion parking lot and beach area in the future in exchange for the Crane harbor jetty area. That would be a bad deal for the town, if it is true. But we have no way of knowing this at this point … What bothers us about the closing of John Street, is that it seems the entire west shoreline of Port Hope is gradually being subtly cut off from public access. It is the only decent section of public beach area that the town possesses.\(^\text{24}\)

In response, Eldorado flatly denied any plans for the West Beach park: “Again, this is simply not true! There are no plans to “take over” any part of that area … The beach parking area is park land and not in our authority. It is open to all members of the public.”\(^\text{25}\)

\(^{22}\) N. Bogart to D. Cox, “Telephone conversation: Eldorado,” June 20, 1979, F4521-37, B443420, File ENL Telephone Conversation #438, AO.

\(^{23}\) N. Bogart to D. Cox, “Telephone conversation: Eldorado,” July 30, 1979, F4521-37, B443420, File ENL Telephone Conversation #438, AO.


Clearly, someone had informed the Editor about the closed-door negotiations, the town’s proposal to regain the Crane jetty by trading the West Beach park, and moving the beach facilities further west. Secret, closed door negotiations cannot be entirely contained, yet institutional practices of secrecy are forms of control to elicit particular outcomes. In the end, this Editor was only half correct in forecasting the loss of the West Beach public park to Eldorado. His speculations did not go far enough. By November 1980, the town had sold the West Beach public park to Eldorado, which still retained the Crane jetty. Eldorado then had effective control of lands to the east, north and west of the refinery. To the south was Lake Ontario.

The West Beach “Agreement”

On November 3, 1980, the Corporation of the Town of Port Hope signed an Agreement with Eldorado Nuclear Limited for the conveyance of ‘certain lands’ to the crown corporation, the 3.3 acre rectangular parcel to the southwest of the corner of John Street and Marsh Street, known locally as the West Beach park, yet named the “Ball Diamond Lands” in the Agreement. A small portion, termed “demised lands” was leased to Eldorado until 2056 for an annual payment of $1.00, subject to return if needed for the expansion of the Port Hope water treatment facility that was adjacent to the refinery. The rest of the park was conveyed to the crown corporation as a parcel of alienable property to be owned in fee simple title in exchange for $52,000. Eldorado also made a $331,000 cash grant to the Reserve Fund of the Municipality for recreational facilities to be built elsewhere, and a $10,000 sum could be requested towards a new land purchase. Save a strip along the water, the crown corporation had purchased the West Beach park including the baseball diamond with lights and bleachers, open park area, parking lot, and beach house. They demolished these facilities in August 1981.

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The Agreement replaced the earlier (December 1979) agreement on the closing of John Street, because of a “change of circumstances.” While unspecified, the context and timing coincide with a federal decision in February 1980 on the new UF6 plant. Indeed, the conveyance was conditional on Eldorado receiving AECB site approval, presumably for the UF6 plant. Basically, the Agreement turned the West Beach park into a parking lot:

The Ball Diamond Lands shall be zoned … to permit Eldorado to use such lands as a parking lot for … its employees. In the event that the existing zoning does not permit such use …

… The Municipality shall pass … such by laws and do all such things as may be necessary to permit the Municipality to sell to Eldorado the Ball Diamond Sale Lands, the said lands being no longer required by the Municipality for its own purposes save as provided herein.

… The Municipality presently has a ball diamond and a beach house on the Ball Diamond Lands which it proposes to relocate.

The conveyance constituted “good and clear title and vacant possession,” meaning fee simple title to property deemed by both parties to be vacant or otherwise unoccupied. While town officials wanted a condition that Eldorado return the land (for $1) if they should cease operations, there was no such condition. Rather, the crown corporation complained about paying “5th Avenue prices” for the West Beach park.

27 Corporation of the Town of Port Hope and Eldorado Nuclear Limited (hereafter PH and ENL), Agreement, November 3, 1980. This Agreement and bylaws were obtained from the Municipality of Port Hope pursuant to a Freedom of Information request at a cost of $114.00. I was denied access to Department of Fisheries and Oceans records “DFO Agreement” and the “Environment Canada Agreement” of which I have no further knowledge. The PH and ENL November 3, 1980 Agreement was modified on May 11, 1981 to add Eldorado reimbursing the town for OMB hearing costs. see James Cutting, “New Town-Eldorado Agreement Provides … Six Acre Park – East End of Town … If Refinery Expansion Approved by OMB, AECB,” Port Hope Evening Guide, May n.d., 1981; Port Hope Evening Guide, “Town Plans Eight-Acre Park, Eldorado Not Named,” May 27, 1981.
28 A federal decision stopped construction of the new refinery in Hope Township, seven miles west of Port Hope. Subsequently, Eldorado split into two facilities, moving U03 production to Blind River and the new UF6 plant in Port Hope. See Sanger, Blind Faith.
29 PH and ENL, Agreement, 5, 8, 14.
30 PH and ENL, Agreement, 16.
31 Port Hope Evening Guide, “Refinery Supporters, Critics Speak,” November 14, 1980. The Editor of the newspaper, Jim Cutting, also questioned the need for Eldorado purchasing the West
Re-territorializing the West Beach park into federal refinery lands required an amendment to the Official Plan for Port Hope as the area was zoned Public Open Space, “lands which are to be retained for use by the public for open air or other recreational purposes.” The town moved quickly to make the necessary amendments. Council also passed an amended Restricted Area By-law, as industrial uses were not allowed in public space. The new by-law changed the zoning of the West Beach park from “Open Space (OS) to the Restricted Industrial Exception No. 4 (M1-4) Zone.” New uses included:

… a parking lot, exclusive of buildings, for off-street parking spaces … for the industrial operation located to the immediate north and east of the M1-4 Zone …

… a parking lot, exclusive of building, for public parking in the off-hours of the refining operation; and

… public uses.”

While not named, “certain lands” constituted the entire West Beach public park, and the “industrial operation” to the northeast was the uranium refinery. “Public uses” and “off-hours” were left undefined.

On the face of it, it appears that Port Hope sold the West Beach park so Eldorado could have a new parking lot. Dispossession of civil society in Port Hope had taken yet another form.

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33 Corporation of the Town of Port Hope, *By-law No. 15/81*, February 9, 1981; Also see “Minutes of the Third Regular Meeting of the Municipal Council of the Corporation of the Town of Port Hope,” January 5, 1981, Resolution No. 25/81: “Be it resolved that this Council approves in principal, Official Plan Amendment No. 9, adopted by the Port Hope Planning Board at their meeting held on December 22, 1980,” 10. Recommended by the Port Hope Planning Board on December 22, 1980, town council passed the amendment in principle in early January 1981, followed by council passing a by-law approving Amendment No. 9 to the Official Plan on February 9, 1981.
34 Corporation of the Town of Port Hope, *Restricted Area By-law No. 16/81*, February, 9, 1981. Industrial use at the West Beach was previously disallowed by Restricted Area By-law no. 2857/73.
Eldorado claimed to need these particular lands, even though the refinery already had numerous parking lots and plans to consolidate parking into an expanded lot on Marsh Street, north of the West Beach. Ostensibly the town sold these historic commons to accommodate Eldorado’s change in plans on the UF6 location and ensure the new refinery remained in the Port Hope area. At the time of the December 1979 agreement on John Street, the new refinery was slated for seven miles west, in Hope Township. But in June 1980, Eldorado announced plans to relocate the UF6 expansion in Port Hope, on lots west of John Street, north of the West Beach park. This same area was previously identified for centralized parking in the Hough et al planning study. Now the new UF6 plant was taking this parcel. While not explicit, the Agreement designates this block as the building site for the new UF6 plant. The caveat of AECB site approval, noted earlier, also infers site approval for the new UF6 plant. In this detailed description, I have told what happened to the West Beach public park – the town sold it to Eldorado for a parking lot, a banal, everyday use of space. Below, I provide a detailed analysis of how this land deal was executed. The following analysis reveals other motives behind this land transaction and further highlights how uneven power relations influenced the response of the Port Hope community to Eldorado in the aftermath of the discovery of radioactive waste.

The West Beach: From Public Space to State Space

An analysis of public commentary on the sale of the West Beach park to Eldorado provides insight into the meaning of this public space for the residents. Public reaction to its sale show that the park held special value as a community commons. Selling the West Beach park to the crown corporation was met with expressions of loss of public space, concern over decreased public access, and dismay over the incremental encroachment of the refinery into the local community. Some community members questioned town officials prioritizing the interests of the

37 PH and ENL, Agreement, 17, 6. Article III of the Agreement set out that a future agreement would deal with access, egress, repaving, curbing, loading facilities, disposal of storm, surface and waste water, flood lighting, landscape screening, garbage storage facilities, “appraisal of Eldorado’s plans with respect to the location of the building or buildings to be erected on the Future Development Lands,” and applicable laws. These subject matters indicate that the Future Development Lands were intended for a new industrial building site.
crown corporation over those of the community, raising suspicion of the closed-door negotiations. However, the sale of the public park to Eldorado was met with little resistance from community members. Supporters of the deal discounted the parks value as a recreational area, framing the loss as a willing and necessary sacrifice for the economic viability of the refinery, and thus the community.

As indicated, news of the pending deal leaked to the local newspaper in June 1980. By July, five months before the Agreement was reached, rumours again circulated about the possible loss of the West Beach park to the uranium refinery. An editorial ran in the local newspaper, raising the alarm that “there’s something brewing at the Port Hope beachfront” and “takeover” plans were being negotiated “in camera.”38 The editorial made a clear and blunt link between the beach park and Eldorado’s plans for a new UF6 facility, lambasting town officials for considering sacrificing the public beach. Clearly, the local Editor thought that the UF6 refinery was being used as leverage against the beach park. Calling into question “the cost of carte blanche treatment the town is giving the Crown corporation” the Editor stressed that the town must prioritize community interests over those of Eldorado:

… Why take Port Hope’s beachfront, where there has been no environmental assessment review, where the waterfront resource and public access will be sacrificed?

Port Hope citizens own the Port Hope beachfront. The legal land title is held in trust by the Port Hope Waterworks Commission.

Some townspeople argue that the beachfront isn’t used properly now, so why bother trying to preserve it. Based on the experience of innumerable other municipalities who gave up public waterfront to industry and private development, that move is later regretted … Let’s not be shortsighted. Is it really to Port Hope’s benefit to have a large chemical industry assume the largest portion of its public beachfront? Who wants to swim and picnic beside a refinery?

And it’s even more ludicrous when there’s a site already prepared seven miles to the west of us.

In closing, the editorial demanded that negotiations be unveiled and public consultation take place. Explicit in this editorial, a clear message to the community, is an assertion that local citizens have a right to public lands. Public lands are held “in trust” and not intended to be

alienated to corporate interests. Also explicit is the acknowledgement of sacrifice, that the town sacrifices community interests to the state-owned uranium refinery.

The following month, Eldorado circulated *A Report to the Citizens of Port Hope and Area* in the local newspaper, in which they informed the community that the new UF6 plant would be built in town. Admitting the new facility would not significantly change employment but would increase taxes paid to the town, Eldorado asserted the “following would be necessary:”

To lease from the Town the beach park, including the ball diamond, for use by ENL as an employee parking lot for a period of 76 years (year 2056). Public use of the existing beach area will not be affected in any way … a new park site some 2,000 feet west of the existing park … to rebuild the ball diamond at a site to be chosen and provided by the Town.\(^{39}\)

Adjacent streets were also to be closed “around the perimeter of ENL property” and a new access route made to the waterfront further west. Here, Eldorado articulated the upcoming transaction as a bare statement of fact and necessity to which there were no alternatives.

Editorials in the Port Hope Evening Guide continued. One local Editor weighed in on Eldorado’s track record of contaminating the community with radioactive waste:

Regardless of what arguments corporate and municipal citizens may raise about the pros and cons of a large chemical industry being located on the Lake Ontario waterfront, and town waterfront at that, we have a special situation with Eldorado Nuclear Limited. It is an industry with a very specific product, and very specific industrial waste problem. Unfortunately for Port Hope, because the refinery has been, and continues to be here, the waste seems to remain, and even accumulate here.\(^{40}\)

Should the new UF6 refinery locate near the town’s waterfront, the Editor echoed the requests of other local citizens in demanding an environmental assessment, noting

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\(^{39}\) *Port Hope Evening Guide*, “A Report to the Citizens of Port Hope and Area from Eldorado Nuclear Limited,” July 18, 1980; Also see *Port Hope Evening Guide*, “Eldorado Plans Public Tonight,” July 14, 1980 which indicates that Eldorado was presenting expansion plans at the council meeting that same evening.

the townspeople deserve that much, given all they have had to endure in the wake of cleanups, emission problems, and harbour dumpings … In all honesty, do ENL officials really believe their track record is one that gives the ‘Average Joe’ a whole lot of confidence in any future projects they may propose? … All the conflicts of ideology in the world will not erase the facts as they exist in Port Hope history. This town is entitled to an environmental assessment hearing before any new uranium refinery chooses to set up shop on our beachfront.\footnote{Port Hope Evening Guide, “Editorial: There Must Be An Assessment Hearing,” September 25, 1980. As a crown corporation, Eldorado could not be compelled to submit to an environmental assessment as these regulatory processes were voluntary for crown corporations. Instead, Eldorado chose the shorter, less stringent approval process to locate the new UF6 plant in Port Hope.}

Local residents also expressed concern over an apparent incompatibility of the uranium refinery with long-term goals for increasing tourism. Selling the beachfront park to Eldorado could destroy any chance of developing our waterfront to a viable tourist attraction at some future date … I am definitely pro-Eldorado and I realize the need for an increased industrial tax base. But I am also wondering if the price isn’t too damn high over the long haul. A change in federal government in the future could well see Eldorado sold to private interests. What price [is] our waterfront then?\footnote{Port Hope Evening Guide, “Suggest Leasing Property,” November 6, 1980. Eldorado was privatized shortly thereafter, and the private corporation Cameco now owns the former West Beach public park.}

On October 2, 1980, one month before the Agreement was finalized, another Editorial ran in the local newspaper, recommending that a Referendum be held on this major issue of “vital concern to citizens.” The urgency was made clear: town council was facing a mandatory municipal election in November, and public opinion should weigh heavily in their last decisions. The following Referendum question was proposed:


The editorial cast doubt on the motives behind negotiations, indicating the incremental encroachment of the refinery already had a detrimental impact:

One has to seriously question Eldorado’s need for the beach, the beach pavilion site as well as the beach park when the company already has two large empty streetblocks west...
of the current company operations on which to expand both it parking and new uranium hexafluoride plant operations …

Eldorado in the past two or three years has already created additional parking spaces along the beach area just west of the old zirconium plant along the beach front and its employees already use the town beach pavilion park most of the year anyway for parking, to the detriment of other citizens and tourists using this park in the summer.

Town council, perhaps aided and abetted by Eldorado management wishes, has had no parking signs placed along the south end of John Street adjacent to the refinery plant and the beach park baseball diamond, discouraging baseball spectators and players from parking along this area to watch a baseball game.

One begins to get the impression there has been a deliberate attempt or ploy to discourage the use of the beach park area as a way of making a stronger argument for council to say that town citizens don’t use the beach anyway. How can town citizens use the beach park if it is filled up every day with cars of Eldorado employees? …

At stake in this last vital question is the matter of one crown corporation’s entitlement to half the lakefront of the entire town of Port Hope.

If town council sells out this beachfront to Eldorado, it has sold out the birthright of its present and future generations to public access to Lake Ontario.

We should tell Eldorado now that we welcome the new uranium hexafluoride plant expansion on the company’s own land west of the existing refinery or in Hope township, but not at the sacrifice of our best beachfront parkland, which is a potential future tourist attraction which could benefit both the crown corporation and the town if it was developed properly.44

But by the time of the call for a Referendum, a deal in principle had already been reached between the outgoing town council and the crown corporation.45 Public consultation did not occur until after the November 1980 Agreement to convey the beach park had been reached between the crown corporation and town officials. A priori decisions reveal that administrative processes are not neutral, however they may be made to appear.46 Controlling the agenda and appearing to undertake public consultation on decisions already made are means of containment to secure predetermined outcomes.


46 See Gaventa, Power and Powerlessness, 232.
In fact, while the Agreement was still subject to municipal processes, the two public information sessions, purportedly to solicit community feedback on the purchase of the West Beach park and street closures, were held almost two weeks after the Agreement was signed between Eldorado and the Town.\(^47\) A week before public consultations began, Mayor Wyatt told local press that “it is really final … just unsigned.”\(^48\) Indeed, the deal was already done, and the real agenda for the public meetings was not the beach park at all, but rather Eldorado’s UF6 application to the AECB, who took these two meetings as proof that the crown corporation “had satisfied the public information requirements for this [UF6 expansion] site.”\(^49\) The consultation meetings also appear superfluous when the entire process is placed alongside Eldorado’s prior *beautification* plans to delimit public access, and the town’s subsequent offer to move the beach park. As shown earlier, these plans began as early as 1978, well before the decision to relocate the UF6 plant to Port Hope even arose.

Certainly Eldorado considered their purchase of the West Beach park assured, regardless of public meetings, for they submitted their UF6 expansion application to the AECB one day after the first of two public information sessions.\(^50\) Town council also appears to have been confident that the AECB would approve the application, as they agreed to make the Official Plan and by-law amendments while it was still under preliminary review.\(^51\) In fact, all parties had agreed to

\(^{47}\) Cam Christie, “Jobs Assured … but Takes Beach Park: Eldorado Unveils Plan For New UF6 Refinery,” *Port Hope Evening Guide*, November 14, 1980. The meetings were held November 13 and December 9, 1980 in Port Hope to “direct questions of clarification” to the AECB and Eldorado on the new UF6 facility. The two meetings were held instead of 3 weeks of public hearings that would have been part of an environmental assessment, if one was conducted on the UF6 expansion in Port Hope. Also see *Port Hope Evening Guide*, “On Expansion Plans: Eldorado Will Hold Public Meetings,” September 22, 1980; *Port Hope Evening Guide*, “Eldorado Info Meeting Tonight,” November 13, 1980. The latter article notes that Port Hope town council was scheduled to “give third and final reading to bylaw agreeing to sell park at Monday’s last meeting of the incumbent council.” For details on the cash payouts, see *Port Hope Evening Guide*, “$432,000 Cash For Waterfront Lands,” November 4, 1980.


\(^{50}\) *Sault Star*, “Eldorado Has Expansion Plan in Port Hope,” November 14, 1980.

get their respective approvals by March 31, 1981. Some community members observed this self-imposed deadline as a strategic move by outgoing council to rush the deal before a new council could reconsider the issue. Local media also perceived economic factors as likely outweighing other considerations in the end. This tension was characteristic of the power relations in Port Hope.

Following the public information sessions, the *Port Hope Evening Guide* published an article on the pros and cons of selling the park. Among the benefits were retention of existing employment and provision for a new multi-purpose recreation area elsewhere in town. However, the loss of the park and decreased access to the beachfront figured prominently among the cons. Some cited a lack of commitment for a new beach park further west, while others expressed dismay at the plans: “there wouldn’t be a gateway leading to the beach and the area would be surrounded by chain link fence, giving it a bit of a concentration camp atmosphere, although we are assured it will be camouflaged from view by tree cover.”

As part of municipal processes, the Port Hope Planning Board held a hearing, during which only one person filed an objection to re-zoning the West Beach public park for Eldorado. This “lone objector” called the beach sale “just another case of economic expediency …our responsibility is to see that this extremely valuable piece of property is maintained in its present state.” Other residents wrote the local newspaper, arguing that the park’s value as a community commons far outweighed economic incentives:

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I am not opposed to Eldorado expanding but think that our beach property is not the place to do it … I hear it said that no one uses the beach, but I have never walked the beach and been entirely alone. Prior to writing this letter I walked down to the beach and a young child was there with his father watching the waves roll onto the beach. How does one valuate this type of experience in terms of “tax base” dollars? During my frequent visits to the beach to collect fossils or rock and mineral samples I quite often see people in the wooded areas bird watching. Last summer one of Eldorado’s employees spent his lunch hour bird watching just up the beach from the pump house.

The problems with water on the ball diamond is mostly due to the present drainage grading from Eldorado’s parking lot … to use this Eldorado created problem as an excuse to abandon the ballpark is being short sighted …

It is about time that we started to think about our children and our children’s children and what we are leaving for them.”

A different letter stated that the West Beach was “one of the town’s greatest assets. It must be maintained for present and future generations … This is the Sacred Trust of the Port Hope Town Council and each and every citizen.” Echoing similar sentiments another argued selling the beach was a great loss that would:

… deprive present and future Port Hope residents of unrestricted and free use of one of the last areas of public beach in the region. Furthermore, it will reduce the quality of said beach to the point where it hardly becomes more than an adjunct to a major industrial area, with all the risks of pollution, noise and interference with free enjoyment of the beach which that entails. I am amazed and incredulous that in this day and age a public body would even consider alienating a piece of public property in order to placate industry. I had thought that such antediluvian practices ended years ago.

Letters of objection focused on the loss of use, access and enjoyment to the public, warning the sale of public lands was a breach of civic responsibility to current and future generations. Others accused the “lameduck” council of abuse of political process by ramming through the deal “in its last days of power” and not disclosing the beach sale plans during recent electoral processes.

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57 OMB, “Amendment No. 9, Official Plan Port Hope Planning Area,” Minister’s File #14-OP-3518-9, Ministry of Municipal Affairs and Housing, Kingston: Regional Planning Office for Eastern Ontario. I contacted the Regional Planning Office for Eastern Ontario after having received no response from the Port Hope Planning Department, despite numerous telephone calls, emails, and two Freedom of Information requests sent over a period of one year. The Port Hope Planning Department never responded to any of my requests for public information. I thank the staff of the Regional Planning Office for Eastern Ontario, Regional Director Vincent Fabelli and Senior Planner John MacDonald, for their swift assistance in locating these public records.
This latter writer pinpointed uneven power relations between the town and crown corporation, who ultimately held the “threat” of expropriation over the community.\(^{58}\)

Four people also wrote the Minister of OMH, Claude Bennett, urging him to disallow “transient and shortsighted municipal councils” to dispose of the beach park. One letter pointed out how the deal would marginalize lower income community members:

> I am a daily user of the beach, summer and winter. I might add that a large number of people, many of them underprivileged and living in the downtown core, use this beach every summer. It is within walking distance to where they live. Many of them lack the transportation to go elsewhere. The expansion of ELDORADO into any present lakefront property represents a serious longrange [sic] loss to the Town of Port Hope, a physical and psychological blow to the community.\(^{59}\)

Another resident urged Bennett to reject the town’s application for Official Plan amendments, blasting town politicians for privileging a federal crown corporation over the local community. Taking apart the plans to locate beach facilities elsewhere, this resident said the further encroachment of Eldorado was a “betrayal” that would effectively destroy public access, use and enjoyment:

> Although Eldorado and the Town explain that an alternate approach to the beach will be provided, this is no more than facile rationalization of what will be in, in truth, the effective removal of one of the last pieces of publicly owned sand beach between Toronto and Brighton, from the realm of public use. While it will still be possible for people wishing to use the beach to reach it, they will first have to approach by a devious route, and once on the beach will find themselves overshadowed by a new uranium refinery (with all that such construction entails) and with a parking lot pressing well onto the actual beach itself … this will constitute an act of deprival against the present and future citizens of Port Hope. As one who makes regular and frequent use of the beach area I can assure you that the effective loss of this property will be a very real deprival for a great many citizens of the town.\(^{60}\)

This astute observation recognizes that the imposition of industrial infrastructure exceeds its physical footprint – people would be discouraged from using the beach. Self-discipline would prevent local citizens from use and enjoyment of the beach – thus securing Eldorado’s

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\(^{59}\) OMB, “Selected Case Files, Port Hope Planning Area,” RG 37-6-1, B145555, AO.

\(^{60}\) OMB, “Selected Case Files, Port Hope Planning Area.” [Emphasis in original]
dispossession of civil society from the town waterfront. Industrial infrastructures are mechanisms of containment – they delimit what is possible, and what is not.

Yet formal objections to its loss were few. In total, the Port Hope Planning Board received two petitions and thirty-three letters supporting the sale, and seven letters of objection, all submitted as evidence in support of the town’s application to the Ontario Municipal Board (OMB). Letters of support positioned the deal as a willing sacrifice to the uranium refinery and, for some, to the nuclear state. For example, several supporters framed the refinery in the context of a national need for nuclear energy and boasted of Port Hope’s role in pioneering Canada’s nuclear industry. A petition with sixty-one names disparaged the beach’s use value as a public park, and told the town to capitalize on its sale to secure a refinery expansion.

We see very few people using the beach but understand that access to the beach will be moved further west … Very little usage of the Beach and a Ball Park which is in a low lying area and under water most of the time as well as employment for some 200 employees is the reason we support the sale to Eldorado.61

Yet most letters of support did not mention the West Beach park at all. The beach had become what John Gaventa refers to as a “non-issue,” subsumed by other considerations.62 Embedded within letters are evidence how the issue had been twisted, morphed into a fear of losing a proposed UF6 refinery, and not a beach park. The question had been inverted. The issue had become: “I am in favour of the new UF6 plant at Eldorado Nuclear Ltd.”63 The vast majority articulated that the UF6 expansion was “vital” to the economic viability of Port Hope and “our ability to exist.”64 Many indicated urgency, if not panic, that Port Hope would lose the refinery altogether if the beach amendments were refused. Put quite simply, supporters saw “more benefits than penalties for the people of Port Hope by this move.”65 Eldorado was a community member too, a good corporate citizen.

61 OMB, “Amendment No. 9, Official Plan, Port Hope Planning Area.”
62 Gaventa, Power and Powerlessness, 249.
63 OMB, “Amendment No. 9, Official Plan, Port Hope Planning Area.”
64 OMB, “Amendment No. 9, Official Plan, Port Hope Planning Area.”
65 OMB, “Amendment No. 9, Official Plan, Port Hope Planning Area.”
In a further showing of loyalty, residents rationalized the legacy of radioactive waste as far less important than losing the refinery. Six years after the public discovery of widespread radioactive waste, the crown corporation was applauded as doing their utmost “to make their industry safe and clean.” One resident stated:

… my personal exposure in Port Hope is not significant … in my view the dangers and problems have been adequately explained and even though there may be a potential problem, it is so remote that it is far outweighed by the economic and other advantages … the Eldorado expansion in Port Hope is so important to the economic growth of this area that the consequences of the expansion not being approved may be more severe to the town as a whole than if some of the potential problems become a reality.66

Others pointed to their own good health after living alongside the uranium refinery as evidence it should expand, and saw “more risk to limb and life on the roadways.”67

Supporters, claiming to represent the ‘silent majority’ of the community, attacked any objection as invalid. Dissenters to selling the beach park were accused of objecting to Eldorado carte blanche and framed as “a small group of people in this town, calling themselves Environmentalists, [who] object Eldorado’s existence, without the grounds or knowledge to do so. We feel this is a shame. As we all know, empty vessels make the most noise.”68 Objectors were labeled as irrational and inexpert, as anti-refinery radicals who would “throttle the lifeblood of this town,” categories also observed by Adriana Petryna to contain dissent in the aftermath of Chernobyl.69 Valerie Kuletz argues that rendering non-state sanctioned opinion as irrational and emotional is a mechanism of exclusion and a process of de-legitimation that maintains power in the hands of the nuclear state.70 Mechanisms of social coercion aimed at those who did voice dissent to the sale of the beach were also means of containment. As one supporter suggested: “if you don’t like Eldorado, why don’t you move to Arizona for clean air?”71 Again, coercion is

66 OMB, “Amendment No. 9, Official Plan, Port Hope Planning Area.”
67 OMB, “Amendment No. 9, Official Plan, Port Hope Planning Area.”
68 OMB, “Amendment No. 9, Official Plan, Port Hope Planning Area.”
71 OMB, “Amendment No. 9, Official Plan, Port Hope Planning Area.”
seen as rippling across the social fabric, a disincentive to voice concern about any matter to do with Eldorado. However, the objectors to the beach park sale based their submissions on the loss of valuable public space for present and future generations, of diminished public access to waterfront, and loss of enjoyment for everyone. Several explicitly voiced support for Eldorado. Not one letter of objection voiced opposition to the refinery, nor to its expansion, but only to the loss of the beach park as the cost. This subtlety was lost. Social factors – public use and enjoyment, and common rights “held in trust” were drowned in a swell of economistic panic.

The written record indicates strong support for sacrificing the West Beach public park to the uranium refinery. Framing the deal as vital for refinery expansion clearly influenced public response. However, the lack of objections may not be due to a paucity of concern over the loss of this public space. Deterrents, perceived or otherwise, in municipal processes and social pressure may have disallowed or discouraged other objectors. Procedural process may have been a further barrier, as council solicited objections to the proposed re-zoning by-law from people who owned property within 400 feet of the parcel in question, the West Beach public park. This was a tactic in a broader strategy of enclosure and an incremental approach to minimize opposition. As Eldorado had already subsumed and demolished the adjacent John Street neighbourhood, there was fewer residential housing left in the immediate vicinity. Determining who merited a voice over public space through private property rights again privileged property owners over rental tenants and other forms of occupancy in this vicinity, and omitted the rest of the community. This latter move indicates that town council did not consider the park as public commons for the whole community. Rather, the park was disposable, “vacant,” “unoccupied,” and alienable property that town elite determined was no longer required for its own purposes.

Media may also have played a factor in discouraging others from voicing dissenting opinion. While several local editorials expressed dismay over losing the beach park, other articles cautioned that the deal was necessary in order to keep Eldorado in Port Hope. One local newspaper warned that objecting could trigger an OMB hearing, an outcome posited as

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jeopardizing refinery expansion. Presented in this way, objecting to the sale of the beachfront park threatened the viability of the town. Further, a local newspaper published the names of each objector, yet not the names of the supporters, a move that could have discouraged community members from speaking out as an OMB hearing on the matter approached.73

Seeking Provincial Approval

Municipal amendments to the Official Plan and Restricted Area By-law required the approval of the OMH, and based on a citizen request, the OMB held a hearing on the matter in May 1981. In the preceding months, Port Hope politicians and the crown corporation lobbied the OMB and the Minister to deny the hearing.74 The Port Hope Town Clerk, the Mayor, several Councilors, a Planning Consultant from Totten Sims Hubricki (Port Hope consultants), and solicitors for Eldorado all telephoned or made in person visits to the office of the Minister, arguing that “any delay will kill the [UF6] project.”75 They also pressured the Ministry of Housing to expedite the approval and ignore the concerns of objectors, who were positioned as “frivolous,” their concerns without substance, only based on “anti-nuclear sentiment.”76 Noting public objections were not frivolous and included “loss of waterfront parkland, access to the park and aesthetic deterioration of the park,” the OMH termed the pressure of the above lobbyists as “unreasonable.”77 The only concession to refinery lobbyists appears to be that the Minister suggested an OMB hearing date as soon as possible.78 This latter resistance to political lobbying indicates that the influence of the nuclear state had limits within the state.

74 A request for a public hearing was submitted to Claude Bennett, MOH, by Port Hope resident Marianne Armstrong on February 2, 1981. Marianne Armstrong was subsequently billed $50 by the Ministry, which she vigorously opposed as unfounded. The exchange of letters can be found in OMB, “Selected Case Files, Port Hope Planning Area.”
76 D.G. Henderson to Minister Claude F. Bennett, Memorandum, March 26, 1981, OMB: Selected Case Files, Port Hope Planning Area.”
77 D.G. Henderson to Minister Claude F. Bennett, “Memorandum.”
78 OMB, “Selected Case Files, Port Hope Planning Area.”
Submitted as evidence in the hearing was a Planning Report written by Totten Sims Hubricki Associates Limited (Totten et al), the planning consultants for Port Hope since 1972. This firm was also the Engineering Consultants for the proposed project. The OMB considered the report as the town’s chief evidence in support of their application. In the report, the town rationalized re-zoning the West Beach park through several tacks. An analysis of the report shows how town officials framed the land transaction as beneficial to the community.

From a quantitative standpoint, the report stated that losing the West Beach park would not violate town policy on the quantity of Public Open Space, as this ratio was met in other areas. The Planning Report rationalized re-zoning in the interests of the public good – transforming the park into an industrial parking lot would benefit Eldorado and the community – the public could use the new parking lot when the refinery was closed: “consequently, the parking lot will not only serve Eldorado but will complement the use of the beach park areas during what are potentially its most active hours of use.” Further, the Planning Report made explicit that the Town was selling the park to accommodate Eldorado’s plans for a new UF6 plant.

[The amendments] have arisen as a consequence of the expansion of the Eldorado plant. All building expansion will take place on land owned by Eldorado, as well as several road allowances which the town proposes to close. However, the expanded building area

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79 PH and ENL, Agreement, 10. Article 10.02 of the Agreement stipulates up to $193,000 for the Engineering Consultant services for “construction related to streets, parking lot and road to waterworks premises …sanitary and water services,” the costs of which were to be paid by the town, to be reimbursed by Eldorado.

80 Totten Sims, Planning Report for Ontario Municipal Board Hearing, 8. This was used to demonstrate that the application “clearly complies with this policy of the Official Plan.” The quota policy for open space was “an objective of 2 hectares per 1,000 population of open space should be planned from lands along the river lands, lakeshore and in the central downtown areas, prior to the loss of these lands to other uses”; Also see Port Hope Evening Guide, “Planner Says Town Has Lots of Parkland,” May 29, 1981.

81 Totten Sims, Planning Report for Ontario Municipal Board Hearing, 9. Off-hour parking times for the public were listed as weekdays from 4:30 p.m. to 6:30 a.m. and anytime during weekends. The OMB relied on this operating schedule submitted by Eldorado as evidence in the public hearing (see OMB decision). Changes in refinery operating times do not appear to have been considered. According to Cameco, the UF6 facility now runs 24 hours a day, 11 months of the year, and the U02 facility operates 24 hours a day from Monday to Friday for 11 months of the year, http://www.cameco.com/fuel_and_power/refining_and_conversion/port_hope/employment/ [Last accessed 3 July 2013].
will be situated on lands presently utilized by Eldorado for employee parking, and additional lands are necessary to logically locate replacement parking.

It should be noted that Eldorado does not need the additional lands in order to facilitate the proposed expansion of its UF6 refinery operations. It can accommodate the parking spaces ... at various locations on its property ... However, if Eldorado does not obtain the added land, it will be necessary to utilize lands on the east side of the harbour, which it does not own, but has under lease with the Port Hope Harbour Commission, which lease will expire in 2005. For a long established, large industrial operation such as Eldorado, such an arrangement would constitute questionable planning and is not a desirable, long-term situation.82

Finally, here in black and white is tangible evidence that the sale of the West Beach park was not necessary for UF6 expansion, which could have in fact proceeded without taking over the park. Rather, Eldorado preferred to subsume and demolish the West Beach park – these lands fit with their other objectives. Indeed, the amendments were also noted as necessary to Eldorado’s desire for heightened security around the refinery, and centralized parking on the former West Beach park was one means of establishing it. Closing John Street and the West Beach public park would facilitate the establishment of a perimeter around the refinery to control and contain public access. This rationale paralleled Eldorado’s stated objective in the 1978-79 Refinery Beautification Study of creating an exclusion zone around the refinery.

Zones of exclusion, what Valerie Kuletz terms “sacrifice zones,” are endemic to nuclear landscapes.83 Radioactive contamination is one means of establishing zones of exclusion: securitization is another, a marker of the militarism intrinsic to the state-industrial complex of the nuclear state. Exclusion zones are also mechanisms of containment, created through re-ordering

82 Totten Sims Planning Report for Ontario Municipal Board Hearing, 10-11 [emphasis added]. The report specifies that Eldorado could have obtained the additional parking through minor variances to By-law No. 16/81 to allow sufficient parking on existing Eldorado parking lots, yet this plan was not “desirable.” The proposed parking requirements were calculated based on Restricted Area By-law No. 2857/73 which required Eldorado to have one parking space per 38 square metres of Manufacturing Floor Area and “all these spaces could be located on lands presently under Eldorado’s control,” 19. The leased harbour lands on the east side that Eldorado refused to relinquish may refer to the areas where Eldorado was storing radioactive waste, including the Crane property; The town’s own amendment application to the OMB corroborates this interpretation that Eldorado did not need the West Beach for parking, but simply preferred it this way. See OMB, “Amendment No. 9, Official Plan, Port Hope Planning Area.”
83 Kuletz, The Tainted Desert, 7.
space. Infrastructure of containment – an expanding uranium refinery along with fences and other visible markers of nuclear industries – are “signs of power,” they signify militarism, the state, and radiation. They scream keep out. Re-ordering space through physical infrastructures and the material signifiers of containment has the effect of disciplining behaviour. These mechanisms of containment are disincentives for using a public beach. Feldman et al also note that physical infrastructures are means of containment, but that containment is increasingly articulated through coercive means. Zones of exclusion, increased securitization, rerouting and delimiting public access are coercive means of containment. Establishing a security zone by taking the West Beach was framed to the OMB as essential to the refinery’s future. So was situating the expanded refinery in Port Hope as necessary to meet growing international demand for UF6 and keep local employment. That the crown corporation strongly preferred to own the beach park, rather than locate parking on lands already leased was inconsequential to town officials. In their words, what took precedent over community use of an historic public park was that “the Amendments will ensure a more logical and orderly expansion of Eldorado Nuclear Ltd.”

The Planning Report also rationalized a simple substitution of public space. Recreational activities could just be moved elsewhere. Moving the beach park was called in the public interest: “the entire beach front will be made more accessible” and moving the ball diamond “eminently more appropriate to serve the needs of Port Hope residents.” Finally, perhaps the most insidious rationale employed to legitimate the land deal was using the proximity of the

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84 Kuletz, The Tainted Desert, 40.
88 Totten Sims, Planning Report for Ontario Municipal Board Hearing, 12. The report highlights that while the softball park is “actively used,” it has drainage problems and is inconveniently located in an industrial area, 16. An alternate softball park was being proposed by the Town on an 8-acre parcel in the north-east part of Port Hope, see page 15.
refinery to justify its further expansion. For example, the ball diamond was deemed unsuitable because:

basically, the diamond is located in the middle of an industrial area, with very few homes located within convenient walking distance. As a result, most users must drive to the park and its role as a neighbourhood play area is very limited due to its isolated nature. At one time a small residential community existed immediately adjacent this park but during the mid 1970s, it was replaced by industrial development ....

What the report fails to mention is that it was Eldorado that acquired this former “small residential community” “immediately adjacent” to the West Beach ballpark and demolished it to facilitate an earlier refinery expansion. The acquisition and demolition of the John Street neighbourhood was achieved through earlier processes of enclosure in which the crown corporation increased its federal property holdings and control near prime Port Hope waterfront by incrementally dispossessing all the community residents, one by one. In taking over the West Beach park, they were completing the extirpation of the community from this former neighbourhood. This was the next move in a strategic series of dispossessions achieved through incremental processes of enclosure. Using the refinery’s prior expansion to justify further expansion demonstrates how enclosures are productive – enclosure begets enclosure. Further, Nik Heynen and Paul Robbins argue that enclosure does not just subsume territory, but also common resources and attendant social relations. Enclosure is “the capture of common resources and exclusion of the communities to which they are linked.” These trends are clear in both the John Street neighbourhood and West Beach park enclosures.

Yet, the losses to the public are legitimated as being in the public interest. Describing the beach as in poor condition, Port Hope’s planning consultants positioned community use of the beach and loss of enjoyment as negligible. The location of the uranium refinery adjacent to the beach again figured prominently in this rationale.

89 Totten Sims Planning Report for Ontario Municipal Board Hearing, 16.
It should be noted that while a beach front park is a valuable recreation resource … this beach area does have a number of constraints which detract from it recreational potential … the beach is located in an industrial area. Industry almost completely surrounds the beach to the east and north. Industrial operations, some of which are noisy, entail unsightly outside storage and massive industrial buildings overlook the beach area. …

The beach area receives a minimal level of maintenance from the Town. Quite frankly, it is in a poor state of maintenance and has been in this condition at least since my knowledge of the Town commencing in 1972 …

… the particular circumstances of this beach are such that it is not actively used by Town residents. With the exception of people walking along the beach and viewing the water, the beach is seldom used. Very little swimming takes place. The beach in Cobourg is far more desirable for water-oriented sports, particularly swimming, because it has a protected sandy beach and is not located next to industry … [the amendments] do not in any way limit water access, which, in my opinion, is the main recreational feature of the beach area.92

Again, that Eldorado had already expanded to surround the West Beach park to the east and north with “unsightly outside storage and massive industrial buildings” was another tactic used to justify its further encroachment, and legitimate its takeover of this historic public space. The above rationales derogated the suitability of the West Beach area as a viable public park. Quantifying the beach in terms of land use quotas negated its intrinsic value as a unique public space and community commons. When the OMB approved the town’s application, their decision clearly admits that Eldorado did not need the West Beach public park. Rather, the crown corporation wanted these lands under their ownership and control.

The company alleges that it does not have sufficient lands under its control in the Town ‘to logically accommodate the parking required by the proposed extension.’ Evidence disclosed that the company could now comply with the parking provisions of the Town’s comprehensive by-law, without any amendment, by creating existing parking spaces on lands owned and leased by the company in scattered locations which makes parking inefficient and difficult to supervise, but that compliance was possible …93

The OMB decision relied heavily on evidence submitted by the town that the beach was unsuitable because it was located in an industrial area. The OMB decision was also made, in

part, on accepting the town’s word that converting an open beach park into an industrial parking lot would not diminish public access or use of the area for recreational purposes.\textsuperscript{94} Weighing in favour of state-corporate interests, they stated:

\begin{quote}
It is clear that the legislation now before the Board is enacted principally for the benefit on one industrial complex … Whether or not legislation for the benefit of the single industry is at the same time a benefit to the general public was not addressed during the course of evidence and argument, but the proposition was implied that because the expanded plant and its ancillary parking would benefit the population of Port Hope, the result was that the amendment and by-law were being enacted really in the general public interest as well as in the interest of Eldorado.\textsuperscript{95}
\end{quote}

Through this decision, the OMB tacitly accepted the oft-repeated adage, that what was best for the Eldorado uranium refinery was best for Port Hope. The implications of the OMB decision is that what was in the best interests of the nuclear state was in the best interests of civil society.

Objections did not stop the sale of the West Beach park, nor the AECB approving the UF6 expansion in town. The OMB approved the amendments on August 13 1981 on the condition that the refinery receive AECB site approval for UF6 expansion, yet noting this was likely precisely because Eldorado was a federal crown corporation. One resident termed the subsequent AECB approval as “the final nail in the coffin. It’s goodbye to the Port Hope waterfront.”\textsuperscript{96} The

\textsuperscript{94} OMB, “Amendment No. 9, Official Plan, Port Hope Planning Area;” OMB, “Decision of the Board;” \textit{Ball Park May Become Eldorado Parking Lot}, August 19, 1981.
\textsuperscript{95} OMB, “Decision of the Board.” In so ruling, the OMB relied on \textit{Kuchma v Rural Municipality of Kache (1945) SCR 234}, in which the court upheld that when the question of public interest is at stake, “municipal council, familiar with the local conditions, is in the best position of all parties to determine what is or is not in the public interest and have refused to interfere with its decision unless good and sufficient reason be established.” The OMB subsequently determined that “no good and sufficient reason to interfere with the decision of [Port Hope] council has been provided.” The OMB ruling pinpoints how the law benefits state and capital interests, reminders of what Karl Marx argues, that enclosure are “Parliamentary form[s] of robbery…decrees of expropriation.” Marx further clarifies the point: “the law itself [became] the instrument by which the people’s land is stolen” and in so doing he implicates the state as a predominant means by which dispossession is enforced via extra-economic means.” See Karl Marx, \textit{Capital: A Critique of Political Economy, Volume One} (New York, Vintage Books, 1990[1867]), 885.
\textsuperscript{96} \textit{Port Hope Evening Guide}, “Eldorado Gains Site Approval, Environmentalists Object to AECB Decision,” March 10, 1981.

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crown corporation razed the public park to the ground within weeks of OMB approval.97 The beach park facilities, including the ball diamond, bleachers, lights, and beach house were all demolished. An editorial mourned the loss:

The face of Port Hope’s beachfront is rapidly changing this week as the town bargained away part of our lakefront heritage and beach park forever for a few pieces of silver last week. Along with the quaint old beach house which had many fond memories for many Port Hope citizens until it was bulldozed down this week, all those tall beautiful poplar trees around the south end of the park are also being butchered by Eldorado Nuclear Ltd. for the sake of its employee parking lot …

And this is supposed to be good for the town?... Perhaps if money is the only thing that counts in the eyes of Port Hope council and the parks and recreation committee

… And what about the commitment for a new beach area and beach house to the west of the Port Hope Waterworks to replace the grand old lady which was just demolished? We are told that visitors are going to have to walk a considerable distance from their cars to get to the beach under the new proposed beach area. Who made this decision on their own and when is the general taxpayer and public of Port Hope going to be given a chance to have some say in the development of this new beach?98

Town council and Eldorado held a signing ceremony on September 18, 1981.99 John Street south of Marsh Street was re-named Eldorado Place. Renaming public space in the name of corporate interests is a means to erase history. First the John Street neighbourhood, then the West

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97 OMB, Selected Case Files, Port Hope Planning Area.” For details on the conditional AECB UF6 site approval in Port Hope, see the AECB news release AECB Gives Approvals for Eldorado Project, 21 July 21, 1981 in the OMB selected case files; also see Port Hope Evening Guide, “Eldorado Site Approved,” July 21, 1981.

98 Port Hope Evening Guide, “Beach Heritage Gone,” August n.d., 1981. This editor ponders whether the funds received by the town for the beach park will be enough to pay for a replacement ballpark elsewhere. A follow-up editorial dealt with cost estimate overruns shortly thereafter, see Port Hope Evening Guide, “Recreational Expectations Too High,” (month unclear) 23, 1982. In this piece, the local editor questions: “Was the town cheated, stupid, or just plain unrealistic in it plans for the new park? Did town council and the town administration lead the people down the garden path with false hopes to take the political heat off Eldorado Nuclear Ltd, so the Crown corporation could push ahead with its plans for the new uranium hexafluoride refinery? Were we suckered into giving up a vital part of our town beach heritage for peanuts? Perhaps, in the light of today’s replacement costs … Hopefully, the new beach pavilion with washrooms will not be shunted to some dark corner of the town budget for future considerations as has happened in the past … It does not seem fair that town council is taking part of this Eldorado grant for the new beach park and baseball-soccer recreational complex and is transferring these funds to pay for repairs of the old town barn. This is not what the funds were intended for.”

Beach park were deconstructed, then reconfigured in the image (and name) of the nuclear state, what David Scott terms as re-territorialized in the image of the colonizer.\(^{100}\) Eldorado had occupied Port Hope, incrementally expanding to assert its dominance and re-territorializing the town in its own image. Re-naming John Street, the former public access road to the beach park to Eldorado Place, further marked the state’s effective occupation, standing as a material signifier of eviction. The sign held the message that this section of roadway and the West Beach park were no longer community lands: they now belonged to the nuclear state. Re-naming John Street in the identity of the Eldorado crown corporation was more than textual: it was “an imposition of one identity over another.”\(^{101}\) Re-naming is an exercise in control and legitimation to contain dissent. Replacing the street name with that of Eldorado also facilitated the removal from public view, and thus perhaps eventually from public memory and history, that this area was formerly a vibrant neighbourhood and public commons. To those born after August 1981, there was no John Street south of Marsh Street, nor a West Beach public park. For erasure hides not just particular histories, but, as noted by Gillian Rose, the act of erasure itself.\(^{102}\)

Several community members were “shocked” when the AECB allowed site approval for the UF6 expansion on “the only waterfront park within walking distance of Port Hope” arguing the decision was irresponsible, and “no set of economic figures can justify putting that plant there.”\(^{103}\) A former Port Hope resident wrote the local paper, supporting Eldorado “wholeheartedly” but questioned whether the loss was “socially acceptable.”\(^{104}\) Even a member of the federal regulatory review panel for the UF6 project disagreed with locating the new facility near the waterfront, cautioning that Eldorado would appear “unbelievably callous,” yet as

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100 Scott, “Colonial Governmentality.”
102 I draw here on Gillian Rose’s analysis of how erasure may also hide the “practice of exclusion.” Gillian Rose, “Tradition and Paternity: Same difference?” *Transactions of the Institute of British Geographers* 20, no. 4 (1995): 414. On a website about Port Hope history one commentator wrote in 2011: “Wondering about the dates of the tear down, I don’t recall this at all,” expressing surprise that there used to be a neighbourhood in the John Street area adjacent to the refinery. http://www.porthopehistory.com/johnstreet/johnstreethouses.htm [Last accessed 29 August 2013]. I view this as evidence that erasure produces particular histories, in part, through erasure and absence.
103 Margaret Munro, *Ottawa Citizen*, October 19, 1981.
a crown corporation, “knows nothing very serious is going to happen to them for their
decision.”105 Despite the fact that Eldorado did not need the West Beach park to expand the
refinery, the rhetorical link between them had become inextricable. Positioning the sale of the
park as essential to refinery expansion was manufactured to legitimize the crown corporation
subsuming the West Beach area and establishing further control over the waterfront. Messages of
necessity and of no alternative were ideological representations of Eldorado’s dominance,
articulated by town officials, the crown corporation, and filtered through local media. Losing the
public park was justified in a simple equation:

Eldorado Nuclear Ltd. had to take Port Hope’s beautiful beach park for parking
purposes in order to comply with the town’s zoning bylaws parking requirements to
build a new uranium hexafluoride refinery. If Port Hope hadn’t gone along with
Eldorado’s request, the town would have lost the new refinery, because it couldn’t meet
the [town’s] zoning requirements.106

Pinning the sale on an issue as trivial as a municipal parking bylaw is quite frankly absurd and
upended by the historical record. The beauification study, closed-door negotiations, effort and
the speed at which local politicians executed the Agreement, then amended the Official Plan and
by-laws, the inversion of the issue to one of UF6 (not beach park) and the intensive lobbying of
the OMH, all indicate otherwise. The tautological claim that local town council could not have
simply amended a parking by-law, if they had deemed it so desirable, is preposterous. Yet
perhaps if statements such as this are repeated often enough, they will carry forward as the
official version of events.107

Rationales such as this negated the consideration of alternatives by stripping the land deal to a
false binary between retaining the West Beach park or retaining the refinery. Lose the beach
park, or lose the refinery. On the face of it then, the community did find the loss of the West
Beach park socially acceptable, but only because it was framed as not only economically

105 Margaret Munro, Ottawa Citizen, October 19, 1981. The article attributes the comments to
Reg Lang.
107 Here I play between Vladimir Lenin’s assertion that “a lie told often enough becomes the
truth” and Franklin D Roosevelt’s counter: “repetition does not transform a lie into a truth,”
with the caveat that people, including likely the speaker, believed the beach sale was necessary,
regardless. FDR Radio Address, October 26, 1939.
necessary for the survival of the refinery, but for the town itself. The West Beach land deal became a non-choice: there was no alternative. This trade-off between the social and the economic epitomized the tensions over the uranium refinery in Port Hope, a form of economic coercion often expressed quite bluntly: without Eldorado, Port Hope would be a ghost town. However, the argument that the crown corporation’s acquisition of the West Beach public park, as necessary in order for UF6 expansion to proceed, is not supported by the historical record.

The West Beach: A Loss of Public Space, Viewed in Hindsight

Eight years after the Port Hope sold the West Beach park to Eldorado, the federal government privatized the crown corporation, and these former public commons became alienable property of private industry. Becky Mansfield argues that “privatization does not just happen through some natural, evolutionary process, as is often implied by ‘free market’ proponents. States must not only enforce property rights …but they participate in creating and defining the property they are going to enforce. At the same time, private property relations require individuals not only to act in new ways, but to become different kinds of subjects.”

As seen in my analysis of the West Beach land deal, enclosure is, to borrow a phrase from David Harvey, “painfully constructed.” The outcome of this process of enclosure was a literal and metaphoric dispossession of civil society and disruption of social relations. Ten years after the beach sale, a planning consultant firm for Port Hope directly attributed incremental expansion of Eldorado as impairing public access to the waterfront:

… The west beach …became the favourite recreation area on the waterfront. A baseball diamond, a large pavilion, a gazebo, picnic areas, and playgrounds could all be found …

The growth of Eldorado/Cameco has consumed all the other industrial uses in the central harbour along with the neighbourhood to the west. Even the park at the west beach has been reduced and a new beach area built further west …

The obvious and overwhelming imposition of Cameco [has] consumed the adjacent neighbourhood and overwhelms the harbour itself with its mass. Similarly, larger scale

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industrial and commercial uses east of hope street have cut off access to the waterfront.\textsuperscript{110}

Twenty years later, the loss of the West Beach was still a contentious issue:

> Everybody went to our beach. It had slides, swings, merry go-rounds and a large pavilion where you could buy food. Lots of dances were held there. The West Beach also had very exclusive baseball diamonds … They moved our west beach down the shore but no one swims there because we all know where Eldorado dumped more waste. Most people now are using the east beach. A lot of homes on John Street were torn down. Eldorado expanded, and they sold to Cameco.\textsuperscript{111}

Even after 30 years, community members still lament the loss of this public space and their diminished access to the beachfront:

> The West Beach and the baseball diamond were popular spots for many years, for young and old. But no longer. Cameco now occupies almost the entire area, effectively cutting the town off from the lake. Streets that once ran on this side of the viaducts, and the houses that were built on them, have disappeared. The ball diamond and the Pavilion are long gone, the beach has been left a wasteland where people go to walk their dogs. The former West Beach is no more, and the tiny East Beach is there to remind us of the magnitude of our loss.\textsuperscript{112}

The once beautiful, and irreplaceable, West Beach with Pavilion and Gazebo, and the Softball Diamond … Because of Eldorado/Cameco, they’re gone. Cameco is still here. Why?\textsuperscript{113}

Even now, some resident blame the refinery for destroying the public beach.

> Walk along our beach … and then go down to Cobourg beach, and compare the 2, night and day. Cobourg waterfront is a place for masses of people to congregate, anytime, for

\textsuperscript{110} M. M. Dillon Limited, \textit{Town of Port Hope Waterfront Master Planning Study}, February 25, 1991, 2-2, 2-6. This planning study was adopted as the working document for Port Hope by Resolution #70/91 of a meeting of Town Council in March 1991. See Corporation of Town of Port Hope, \textit{Minutes of the 55\textsuperscript{th} Municipal Council Meeting}, March 5, 1991. The minutes indicate that the Planning Consultants presented waterfront plans, including “social and financial impact, tourism and recreation, accessibility of the river/lake by the public, the waterfront focusing on public use, accessibility to open space, and new development,” 27.


\textsuperscript{112} Norm Piper, http://www.porthopehistory.com/westbeach/eldocamap.htm, [Accessed July 5, 2013]. This website of Port Hope history shows photographs of the West Beach park circa 1955 as a busy swimming area with numerous bathers in the water and on the sandy beach when the recreational buildings, softball diamond, canteen, and playground are intact.

every type of festival, every type of gathering imaginable, Port Hope beach is a pathetic excuse for a beach, and dangerous to your health, it’s just, oh, embarrassing, and there’s no possibility of it ever being half decent as long as that monstrosity is there, because that industry dominates, defaces and contaminates not only our whole waterfront but the whole town, and it’s done it since day one, and will continue to do it until the day they leave, but the day they leave, you know the day they can make more money going elsewhere, they’re gone.¹¹⁴

Yet others view the refinery as part of the landscape of Port Hope:

I made my choice to move and it was here, so if I don’t like it then I’ll take my hit and go if I have any real concern, but that’s just the way it is, ultimately yeah, sure, I’d love it if that was just all natural beach and we had this great waterfront I think you could do all kinds of cool stuff there and I think that would be amazing, but it’s here, so live with it.¹¹⁵

Embedded in these comments is regret that the refinery incrementally subsumed the waterfront, and the town along with it. This re-territorialization of public space to state space is seen as encroaching upon public access, use, and enjoyment, a dispossession of civil society from communal space.¹¹⁶ Yet other residents express a sense of powerlessness about the loss of the beach: the refinery just is, “so live with it.”¹¹⁷ As evidenced in a series of studies and reports on the Port Hope waterfront, such as the one cited above, the town wants the waterfront as public space, yet acts otherwise. The demolition of the John Street neighbourhood, the leasing of the Crane property for Eldorado to store radioactive waste, and the conveyance of the West Beach public park to the crown corporation are incompatible with retaining the waterfront as viable public space.

The West Beach: A Nuclear Space

¹¹⁴ Interview #3, Anonymous, Port Hope resident.
¹¹⁵ Interview #8: Anonymous, Port Hope resident.
¹¹⁶ Similar to my comment on the distinction between state space and private space, here I am not suggesting that the state is not already present in ‘public space’ in a myriad of ways. Rather, this was a process of enclosure in which the state subsumed this public space. Geographers have shown how the state is present in everyday life. See for example, Joe Painter, “Prosaic Geographies of Stateness,” Political Geography 25 (2006): 752-774; Alison Mountz, “Human Smuggling, the Transnational Imaginary, and the Everyday Geographies of the Nation-State,” Antipode 35, no 3 (2003): 622-644.
¹¹⁷ Interview #8, Anonymous, Port Hope resident.
During the process to sell the West Beach park to Eldorado, the fact that the public park was contaminated with radioactive waste did not appear in the public debate. Yet the park was contaminated and both the crown corporation and town officials knew it as early as August 1976. It is certain that areas in the immediate vicinity of the park had been used as a dumping ground for radioactive radium residues between 1939 and 1944 in what is known as The Lakeshore Residue Area. Between 1957 and 1958, 4000-5000 tons of radioactive residues from the refinery’s radium extraction process were removed for the purpose of selling residues to Vitro Corporation, a United States company that sought to recover metal residues. Other radioactive residues were removed from the area and taken to the Port Granby Residue Area. What is uncertain is when and to what extent the area received contaminants from other sources, and how much leached from nearby waste dumps. The radioactive contamination of the “Town Softball Park” was recorded by the AECB as early as February 1976: “definitely above background … high levels of contaminated soil … major contamination/high priority” and slated for removal of fill. In fact, the park was partially decontaminated in 1977 as part of the Port Hope remediation project. Whether the contamination factored into the town’s decision to sell the park to Eldorado is uncertain, yet there has been speculation about these links.

In the following brief analysis of radiological data on the public park, I reveal how the refinery transformed this former public space into a nuclear landscape. In February 1976, Eldorado personnel noted that:

> a complete survey of the park revealed most areas to be above background … The town of Port Hope has not been notified that a survey has been carried out or the results of it. Arrangements should be made with the town and the OMH [Ontario Ministry of Health] to do Radon sampling in the concession stand and washroom before the park is opened to the public again in the spring.

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119 AECB, “Town Softball Park,” RG 7-128, Port Hope Radiological Inspection Files, OML Fonds, B101644, AO. The AECB found up to .082 mR/hr (external gamma radiation).
120 Eldorado, “Record of Radiation Survey by Eldorado Personnel, Corner of John and Marsh Streets,” February 19, 1976; AECB, Port Hope West Beach and former John Street Ball Diamond, Radiological property File no. LLRWMO-121250-000-5669/5991. “Readings ranged from background to .16 mR/hr … Generally ½ of the park is above .02 mR/hr.” Unless otherwise indicated, all references in this section are from the extensive AECB radiological property file.
The AECB sampled the park in July, and in August informed town officials that the town softball park had “slightly higher” than expected radiation levels … work may involve the removal of contaminated fill and/or contaminated building materials … remedial work will commence this summer.”

Remedial work was carried out in 1977, involving removal of about 976 cubic metres of contaminated soil over approximately 70% of the whole park. Areas not decontaminated were still above background radiation, but below FPTFR thresholds. As recorded in 1978, parts of the park remained well above background. Some contaminated soils were transported to the Crane jetty lands on the east side of the refinery for storage.

Then, in May 1978, the radiological consultants for the AECB (James F. MacLaren Limited) wrote to this federal nuclear regulator that the public park was widely contaminated:

… Surface contamination was found at over two-thirds of the entire John St. Park area and an estimated 6500 tons of contaminated material would have to be removed and the remedial work areas would have to be resodded … In view of the high remedial work cost and large quantity of material to be handled which were not allowed for in the original

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121 Barry Parsons, Scientific Advisor of AECB to T. Hunt, Town Clerk, August 12, 1976. AECB, Port Hope West Beach and former John Street Ball Diamond.
123 40 uR/hr and as high as 80 uR/hr. The northwest corner, extending approximately 40 feet into the park, had readings of 200 uR/hr and 250 uR/hr yet the contamination of this area was left in place, as the site for future waterworks lands.
Phase III program submitted, we need your advice regarding whether we should go ahead with the remedial work.124

Ten days later, the consultant wrote a memo to persons undisclosed, asking:

Does the Town of Port Hope want the washrooms removed since they appear to be no longer in service … We are not doing work in the infield area of the ball park. Are we confident that this area is free of surface contamination?

In October 1978, the AECB entered into an Agreement with the Town of Port Hope, as the “registered owners” of the “Softball Park – John Street” “to remove or reduce the level of radioactivity”125 The Agreement authorized the AECB to remove, replace or compensate for loss of structures or fixtures. The FPTRF determined the remedial work for the public park complete in 1979.126 Yet when constructing their new parking lot over the former West Beach park, Eldorado is reported to have removed about 2,000 cubic yards of contaminated soil that was 2-3 times background level and another 10,000 cubic yards with lesser readings.127 One long-term resident remembered:

The beach house which was the wooden structure had been taken up to the North and dumped down a mine shaft [Chalk River] it was so radioactive and that west beach house was where all the kids changed into their bathing suits, it was a canteen there, it was a dance floor there, people lived there in the summer... that’s where the clean up started.

It wasn’t just the beach that was radioactive, it was the beach house, and I presume the beach house wasn’t built from wood that was used at the plant as surplus, I presume it was built from wood that was virgin wood and contaminated over the years, so you have to ask yourself, how in the hell did the wood in the beach house and the beach and all that stuff get contaminated, and the only answer I can come up with is that it must have been stuff that came out of the plant and settled.

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124 James F. MacLaren Limited to R. Hendrickson, AECB, Port Hope Phase III: Contract R-27 (Dynaflex and John St. Park), May 8, 1978, AECB, Port Hope West Beach and former John Street Ball Diamond. Data is inconsistent, one internal memorandum noted surface contamination was not in excess of background levels. Radiological surveys indicate that the public park had elevated levels of radiation, but less than the FPTFR criteria for remediation work.
126 Glenn Case, AECL to [redacted], Cameco Corporation, “Cameco Parking Lot Property – 1 Eldorado Place, Port Hope (Formerly the John Street Ball Park),” March 7, 2005. AECB, Port Hope West Beach and former John Street Ball Diamond.
In the old days, John Street went straight down to the lake...[there] was a neighbourhood with about 50 houses... all gone, that entire neighbourhood had been taken out of there and all the people moved out, and I have to think that it was all radioactive.\textsuperscript{128}

Years later, the new beach parking lot and the area west of the waterworks were still found to have some radioactive contamination.\textsuperscript{129}

Even more disturbing to some residents is not that the beach was found to be contaminated, but the reaction of Port Hope residents to this situation. Certainly it could not have escaped public attention that thousands of cubic metres of radioactive soils and materials were being removed from the beach park at different times. Moreover, stories of its contamination ran in the local newspaper. Yet the sale of the beach park followed the patterned relationship of loyalty to the refinery that manifested as acquiescence.\textsuperscript{130} The response of community residents to the loss of the beach and to its contamination was emblematic of the powerlessness that Port Hope residents felt as dependents of Eldorado: this was a paternal relationship. One resident laments the silence of the community over the contamination of the park:

\textit{I thought war would break out, I thought it was that order of magnitude ...The goddamn beach is radioactive and our children play there, doesn’t anybody give a shit?...And the answer was no, we don’t care. Well, I said that’s very disturbing to me, but at least I told you, you know ...}

\textit{The west beach is a perfect example where in 1950 if someone said ‘hey the west beach is contaminated’ and someone said ‘yeah, I know, but my father swam there for 50 years and he lived to be 90’ and that would be it, that would be the end of the debate ...}

\textit{But no one, no one blinked. Legislators, they might have blinked. At home, over their evening meals they might have said to their wives, ‘my god, we’re not going swimming at the west beach anymore’ but they didn’t act that way in public office ...}

\textsuperscript{128} Interview #12: Anonymous, Port Hope resident.
\textsuperscript{129} As noted by AECL in 2002, approximately 4800 square metres of the West Beach Parking Lot/Hillside Area “indicate some level of contamination” and recommended “investigation surveys should be extended west along the waterfront.” West of the waterworks facility was known above background as early as 1978. The new playground and beach park area received 2000 cubic metres of stockpiled soil from the construction of the new Water Treatment Plant in 2004, with readings up to 7 \textmu R/hr, that while not above background did cause concern among some town officials concerned about “buried radioactive waste.” See Jay Sherwin to Panthea Sarabi, LLRWMO, “Email: LLRWMO-121250-000-5991 2185.M4.13 – Response to Report on West Beach Playground,” AECB, \textit{Port Hope West Beach and former John Street Ball Diamond.}
\textsuperscript{130} Here, I draw on Gaventa, \textit{Power and Powerlessness.}
The powers that be in Ottawa and the executive of the plant here and the local politicians were all very pro nuclear and it struck me that what they were trying to do was normalize all this, in other words they were trying to make radioactivity as normal as a sunny day, no danger, don’t worry folks, it’s just like going for a walk in the park and I found that extremely disturbing, there was virtually nothing anyone could do ... there was nothing that seemed to disturb people.\(^{131}\)

As observed by this local resident who was involved in community affairs during the 1970s when the beach contamination story was published, “it was just complete apathy, nothing happened. It was the worst possible result.”\(^{132}\) These comments reflect radioactivity as becoming part of everyday life. What could have been a catastrophe – a radioactive beach – became what Ulrich Beck terms “the normal state.”\(^{133}\) Normalizing radioactive contamination was a means of containment, as was dispossessing the local community of their historic public park.

Conclusion

They probably did need a parking lot so they could tell the truth without telling the truth, they could tell the truth even if there were other issues involved ...they were good people, they didn’t lie, that I was aware of, they told the truth but you had to ask the right questions. And in my view there were things they should have told us, like the West Beach being radioactive...because I didn’t know how long they knew...I really didn’t get the sense that any of this was a big surprise.

...Facts don’t often play a role in debate and in societal values and I think we see that in spades in Port Hope...I felt...if the facts [got] out [about the contamination], all of a sudden it’d be clear, we got the facts out, and nothing happened.\(^{134}\)

The conveyance of the West Beach park to the uranium refinery was initiated and executed within 3-6 years of the shocking discovery that the refinery had contaminated the town with radioactive waste. Yet these discoveries, which were still ongoing, were not really part of the debate on selling the West Beach park. Nor was the fact that the beach park was contaminated. These were both rendered benign and manufactured into “non-issues.”\(^{135}\) In the end, objections did nothing to stop the loss of these public commons, or the further expansion of the refinery.

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131 Interview #12: Anonymous, Port Hope resident.
132 Interview #12: Anonymous, Port Hope resident.
134 Interview #12, Anonymous, Port Hope resident.
Instead, a few ‘lone objectors’ lamented the privileging of economic values over other social values, while the majority of town residents who voiced an opinion rallied behind the crown corporation, lauding Eldorado as a good corporate citizen that needed the park for the viability of the refinery. Framed as a binary choice between losing the beach park or losing the refinery, there appeared to be no alternative. This form of consent, articulated and enacted through mechanisms of extra-economic coercion is a form of containment, one that the crown corporation relied upon to assert its legitimacy, consolidate its power, and achieve its own objectives.

Through a detailed chronological account of the process that led to the uranium refinery acquiring and demolishing the West Beach park, I have identified the “conditions and circumstances” under which the separation of the park from the public realm was “enforced.” I have demonstrated that more was at stake than a park or a parking lot. Through an earlier round of enclosure, the uranium refinery had already consumed the adjacent neighbourhood and this latter move enabled the establishment of a zone of exclusion around the refinery, both material and metaphoric. This trend is evident in the demolition of the John Street neighbourhood, used to legitimize the crown corporation taking over the West Beach park. The end result was a further dispossession of civil society, but this time from communal lands, and a re-territorializing of public space into state space that served to contain the nuclear state from within and civil society from without. The nuclear state, aided and abetted by local politicians, sacrificed community lands in the interests of political and economic power.

Yet, as revealed through the historical record, the crown corporation did not need these lands: rather, they wanted this area under their ownership and control. Demeaned as unsuitable anyway, the public park was framed as wasted lands, and viewed in the Lockean sense, its conveyance to the uranium refinery constituted an act of progress and improvement in the interests of state

136 I borrow from Massimo De Angelis insistence that analysis of primitive accumulation focus on the conditions and circumstances of enclosure, see Massimo De Angelis, “Marx and Primitive Accumulations: The Continuous Character of Capital’s ‘Enclosures,’” *The Commoner* 2, no. 1 (2001): 9.
power. Subsuming the West Beach park through processes of enclosure dispossessed the community from common resources such as public space (the harbour, beach, and public parks), but also led to a further disruption of social relations through the loss of activities rendered impossible by the parks disappearance and the imposition of refinery infrastructure. Enclosure also disrupted social relations through the community contestation over the public property sale. Through these dealings, Eldorado held itself as separate from and above civil society, while exerting its own interests for a supposed common good.

Enclosures are a means of containment that are at once both expansive and limiting. Enclosure and containment worked together at the West Beach; they delimited what was possible and not possible both within the refinery grounds and on the surrounding public lands. Enclosures are disciplinary spaces. They delimit within a bounded area, but also occupy its fringe to discourage or discipline in more subtle ways from outside the physical boundary, that is, not just through the occupation of physical space, but by permeating the psychological space of civil society. Nicolas Blomley argues that “space is produced through performance, but is simultaneously a means of disciplining the performances that are possible within it.”

The sale of the public park and its transformation into industrial space owned and occupied by the nuclear state enabled the crown corporation to establish control through a literal and metaphoric zone of exclusion around the perimeter of the refinery. Thus, containment works through obvious ways, such as closures and control of access routes, the destruction of communal property, and the imposition of industrial infrastructure in its stead, but also through how these physical aspects are forms of intimidation and constitute deterrents to civil society, whether intentional or not. Enclosures are cumulative. Fields asserts that enclosures weaken one set of rights while strengthening the rights of another, they are:

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137 In The Second Treatise of Government (1680), John Locke legitimates the transformation of common lands into private property through a series of philosophical moves that term commons as wasted lands. This view is rooted in a definition of value that, in turn, hinges on a definition of improvement that converts common lands into private property for capital gain though labour. To paraphrase through a Lockean lens, the West Beach park would be lands lying wasted in common that should be converted into private, industrious lands for the uranium refinery to increase its value, for the benefit of all mankind.

practices of power used by one group at the expense of another, consisting of two basic instruments: a legal instrument that redefines rights to property by reorganizing systems of ownership, use, access and socio-economic relations on the land; and a set of architectural elements that reinforce the new legalities of property while recasting the landscape itself.\(^{139}\)

Legal instruments are institutional mechanisms of containment that facilitate state-corporate power. Processes of enclosure, backed by institutional mechanisms, strengthen the material security of state-corporate interests, while increasing the material, corporeal and psychosocial insecurity of those dispossessed.

These acts and infrastructures of dispossession exceeded the physical footprint of the uranium refinery. As indicated in the chronological telling of this West Beach story, public reaction appeared to give broad consent to its demise, articulated through a showing of company loyalty and economic need over other societal interests. Yet my analysis of the historical record reveals that Eldorado could have expanded the UF6 refinery without demolishing the West Beach park. Public comments indicate that the community did not know this fact. Indeed, it appears that supporters firmly believed the corporate and local government message that the park must be sacrificed for Eldorado to even remain, let alone expand. Viewed in this way, there appeared to be no choice. Twisting the issue into a false binary, manipulating the agenda, and delimiting information upon which decisions were made are other forms of containment.

However, the articulation of consent over the loss of the West Beach park and loyalty to the refinery stemmed from a situation long rooted in uneven power relations, and from a sense of powerlessness in the face of all that the uranium refinery represented in its totality, rather than mere disregard for public space. Eldorado loomed large in this small community, and the relationship between the crown corporation and civil society was one characterized by uneven power relations. Power is accumulative and “the patterned dependency of the non-elite plus the effective wielding by the leadership of information about the emerging conflict allowed the elite

to shape their own legitimacy, to breed their own consensus.”

Containment of the social body through coercive means by the local elite, the refinery and local politicians, also work to shape the values of the social body. Economic values clearly trumped other social values and interests when the false choice between the refinery and the beach arose and sacrificing the public park was understood as common sense. Indeed, as I have revealed in this story, the issue had everything, yet nothing to do with the West Beach park at all.

Uneven power relations also permeated relationships within the state. During the process of purchasing and demolishing the West Beach park, Eldorado was involved in a court case stemming from its radioactive contamination of the Port Hope harbour. The crown corporation had spilled radioactive raffinate slurry, further polluting the already heavily contaminated harbour. Yet it was not local citizens who took action against the refinery. Similar to the enclosure (and contamination) of the West Beach, the community did not take overt action. Rather, the spill was a last straw for the MOE, which launched an intense legal battle against the refinery. Again, Eldorado’s legitimacy as an arm of the nuclear state was tested. In the next chapter, Failsafe, I examine these events to reveal a further mechanism by which Eldorado strategically drew on their powers and privileges as a federal crown corporation to again contain conflict and consolidate their power as an arm of the nuclear state.

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141 Also see Gaventa, *Power and Powerlessness*. 
Chapter 6

Failsafe: The Autonomous Space of the Crown Corporation

Shortly after the 1975 discovery of radioactive waste throughout Port Hope, Eldorado was implicated in a series of pollution events, including a refinery fire and a spill of radioactive raffinate into the already seriously contaminated harbour. The timing of the spill coincided with their negotiations to acquire the West Beach park and efforts to expand the UF6 refinery near the waterfront. The raffinate spill resulted in a court challenge by the MOE, an unprecedented rebuttal to the crown corporation’s clear dominance to date, and posed a further obstacle for Eldorado. These events marked increasing jurisdictional tensions between the provincial and federal scales of the state over the uranium refinery. The raffinate spill provides a focused lens to analyze one further means through which Eldorado not only retained, but intensified its operations in Port Hope. They did so, in part, by exerting their privileges as a federal crown corporation to effect sweeping immunity from provincial prosecution and environmental legislation.

At first glance, it may seem trivial to focus on this minor event, a seemingly small spill amongst the extensive contamination of the Port Hope area with radioactive waste. Yet as noted by Ann Laura Stoler, “minor histories should not be mistaken for trivial ones.” Investigating minor events may reveal otherwise hidden power relations that are elided, obscured, or forgotten precisely because of their seeming unimportance in the bigger picture. E.P. Thompson’s attention to historical specificity demonstrates the importance of micro-history in analyzing the consolidation of power and retention of stability. In this chapter, my focus on the non-catastrophe – a few hundred gallons amid millions of cubic metres – also shifts analysis from the abstraction of ‘widespread radioactive waste’ to one spill in order to uncover patterns and anomalies in the uneven power relations that, in cases like the Port Hope uranium refinery,

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underpin means through which power is also secured. A forensic analysis of minor events also reveals how mechanisms of containment within the state may also be nefarious.

Nicolas Blomley argues that “law is not just a language game. Its discourses cannot be isolated from material practice, but must be thought of as dialectically related to them.” For Eldorado, law became a means of containment. In this chapter, I analyze two court cases against Eldorado to demonstrate how crown agency status enabled the corporation to further contain the fallout of adverse events that threatened its refinery expansion plans. I first recount the raffinate spill at the uranium refinery and ensuing provincial criminal charges through a detailed analysis of the court decision and submissions of the parties, then analyze the decision of a second court case that also challenged Eldorado through federal criminal charges of conspiracy. Both cases provide historically grounded insight into how blanket immunity of crown privilege functioned to separate Eldorado from the politico-juridical sphere and provide it with privileges not afforded to other state apparatuses, nor to civil society. In effect, crown corporation status constituted a failsafe that cushioned the corporation from the deleterious consequences of its actions, and it was integral to Eldorado’s ability to foreclose the emergence of challenge and retain its position as a cornerstone of the nuclear state. Through this analysis, I demonstrate how Eldorado sought to operate in an autonomous space of impunity. My analysis of these events highlights a key mechanism of containment and pivotal ways in which Eldorado held itself as separate from civil society to consolidate power, yet I further reveal how Eldorado also held itself as above other elements of the nuclear state.

The Raffinate Spill

On December 3, 1978 – the same month that Eldorado hired Hough et al consultants to improve Eldorado’s appearance and plan its property expansion – a rubber hose used to transfer acid raffinate slurry into cement trucks for transfer to the Port Granby radioactive waste dump ruptured, spilling raffinate onto the ground. At the time, an unknown quantity of this highly

radioactive material entered the Port Hope harbour through the storm sewer. Eldorado did not report the spill to either the AECB or the MOE, as required by their refinery licence, apparently seeking to keep knowledge of the accident contained. The spill was only discovered much later, when the MOE detected unusually high radium 226 concentrations in the harbour.

The MOE sampled the harbour on December 11th as part of their ongoing monitoring, yet the results took weeks to prepare. On January 19, 1979, over six weeks after the spill, the MOE received laboratory results indicating high levels of radium 226, and they informed Eldorado. Despite the MOE’s concern, an investigation was not undertaken until January 22nd, when the results of Eldorado’s own water sampling indicated radium concentrations much higher still. The ensuing investigation uncovered how the spill happened yet also revealed that since the raffinate accident involving a ruptured hose, Eldorado had continued to discharge raffinate into the harbour through poor routine transfer practices. Because of these incidents, the MOE estimate that 300-500 gallons of highly radioactive raffinate entered the harbour in total. On January 31, 1979, apparently under some pressure, Eldorado issued a press release stating that although radium levels two to three times in excess of federal drinking water standards were found, the town’s water supply was unaffected. Implicit in this statement was assurance that the radioactive harbour was nothing for residents to be concerned with. Their press release focused

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4 Before the spill, the MOE last sampled the water on November 30th which was recorded as “normal.” Water samples after the spill showed radium 226 concentrations between 20 and 28 pCi/l, in stark contrast to “normal” levels between 2 and 4 pCi/l. Eldorado’s results showed up to 45 pCi/l from December samples.

5 MOE, “Draft Preliminary Unusual Occurrence Report: Elevated Radium Levels in Port Hope Harbour,” Ontario Water Resources Branch, Central Region, January 1979; Peter Hughes, “ENL, Port Hope Ontario Summary Report,” January 30, 1979; R.E. Bowen, “Follow-up Investigation Raffinate Spill to Port Hope Harbour,” May, 14, 1979; Peter Hughes to T.D. Armstrong, “Spill of Raffinate to Port Hope Harbour,” May, 16, 1979, RG 12-88, B263008, v. IV, Pt. 1, AO. These MOE reports provide substantial technical detail about the raffinate spills and Eldorado’s pre and post spill procedure for treating and handling this waste product. Raffinate is highly radioactive waste product from a solvent extraction process of uranium ore and it has a very high radium concentration of approximately 300,000 pCi/l.

6 ENL, “Press release,” January, 31, 1979, RG 12-88, B263008, v. IV, Pt. 1, AO. At the time, the Port Hope water supply was approximately 2500 feet off shore to the west of the refinery. For illustrative purposes, MOE drinking water standards were 5 parts per million (ppm) for uranium, 3 pCi/l for radium 226, and 0.05 ppm for arsenic. See P. Hughes to L. Donofrio, February 17, 1976, RG 12-45, Minister of MOE Files, B140948, AO.
on the ruptured hose incident, omitting the latter, more routine discharges of raffinate that also contaminated the harbour.

The State versus the State: Regina v Eldorado Nuclear Limited

Following the raffinate spill, the MOE laid two criminal charges against Eldorado for violating the Ontario Water Resources Act (OWR Act). The provincial government alleged that in December 1978 and January 1979 the crown corporation allowed a radioactive substance to enter the Port Hope harbour, possibly impairing the water quality, and then failed to report the spill to provincial authorities. The ensuing court case Regina v. Eldorado Nuclear Ltd. pivoted on the issue of whether Eldorado was immune from prosecution under the OWR Act because of its status as an agent of the federal crown.

Regina v. Eldorado hinged on the interpretation of several key legislative clauses pertaining to crown corporations. All parties agreed that Eldorado was a company as defined in s. 3(1) of the Government Companies Operation Act, wherein every company under the Act “is for all its purposes an agent of Her Majesty and its powers may be exercised only as an agent of Her Majesty.” However, they held fundamentally differing positions on the scope of immunity for

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7 Peter Hughes, the representative of the provincial crown was the active District Officer of the Industrial Abatement Section, Central Region of the MOE, and had significant experience with the Eldorado refinery. Neil Mulvaney, Director of Legal Services for the MOE worked behind the scenes to prepare recommendations for laying criminal charges against Eldorado under both the federal Fisheries Act and the OWR Act. For internal correspondence prior to laying charges, see RG 12-88, B263008, v. IV, Pt. 1, File River Basins Port Hope Harbour, AO; Internal MOE correspondence shed insight into how the province viewed the raffinate spill in the context of federal-provincial jurisdiction. In July 1979, the Ontario Water Resources Branch lamented that despite the magnitude of the spill, there were “constitutional considerations” that may pose difficulties in pursuing charges under s. 32 of the OWR Act, see C.H. Mills to Neil Mulvaney, “Memorandum: Eldorado Nuclear Limited – Port Hope,” July, 26, 1979, RG 12-88, B106122, v. IV, Pt. 1, File River Basins Port Hope Harbour, AO.

agents of the crown. Eldorado relied on the federal *Interpretations Act* as a basis for establishing their immunity as a crown agent, in which it states:

> no Act affects the rights of Her Majesty, Her heirs or successors, unless it is expressly stated therein that Her Majesty in bound thereby.\(^9\)

Subsequently, they relied on the definition of “Crown” in the *OWR Act* (“Crown means Her Majesty the Queen, in right of Ontario”) to demonstrate that because the federal crown was not explicitly named, then Eldorado, as a federal crown agent, had absolute immunity from prosecution under this provincial legislation.\(^10\) On the contrary, counsel for the MOE argued that Eldorado had limited agency because terms and conditions of its licence required the refinery to comply with provincial legislation.\(^11\) The province further claimed that the raffinate spill constituted a crime. In committing a crime, the province argued, Eldorado acted outside its purpose as a crown agent, thereby losing its immunity from prosecution.

**Court Case chronology**

In laying the two charges, Peter Hughes, the Provincial Officer from the MOE, who stood as the Appellant for the province, alleged that Eldorado had violated s. 32(1) of the *OWR Act*:

> Every municipality or person that discharges or deposits or causes or permits the discharge or deposit of any material of any kind into or in any well, lake, river, pond, spring, stream, reservoir or other water or watercourse or on any shore or bank thereof or into or in any place that may impair the quality of the water …[of the above] is guilty of an offence and on summary conviction is liable on first conviction to a fine of not more than $5,000 and on each subsequent conviction to a fine of not more than $10,000 or to imprisonment for a term of not more than one year, or to both such fine and imprisonment

and violated s. 32(3) for the failure to “forthwith notify the Commission of the discharge, deposit or escape.”\(^12\) The MOE argued that Eldorado was subject to provincial legislation relevant to the refinery’s numerous provincial authorizations. The MOE’s argument had several angles. The

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province submitted evidence of over 50 authorizations that Eldorado had applied to the province for, all of which the province had approved.\(^{13}\) In applying for and receiving these authorizations, they asserted that Eldorado had tacitly submitted to provincial law and was thus legally bound by the terms and conditions of provincial authorizations and their respective legislation.

Further, the MOE cited the following clauses in the refinery licence to demonstrate that the crown corporation was also bound by its own licence to adhere to the \textit{OWR Act}:

\begin{quote}
applicable federal, provincial and municipal requirements not inconsistent with the Atomic Energy Control Act and Regulations shall be complied with.

… all provincial requirements of the Province of Ontario and all municipal requirements of the Town of Port Hope not inconsistent with the Atomic Energy Control Act and Regulations shall be complied with.\(^{14}\)
\end{quote}

Counsel for the Appellant relied on the above clauses to demonstrate that the licence restricted the crown’s agency to the scope of its license. The MOE also relied on case law to argue that by violating the terms and conditions of its license, Eldorado acted outside the scope of its agency, thereby losing its crown immunity from prosecution.\(^{15}\) The MOE also said that the crown corporation was bound by the \textit{OWR Act} because Eldorado benefited from this legislation by being granted provincial authorizations necessary for operating the refinery. To refute the charges, legal counsel for Eldorado set out that since the federal crown was not specifically named in the \textit{OWR Act}, then the provincial legislation did not apply. The federal crown argued that the AECB and its acts and regulations had sole jurisdiction over the refinery with respect to

\begin{footnotes}
\footnote{The authorizations presented by counsel for the province are for works such as sewage, air emissions, and the disposal of solid waste, including for the Port Granby waste facility, issued under the \textit{OWR Act} and the \textit{Environmental Protection Act}. Linda McCaffrey, Counsel for the Appellant, “Submissions on Notice of Motion,” April 14, 1980, 40, \textit{Regina v. Eldorado}, RG 22-3079, B104986, AO.}  
\end{footnotes
all environmental and regulatory matters.\textsuperscript{16} In essence, Eldorado asserted broad immunity from all provincial environmental legislation.

At the close of the preliminary hearing, Judge Murphy postponed the decision on whether or not the case would go to trial. Then, on May 2, 1980, the two charges against Eldorado were dismissed based on arguments presented by legal counsel for Eldorado that as a federal crown agent, the crown corporation was not subject to prosecution pursuant to the \textit{OWR Act}. In dismissing the charges, Murphy found that since the \textit{OWR Act} did not specifically name the federal crown as subject, then the Act did not apply to Eldorado. He also found no evidence that the purposes of the \textit{OWR Act} would be “wholly frustrated” by such an implication.\textsuperscript{17} Further, Murphy said the refinery was not gaining a benefit from authorizations issued under the \textit{OWR Act} and therefore was not bound by its burdens. On this latter point, Murphy noted that the benefits accrued to Eldorado under legislation, notably that of a license to operate a uranium refinery, were granted pursuant to federal legislation under the \textit{Atomic Energy Control Act} under the AECB, not provincial legislation.\textsuperscript{18} The reasons for judgement state:

\begin{quote}
the Crown can only be bound, (a) if it is expressly named in legislation which a Province is competent to enact, (b) by necessary implication, and (c) where the federal Crown seeks the benefits of such legislation and is obliged to accept its burdens.\textsuperscript{19}
\end{quote}

In response to the charges being dismissed without trial, the province, again through Peter Hughes of the MOE, appealed the decision.\textsuperscript{20} Counsel for Eldorado postponed the appeal hearing until February 5, 1981.\textsuperscript{21} A review of the appeal further shows the legal implications of crown agency and immunity. In response to the MOE’s position, that Eldorado should be prosecuted because in spilling raffinate and failing to report it, the refinery acted outside the scope of its agency as a crown corporation, Judge Carley cited \textit{R. v. Canadian Broadcasting Corporation

\begin{thebibliography}{99}
\bibitem{17} Regina v. Eldorado Nuclear Limited, \textit{Dominion Law Reports}, 393.
\end{thebibliography}
(1979), a court case that also involved the immunity of a federal crown corporation, wherein it was stated:

…when the Corporation exercises its powers with a view to carrying out the purposes of the [Act], it acts as agent of Her Majesty and only as agent of Her Majesty. But, when it exercises its powers in a manner inconsistent with the purposes of the Act, it steps outside its agency role. That role subsists only so long as the Corporation’s [activities] are implementing the policy laid down in the Act …

there is a limit to the agency if the conduct of the person so appointed is adverse to the interest of the Crown and amounts to a crime, then clearly there can be no immunity. Her Majesty would not confer it and the Court should not assume it …

In my opinion, conduct which amounts to a crime is conduct adverse to the interest of the State and the Crown. In this case the conduct [of CBC] did amount to a crime and was specifically forbidden by the Regulations and the Act.²²

While the MOE argued that Eldorado’s actions “constituted a crime under s. 176 of the Criminal Code,” Judge Carley disagreed:

such extended culpability should not be assumed … [and] there is no admission by the respondent [Eldorado] of any act which would constitute a crime. In short, there is no admitted crime by the respondent or any express legislative provision in either the A. E. C. Act or its Regulations which would entitle this Court to infer that the authority of Her Majesty’s agent Eldorado was being limited otherwise than by s. 31 of the Government Companies Operating Act ‘for all its purposes.’²³

In analyzing the charges, Judge Carley said that Eldorado had not contravened the Atomic Energy Control Act or its regulations as neither expressly forbade the alleged conduct of allowing raffinate to enter the harbour and possibly impair the water quality. The OWR Act, which did prohibit these activities, did not expressly bind the federal crown. Therefore, the court could not find that Eldorado committed a crime. Unless explicitly constrained by federal legislation pertaining to nuclear facilities, Eldorado was free to pollute with impunity.

In effect, the court said the refinery licence was the only instrument that Eldorado could have been in contravention of. A breach of a licence, however, was insufficient cause for limited crown agency or to lose immunity from prosecution:

²² Regina v. Eldorado Nuclear Limited, Dominion Law Reports, 398.
I cannot find that the breach of this condition in Eldorado’s licence is in the same category as a breach of an express prohibition in the A.E.C. Act or Regulations, or of such a serious nature as to cause one to conclude that it represented a limited authority within the contemplation of the Sovereign.\(^\text{24}\)

Regarding the benefits and burdens under the *OWR Act*, Judge Carley took note that Eldorado benefited from provincial authorizations, however, Eldorado was only required to report the raffinate spill to the province. The AECB, another federal crown corporation with a mandate for facilitating the nuclear industry, had jurisdiction over punitive action. Noteworthy, however is the MOE’s assertion: the benefits to Eldorado from the *OWR Act* are that the federal crown “avoid[s] the necessity of formulating its own laws relating to the environment or setting up the machinery to enforce them.”\(^\text{25}\) While this is factually the case, this argument was also summarily dismissed. The implications for Eldorado were then that provincial legislation did not apply and federal legislation did not exist. Employing another tactic, the province raised the question of whether the uranium refinery had limited immunity because it was operating as a commercial enterprise in sovereign provincial jurisdiction, likening the relationship to operating in a foreign sovereign state. Again, the provincial argument was quashed on the grounds that sovereignty between two states is not a relevant comparison to the relationship between the federal state and its provinces.\(^\text{26}\) In short, the MOE appeal was dismissed on all fronts.

The MOE continued to pursue legal action, not content with the implications of Eldorado’s immunity from provincial legislation. A further appeal by the province was heard on October 13, 1981 in the Supreme Court of Ontario but also dismissed. In summary, Judge Grange noted that both he and Judge Catzman agreed with Judge Carley’s prior decision: Eldorado had not lost its immunity from prosecution in applying for provincial authorizations. However, these latter appeal Judges then stated:

the only problem that gave us concern was the condition in the accused licence [to comply with all requirements of the Province of Ontario not inconsistent with the Atomic Energy Control Act and Regulations] and the argument that because of it the federal crown was

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adopting the provincial legislation or that the accused crown agency was limited to such activities as did not contravene the Ontario statute.\textsuperscript{27}

Despite this concern about conditions in Eldorado’s license scoping them into provincial legislation, the court determined that a violation of the licence was insufficient to affect Eldorado’s immunity as a federal agent of the crown:

to us the only result to the accused of a failure to comply with provincial law would be a review or a suspension of the licence of operation, a condition of which was the observance of that law. Having reached the conclusion that the accused has not lost its immunity, either by federal or provincial law or conduct, we find it unnecessary to consider the accused’s further argument that the province is incompetent constitutionally to bind the federal crown.\textsuperscript{28}

Indicative of the “cozy” relationship between the Eldorado and the AECB, the spills and lack of reporting did not result in any sanctions to suspend or revoke the refinery licence.\textsuperscript{29} It appears that the AECB merely ordered Eldorado to investigate the spill and prepare a mitigation plan to prevent a further occurrence.\textsuperscript{30}

In summary, that Eldorado spilled raffinate into the harbour, chose not to report it, and contravened its refinery licence proved decidedly irrelevant and immaterial within the court case.

\textsuperscript{27} Regina v. Eldorado Nuclear Limited, \textit{Ontario Reports}, second series 34 O.R. (2d), (1982), 244.
\textsuperscript{29} See Penny Sanger, \textit{Blind Faith: The Nuclear Industry in One Small Town} (McGraw-Hill Ryerson, 1981). Also see G. Bruce Doern, \textit{Government Intervention in the Canadian Nuclear Industry} (Montreal: Institute for Research on Public Policy, 1980), for analysis of the regulatory framework. In submissions to the court, Linda McCaffrey, counsel for the province, argued that in addition to breaching its licence, Eldorado may have contravened s. 24(1)(d) of the AEC Regulations “which requires the Corporation to take all reasonable precautions to prevent an escape of radioactive material from the premise.” See Linda McCaffrey, “Submissions on the Issue of Crown Agency,” Item 7: 4, November 5, 1980, \textit{Regina v. Eldorado}, RG 22-3079, B104986, AO; She also pointed out to the court that the AECB is authorized under s. 9 of the regulations to include conditions regarding health, safety and security in the refinery licence, and that Eldorado may not operate the uranium refinery except in accordance with its license. Moreover, she noted that s. 27 of the AEC Act authorizes the AECB to “suspend or to revoke the licence, which as noted, did not appear to occur. See Linda McCaffrey, “Submissions on the Issue of Crown Agency,” Items 16, 17 and 18: 7.
However, the implications of the raffinate spill and the privilege of Eldorado to operate a uranium refinery under the status of a crown corporation are not irrelevant, nor are they immaterial. Indeed, these circumstances raise serious questions as regards the material effects of uneven power relation between scales of the state, and between the state and civil society. The implication is that Eldorado was inoculated from the law and could act in such a way as to cause harm to the environment, and, as seen in previous chapters, pollute the private and public spaces of a small community with no apparent recourse. This was a position of power and privilege that the refinery was exceedingly aware of. The following analysis of submissions to the court by both parties brings these tensions to the forefront.

Submissions to the Court

A detailed analysis of submissions to the court by Eldorado and the province flush out the material implications of the uranium refinery’s immunity as a crown corporation. First, as noted above, Regina v Eldorado shed further insight into the close relationship between the Eldorado uranium refinery and its federal regulator, the AECB, another federal crown corporation. Second, as detailed further below, the case heightened jurisdictional tensions between the provincial and federal state, reinvigorating political debate over the lack of environmental regulations, monitoring and enforcement at the Eldorado refinery. These issues surfaced in the radioactive waste crises in Port Hope during the mid-1970s, yet never amounted to substantive reform. Third, the immunity of Eldorado beget serious questions regarding why the state, let alone its corporate arm – a uranium refinery - should function in a privileged sphere of politico-juridical autonomy, separate from, and above, civil society. I address these two latter issues in turn.

Environmental Regulation: Benefit or Burden?

Conflict between the federal and provincial governments over the accountability of the uranium refinery were deepened through the events of the raffinate spill and court challenges. The province, citing the lack of federal environmental regulations in the nuclear field, argued that Eldorado must be bound by provincial law:
It is the Federal Crown which has invoked the provincial laws in this case. The benefit to the Federal Crown is the closing of the regulatory gap by invoking provincial laws in areas which the Atomic Energy Control Act and its regulations are silent. Environmental protection is one of these areas. The benefit to the federal government is the avoidance of the burden of formulating environmental legislation in relation to nuclear facilities and providing machinery for its enforcement. The immunity from provincial legislation, foregone by the Crown, cannot then be claimed by its agent.\textsuperscript{31}

The implications of Eldorado’s immunity from the \textit{OWR Act} is that they are then immune from the whole suite of provincial legislation that pertain to the uranium refinery. Indeed, the potential for the court decision to be precedent setting in this regard was a contentious point. Linda McCaffrey, legal counsel for the MOE, pointed out the logical extension of this scenario was that all crown corporations in Canada would be similarly exempt from all provincial legislation in which they were not expressly named. Both the federal and provincial governments own and operate numerous crown corporations. If all state owned and operated “industrial and commercial” undertakings are immune, then all provincial environmental legislation, such as the \textit{OWR Act}, are wholly frustrated and lose all their intended purpose and effect.\textsuperscript{32}

McCaffrey also highlighted that Eldorado enjoyed further benefits from provincial environmental legislation in \textit{appearing} as a good corporate citizen:

\ldots you have to look at good corporate citizenship as a whole and seeking approvals is one aspect of it and complying with the laws that prohibit impairing water quality is another aspect of it and that the principle shouldn’t be changed by some persons assertion that the corporate intent was to be a good corporate citizen. They get benefits from that and I think those benefits are largely in terms of public relations and if there were no benefit perceived by them, it’s hardly to be expected that they would seek those approvals.\textsuperscript{33}

Here, Eldorado’s moniker of ‘good corporate citizen’ was seen as productive to refinery interests. McCaffrey continued that Eldorado’s provincial authorizations are “licences to pollute” under certain conditions and therefore benefit how the refinery is viewed by civil society. These authorizations contain and legitimize the refinery’s wastes, constituting:

\textsuperscript{33} Linda McCaffrey, “Submissions on Notice of Motion,” April 14, 1980: 52.
intangible benefits that, when as in Port Hope, concerned citizens want answers on pollution, [Eldorado] may reassure them to some degree by saying that the provincial minister of the environment who are responsible for pollution control know what we are doing and have assessed our discharges and they say alright and here are our certificates to prove it.\(^{34}\)

Indeed, Eldorado used its provincial refinery authorizations in precisely this manner, to appear as a ‘good corporate citizen’ to quell public concern and to distance itself from adverse repercussions of radioactive waste.

While the provincial regulations, public relations, and good corporate citizen arguments failed to sway the court, they raise fundamental issues regarding the accountability of crown corporations to civil society. A member of the local Port Hope Environmental Group summarized the implications of Eldorado’s immunity for the protection of the environment and civil society:

> The federal government also evades responsibility through the privileges which it gives its Crown Corporations…Crown Corporations appear to be protected at present in ways which are detrimental to the general welfare. For example, not even the AECB is legally entitled to compel a Crown Corporation such as Eldorado ‘to initiate corrective measures which it believes to be in the public interest’ [quote by Mr. Jennekins, President, AECB, Port Hope Evening Guide 3.12.79] when the Ontario Ministry of the Environment charged Eldorado for discharging radioactive raffinate into the Port hope harbor in 1978 and 1979, the case was dismissed essentially on the grounds that provincial environmental law does not apply to Crown Corporations such as Eldorado. …What protection does the public then have, if provincial law does not apply and federal environmental law does not exist? For the public to face the nuclear industry with some degree of confidence, this industry should surely be subjected to the same protective laws and regulations as are other industries. Both the federal and the provincial governments should make sure that it is.\(^{35}\)

Enclosing the refinery within the narrow scope of federal atomic legislation however, and protecting crown privilege is precisely what Eldorado sought in *Regina v Eldorado*. As clearly stated by their legal counsel, Peter Atkinson:

> I simply wish to advance two preliminary arguments, the first one will deal with my submission that Eldorado Nuclear Limited is an agent of the Crown and that it is not subject as a matter of law to provincial legislation. The second submission will be

\(^{34}\) Linda McCaffrey, “Submissions on Notice of Motion,” April 14, 1980: 54.

that the Atomic Energy Control Act is valid Federal legislation and that it occupies the entire field with respect to laws applicable to uranium refineries and to the disposal of nuclear waste and that the Ontario Water Resources Act can have no application to the question of the disposal of nuclear waste.\textsuperscript{36}

Exclusivity in federal jurisdiction over the entire scope of the refinery’s undertaking, as articulated above, effectively meant that the only legislation that legally applied to Eldorado was the federal AEC Act. According to this logic, and to the court decision, Eldorado’s compliance with provincial authorizations and legislation was voluntary.

In claiming exclusive jurisdiction for atomic energy, Eldorado then claimed that the province had no jurisdiction with respect to raffinate as it is a radioactive material. Specifically relying on the AEC Act that grants authority over atomic energy to the federal government, Atkinson argued that it is “incompatible with the Federal power to legislate with respect to the control of atomic energy if the disposal of atomic waste was not also within the Federal jurisdiction.”\textsuperscript{37} In \textit{Regina v Eldorado}, the crown corporation claimed exclusive federal jurisdiction over radioactive wastes when they sought its benefit:

The refining of the uranium, of course, isn’t just the extraction of the uranium, the product that Eldorado is looking for, it also deals with the taking of the good and dealing with the bad…Decisions as to both of those aspects is vital to the decision making, vital to the operation of the refinery. They certainly can’t just look to one aspect and not deal with another…those decisions are important decisions and if they aren’t properly made then a breach of the Regulations could well occur because if management doesn’t exercise their discretion properly…they may well find they have breached the provisions of…section 24 by allowing an escape of radioactive material and that then brings them under the provisions of section 19 of the Act and liability for prosecution.\textsuperscript{38}

Noteworthy is the assertion that radioactive waste is a “vital” and “integral” component of the management and operation of the refinery in Port Hope, and therefore falls under exclusive federal jurisdiction.\textsuperscript{39} Also in these submissions is an implicit admittance that Eldorado could have been – yet was not – subject to prosecution by the AECB.


\textsuperscript{37} Peter Atkinson, “Submissions on Notice of Motion,” April 14, 1980: 22.

\textsuperscript{38} Peter Atkinson, “Submissions on Notice of Motion,” April 14, 1980: 38.

\textsuperscript{39} Peter Atkinson, “Submissions on Notice of Motion,” April 14, 1980: 33.
In response to a direct question from the court: “Is there any Ontario Legislation that you are aware of, that specifically binds the Federal Crown?” counsel for Eldorado responded “No, I can’t think of anything at the moment.” Subsequently, Eldorado set out that the federal government, through the AEC Act, had “exclusive jurisdiction over all aspects of nuclear control and development.” The province was not competent to “legislate in any aspect of Nuclear production, control, development, whatever. There’s no area left for the Federal government has exclusive authority in that area.” Moreover, in furthering the argument over exclusive federal jurisdiction over the uranium refinery, Atkinson drew on the “peace, order and good government” clause of the British North America Act and the AEC Act to assert: “Eldorado Nuclear …has been declared to be a work for a general advantage of Canada.” Setting themselves above provincial reach, these assertions also position the uranium refinery as an undertaking for the political and economic benefit of the nuclear state and all its dealings as beneficial for Canada as a whole.

Eldorado’s positions taken in Regina v Eldorado were incompatible with arguments that they used to distance themselves from the cause, cleanup, fiscal and legal liability of the Port Hope radioactive waste. Recall in Chapter 2, that much blame, cost and effort for the contamination of Port Hope was put by both Eldorado and the AECB onto the province. At that time, Eldorado

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40 Peter Atkinson, “Submissions on Notice of Motion,” April 14, 1980: 18. A subsequent question of whether or not provincial legislation has constitutional authority to legally bind the federal government was noted as an issue for discussion but not pursued in this case.
42 Peter Atkinson, “Submissions on Notice of Motion,” April 14, 1980: 24; Regina v. Eldorado, RG 22-3079, B104986, AO; Atomic Energy Control Act, R.S., c.11, 17, Chapter A-19, Revised Statutes of Canada Volume 1, Chapters A-1/C-27, (1970), 153-161. The arguments regarding Eldorado as a work for the general advantage of Canada pursuant to s. 17 of the AEC Act also drew on two cases pertaining to other nuclear undertakings, the Pronto Uranium Mines Limited case and the Denison mines case. The AEC Act sets out the national importance of atomic energy: “all works and undertakings whether heretofore constructed or hereafter to be constructed, (a) for the production, use and application of atomic energy, (b) for research or investigation with respect to atomic energy, and (c) for the production, refining or treatment of prescribed substances, are and each of them is declared to be works or a work for the general advantage of Canada.
asserted compliance with provincial regulations to delimit fiscal and legal liability and deflect responsibility for the contamination of Port Hope:

Eldorado and its predecessor have complied substantially with all applicable rules, regulations and requests of the AECB and the OMH, and other Federal and Provincial departments and agencies having responsibility in these matters.43

At the time, also recall that in the immediate wake of the 1975 crisis, Eldorado sought to be treated as a private corporation, not a crown corporation, and therefore absolved of the responsibility to clean up its radioactive waste. To delimit their liability for the Port Hope contamination, the AECB had also put responsibilities onto the province, saying that AECB duties regarding Eldorado, including its radioactive waste, were “discharged” when they “approved a site and enforcement fell to other parties (such as the MOE) through licenses.”44

This statement is an assertion that the federal government does not occupy the entire field with respect to radioactive materials. As is evident in their court submissions, Eldorado strategically claimed exclusive federal jurisdiction for radioactive waste, again, contrary to its earlier assertions that the province bear responsibility for the waste, one third cost for Port Hope remediation, and participate in the clean up. Assertions that radioactive waste was under exclusive federal terrain and vital to refinery operations, is incompatible with these previous positions. Yet in Regina v Eldorado, the stakes were different. In 1975, both federal crown corporations were deflecting liability and blame; now the benefits of crown privilege needed to be upheld for their federal crown benefit.

Does “Everyone” include the State? Is the State a “Person”?  

In Regina v Eldorado the implications of crown privilege also raised several means through which the federal state was positioned as separate from ‘lesser’ forms of the state, and from civil society. In their court submissions, Eldorado admitted that the OWR Act is intended to apply to everyone: “This …is an Act of very wide application and applies to everyone including

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43 N.M. Ediger to A.T. Prince, “Cost Sharing Port Hope Cleanup.”
municipalities.” For Eldorado, however, “everyone” did not include the federal crown. They also pointed out that offences under the *OWR Act* apply to “every municipality or person” yet, again argued that neither “municipality” nor “person” included Eldorado. Of particular interest is Atkinson’s subsequent discussion on what is intended by the word “person.” Acknowledging that “person” under the Criminal Code of Canada does scope in the federal crown, he then argued that Eldorado could not be a “person” for the purpose of criminal charges. To demonstrate this point, Atkinson submitted discussion from *C.B.C.* (1959) in which the court stated:

> to say that [person] intends and has affect to include the Crown as an ordinary subject of the prohibitory or the penal provisions of the [Criminal] Code is repugnant to the principle of immunity.

To clarify, Atkinson explained that in the case cited above, “person” in the Criminal Code is intended only to apply to victims, not perpetrators, of crimes. While the Criminal Code scopes in the federal crown as a “person,” and the term “person” under the federal *Interpretations Act* (which Eldorado relied on to establish their crown immunity) also includes corporations, were argued as insufficient to scope Eldorado into the *OWR Act*. What Eldorado strongly implied, while not explicitly stated, is that they could not be a “person” in this context, that is, Eldorado could only be a “person” if they were a victim of a crime, but not the perpetrator.

Subhabrata Bobby Banarjee argues that legal identification of corporation with “person” is a legal fiction argument of the corporation in order to create a legal soul for the artificial corporate person run the danger of conflating citizenship with personhood. A corporation cannot be a citizen in the same way a person can. A corporation can however be considered a person as far as its legal status is concerned. Current notions of corporate

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45 The Court, in Peter Atkinson, “Submissions on Notice of Motion,” April 14, 1980: 69. Whether or not “everyone” includes the federal crown was also a pivotal contention in another court case involving Eldorado Nuclear Limited [Regina v Eldorado (1983)] on the immunity of crown corporations, in which it was alleged by the federal government that Eldorado Nuclear Limited and Uranium Canada, also a federal crown corporation, could be charged under the *Combines Investigations Act* in connection to a cartel arrangement for price fixing on the domestic uranium market. See Kirk Makin’s news article on the story, “Uranium Price-fixing: Two Crown Firms Immune to Prosecution, Court Rules,” *Globe and Mail*, April, 24, 1982.

46 The Court, in Peter Atkinson, “Submissions on Notice of Motion,” April 14, 1980: 15.
citizenship conflate citizen…which a business corporation cannot be – and person (which a corporation can be but only as ‘legal fiction’).\textsuperscript{47}

However, whether or not Eldorado can be a “person” is complicated by the fact that this corporation is also the federal crown – an arm of the nuclear state. As noted above in reference to the Criminal Code, the state can legally, yet strategically and selectively, be a person – a ‘legal fiction’ that distorts both citizen and personhood.

Moreover, by extension, the implications of Eldorado as not a “person” if subject to criminal charges has grave implications for their potential liability with regards to the widespread radioactive waste in Port Hope. The judge specifically questioned their counsel regarding this matter:

There haven’t been any charges concerning the removal of the contaminated material in Port Hope. Has that all been done under the Atomic Energy Control Regulations?\textsuperscript{48}

In their short reply before directing the discussion back to the raffinate spill, counsel for Eldorado only commented that the province “became involved in the process in detecting problems for instance, but the place that Eldorado looks to and which directs Eldorado as to what it should do is the Atomic Energy Control Board.”\textsuperscript{49} This latter exchange raises two issues, the first being that the court suggests that while Eldorado did not face charges over the contamination of Port Hope with radioactive waste, they could have been subject to charges, although they were silent on who would have laid such charges. But, it also appears that the state could have been found to be a perpetrator of a crime under certain conditions. Secondly, undervaluing the provincial role in the management of Eldorado’s radioactive waste problems appears a calculated move to assert federal sovereignty in this context.


\textsuperscript{48} The Court, in Peter Atkinson, “Submissions on Notice of Motion,” April 14, 1980: 26.

Regina v Eldorado demonstrates how the uranium refinery in Port Hope was fraught with political contestation. Analysis of the court decisions and submissions shows how the Appellant (the province), the Respondent (Eldorado), and the courts viewed the politico-legal sphere of Eldorado as a crown corporation. Further, the court decision is a potent example of how the status of federal crown corporation functioned materially to benefit the refinery within the legislative and juridical sphere. The uranium refinery positioned itself as a privileged state entity not subject to any provincial jurisdiction or prosecution, yet the province clearly saw the Eldorado uranium refinery as scoped within its own environmental protection legislation. Their extraordinary efforts at dislodging Eldorado’s license to pollute, so to speak, merit further analysis.

Regina v Eldorado Nuclear Limited in the Political Realm

Behind the Scenes at the Provincial Scale

Behind the scenes of the provincial government, Eldorado’s conduct and immunity from provincial legislation were making waves. The jurisdictional tension between the federal and provincial government over the raffinate spill was debated in the Legislature Assembly of Ontario. Shortly after the May 1980 court decision that dismissed the charges, the Minister of the MOE, Hon. Mr. Parrott, came under political fire for the apparent gap in environmental legislation that the court decision upheld. An opposing member of the legislature pressed whether or not the Province would appeal the decision that “effectively exempts Eldorado Nuclear Limited from any environmental regulation in Ontario.”50 This same member then directed the following question to the Minister before calling the situation with Eldorado and the nuclear industry a “charade:”

…since Eldorado has been running roughshod over Ontario environmental regulations in such matters as the spills of radioactive material from tailings in Port Hope and its air pollution emissions in Port Hope, is the minister saying right now that he has no position?

Can he tell the House how Ontario citizens can be ensured that our stronger environmental regulations will be applied to Eldorado Nuclear rather than the weaker federal standards?

While the Minister asserted superiority of provincial environmental law over impoverished federal legislation and the importance of the court decision, he reserved further comment. Another speaker then directed a question to the Minister regarding how this court decision would affect the proposed new refinery in Blind River.\(^1\) These exchanges make it apparent that Eldorado was on the provincial radar at the time, and both the incumbent and opposition parties shared concerns with environmental issues at the Port Hope refinery. All perceived the court decision as having grave consequences for provincial jurisdiction and for environmental protection more broadly.

These misgivings were subsequently realized. Indeed, the decision in *Regina v Eldorado* proved to be a deterrent for further punitive action by the provincial government against the uranium refinery for what they saw as inappropriate or hazardous disposal of radioactive waste. A prominent example is that the MOE were subsequently discouraged from filing charges for radioactive waste taken from the Port Hope West beach and dumped in the town landfill, rather than at facilities licensed by the AECB for radioactive waste.\(^2\) The province knew they would lose. The raffinate decision also deterred the province from seeking legal recourse after Eldorado failed to report high levels of uranium dust falling on Port Hope that were about 25 times previous levels. While the Ontario government, again represented by Peter Hughes, complained to the federal government, no charges were laid. Kim Shikaze, regional director for Environment Canada, thought that the refinery should have reported the problem much earlier: “I think it’s inexcusable. I don’t know what goes on in their minds. They just seem to go from problem to problem.”\(^3\) Clearly, the court decision provided Eldorado with a legal mechanism of

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\(^1\) Mr. Wildman, “Hansard Transcripts,” Legislative Assembly of Ontario, May 5, 1980. At the time, the political decision on where to locate the new refinery facilities were still being debated, with Port Hope, Hope Township, and Blind River all candidates.


\(^3\) Kirk Makin, “Eldorado Late in Reporting Rising Uranium Dust Level,” *Globe and Mail*, May 12, 1981. This time period is precisely when Eldorado was seeking site approval for the UF6 refinery expansion to be located in the town of Port Hope and sealing the deal on acquiring the
containment, a deterrent against the province launching future court proceedings. Regina v Eldorado secured Eldorado’s crown-corporate privilege to dispose of radioactive wastes as they saw fit.

**Back in Court: The Uranium Cartel**

Eldorado’s privilege as a federal crown corporation was again tested in 1983, when they were implicated in a second court case, *R. v Eldorado Nuclear Limited* (1983), hereafter *R v ENL*, for clarity, in which the court decision also hinged on its immunity as a crown corporation.\(^5^4\) This case adds to my analysis of immunity in the raffinate case and I draw on *R. v ENL* to demonstrate that Eldorado’s crown immunity had implications in Canadian case law; to further show the implications for uneven power relations between the state and civil society; and to demonstrate how crown immunity enabled the corporation to operate without politico-juridical oversight.

*R v ENL* pertained to an alleged uranium cartel that conspired to fix uranium prices on the domestic market.\(^5^5\) There are several compelling issues that arise from the decision. Analysis of the case shows parallels with arguments set out in *Regina v Eldorado* that “everyone” does not include the crown and its agents. However, commentary from the Judge reveals how the courts viewed crown immunity and the privileges it granted the state, particularly Eldorado, as problematic. In dismissing the charges, the court noted it did so with reluctance, with two of five Judges in the Supreme Court of Canada dissenting in part.\(^5^6\) Yet, as immunity was ultimately upheld, the decision further demonstrates how crown corporation status benefited Eldorado in material ways, enabling them to operate removed from politico-juridical oversight. Finally, at a town’s West Beach public park as part of the expansion program. In June 1981, the high uranium dustfall levels were cited by the AECB as reason to delay Eldorado’s UF6 site application, yet in the end the facility was approved.

\(^5^4\) *R v ENL* does not directly pertain to the refinery Port Hope, yet its position as a uranium supplier links the products from the local refinery to domestic and international markets.

\(^5^5\) This case followed a lengthy contestation in Canada and in the United States over allegations of an international uranium cartel. See Earle Gray, *The Great Uranium Cartel* (Toronto: McClelland and Steward Limited, 1982).

decisive moment in the refinery’s history, the decision further entrenched the uranium crown corporation as necessary for the greater good of the nuclear state, and federal control over atomic energy as “essential to the national interest.”

R v ENL (1983)

Court Case Summary

On July 7, 1981, two Canadian crown corporations that deal in uranium, Eldorado Nuclear Limited and Uranium Canada, were charged by the federal government with “conspiracy with others to unduly lessen competition in the production or sale of uranium products in Canada.” Her Majesty the Queen in Right of Canada laid the charges after over four years of criminal investigation. Similar to the unfolding of events over the raffinate spill, the charges were dismissed after hearing arguments by the Respondents that crown corporations were not subject to the Act in question. An appeal to the Supreme Court of Canada was granted on September 22, 1982. In the following analysis, I highlight key segments from the court case to demonstrate the implications of crown immunity for Eldorado.

Criminal charges were laid against both crown corporations pursuant to s. 32(1)(c) of the

Combines Investigation Act:

“everyone who conspires, combines, agrees or arranges with another person to prevent, or lessen, unduly, competition in the production, manufacture, purchase, barter, sale, storage, rental, transportation or supply of an article…is guilty of an indictable offence…”

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59 R. v Eldorado Nuclear Ltd., Supreme Court of Canada, National Reporter 44 (Fredericton: Maritime Law Book Ltd, September 22, 1982).
60 Combines Investigation At. R.S., c. 314, s. 1. Chapter C-23, Revised Statutes of Canada 1970, 1, Chapter A-1/C-27.
Similar to provincial arguments over the raffinate spill, the Attorney General of Canada argued that “everyone” as set out in the Criminal Code includes the crown and should apply in this instance.\textsuperscript{61} Further, “it is the duty of crown agents to obey the law and be answerable for criminal acts against the public good.”\textsuperscript{62} The Attorney General stressed that agents of the crown, in acting “for all its purposes,” should be interpreted to mean “lawful purposes.”\textsuperscript{63} This argument strongly suggests that Eldorado should be on equal legal footing with civil society. Crown immunity, if upheld in situations of wrongdoing, would entitle them to commit acts that were otherwise unlawful if committed by “everyone” else.

However, the court found that even if there was an unlawful act, they could not attribute it to Eldorado, again, simply because the Act did not apply to agents of the crown. In so ruling, the Court stated the legal loophole of crown immunity:

\begin{quote}
The effect of Crown immunity is not that the Crown is immune from prosecution even though there has been an unlawful act, rather there is no unlawful act under the statute because the statute does not apply to the Crown.\textsuperscript{64}
\end{quote}

While the court must apply the applicable laws, and cannot question the presumption of crown immunity, inquiries arose as to why statutes would be for “the subject and not for the Sovereign:”

\begin{quote}
Why that presumption should be made is not clear. It seems to conflict with basic notions of equality before the law. The more active government becomes in activities that had once been considered the preserve of private persons, the less easy it is to understand why the Crown need be, or ought to be, in a position different from the subject.\textsuperscript{65}
\end{quote}

Indeed, the court wondered why Eldorado could act in ways that would be criminal if done by a person in society. I must stress here that the court was not advocating for privatization of

\textsuperscript{62} Kirk Makin, “Uranium Price Fixing: Two Crown Firms Immune to Prosecution, Court Rules.”
\textsuperscript{65} R. v Eldorado Nuclear Ltd., [1983] 2 S.C.R. 551, December 12, 1983: 558. See these reasons for decision in R v Eldorado for a discussion on the historical roots of crown immunity that stems from British law. The quote on why statutes would be for the “subject and not for the Sovereign” is from the Privy Council in \textit{Bonanza Creek Gold Mining Co. v. The King} [1916] 1 A.C. 566.
industry from government hands; rather, the issue that arose in both court cases against Eldorado was one of equality before the law. In both cases, the Appellants (MOE and the Attorney General of Canada) laid criminal charges against Eldorado so that the courts could hold them accountable for breaching laws (pollution and conspiracy, respectively). That is, in other words, for allegedly committing crimes.

Another key statement from the court was the following affirmation that Eldorado was acting on behalf of the state in relation to atomic energy:

Crown immunity extends to agents and servants because the Crown only acts through agents and servants. The Respondents are each by statute ‘for all its purposes an agent of Her Majesty.’ A Crown agent is only entitled to immunity when it acts within the scope of the public purposes it is statutorily empowered to pursue. Prima facie, the conduct complained of was within the scope of Crown purposes, for which the companies were incorporated – namely, to implement national policy relating to atomic energy in all its aspects. No evidence was presented or alluded indicating that the companies acted outside corporate objects for other then Crown purposes.\(^\text{66}\)

It should now be clear that immunity only pertains to those agents who are acting on behalf of the crown. However, the court noted Eldorado’s autonomy from state oversight in its corporate operations, bringing into question their eligibility to be considered a crown agent:

unlike Uranium Canada, Eldorado’s corporate objects do not restrict it to acting with the approval of the Minister or the Governor in Council. Whatever the de facto relationship between Eldorado and the government may be, the Company’s corporate objects clauses and the relevant statutes leaves it free to operate without government direction.

Does Eldorado’s independence in any way affect its right to claim Crown immunity? At common law the question whether a person is an agent or servant of the Crown depends on the degree of control which the Crown, through its ministers, can exercise over the performance of his or its duties. The greater the control, the more likely it is that the person will be recognized as a Crown agent…While Uranium Canada would easily meet the common law test of Crown agency, since it needs approval of the Governor in Council for what it does, I think it is clear that the common law would not recognize Eldorado as a Crown agent since it does not meet the de jure control test. I do not,

however, think that this deprives Eldorado of the right of Crown immunity when acting within its corporate purposes.\textsuperscript{67}

Two dissenting court Judges noted that this decision effectively provided “blanket immunity” for actions pursuant to the purposes of a crown agent, without considering if the means by which they are enacted are also authorized. Indeed, if the means are authorized, the crown agent is for all intents and purposes the “alter ego of the Crown,” that is under de jure state control, but the court questioned this relationship with regards to Eldorado.\textsuperscript{68} The dissenting Judges agreed with Uranium Canada’s immunity, yet again found Eldorado’s problematic:

Eldorado…has a wide measure of latitude with respect to the way in which it exercises its corporate powers. Indeed, I can find nothing in the governing legislation or in its letter patent to require it to respond to government directive… Eldorado’s capacity exceeds its authority as agent of the Crown and that it can have ‘purposes’ of its own…It is, in my view, quite unrealistic to treat Eldorado either as a matter of fact or a matter of law as the alter ego of the Crown in exercising all its powers.\textsuperscript{69}

In dismissing the charges, the dissenting Judges continued;

…I have serious doubts that Parliament ever intended the respondents to have a carte blanche to engage in illegal activities on behalf of the Crown and to encourage other citizens to do likewise…We might ask in this case whether Parliament ever contemplated that the respondents would go about the implementation of their statutory purposes by means of an illegal conspiracy with others, counting on the protection of their Crown immunity and leaving their co-conspirators to the full rigours of the law. In the case of Uranium Canada we at least have the comfort of knowing that the corporation is incapable of acting without the approval of the Governor in Council. With respect to Eldorado we have no comfort at all.\textsuperscript{70}

\textsuperscript{69} R. v Eldorado Nuclear Ltd., [1983] 2 S.C.R. 551, December 12, 1983; Digest 1045, \textit{Supreme Court of Canada Reports Service}, 5961. The Court describes the authorities of Eldorado pursuant to its Letters Patent and as a Proprietary corporation. I describe these matters in the next chapter, Them: The Nuclear State in Corporate Form, on the state and crown corporations.
In the decision, the court heavily criticized the arms length relationship of Eldorado to the executive branch of the state. This dissenting opinion reveals a grave reluctance to uphold Eldorado’s privilege that the court believed was unjustified. Crown immunity as a legal prerogative was not the issue per se; rather the problem was the presumption of blanket immunity that enabled one crown corporation to exercise carte blanche power without political, juridical, or civil recourse.

Crown Immunity and Legal Reform

The question of Eldorado’s immunity was further complicated by their status as a Schedule D crown corporation whose purpose was a proprietary commercial public enterprise. While political theorists Ashley and Smails assert that proprietary corporations are all agents of the crown and thus subject to legal court action, the Privy Council of Canada notes that Schedule D corporations are not necessarily agents of Her Majesty. Crown immunity is set out in the provincial and federal Interpretation Acts that stipulate a statute cannot bind the crown, unless the crown is expressly named therein. As noted by legal analysts of crown immunity, many Acts purposefully set out to bind or exempt the crown, yet there is speculation that immunity was not considered in the drafting of some Acts, resulting in crown immunity by default. The Ontario Law Reform Commission appears to concur with this latter point, noting most provincial legislation in Ontario is silent on crown immunity. As shown in the submissions and decisions

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71 This criticism parallels the concerns of the Attorney General of Canada with respect to the lack of financial accountability, transparency and control of the corporation by Parliament, issues I set out in the next chapter.
72 Crown corporations are delineated under the Financial Administration Act by their form and function into categories B, C, and D. Schedule D crown corporations (such as Eldorado) are established as proprietary commercial public enterprises. I expand on Schedule D corporations in the next chapter.
In *Regina v Eldorado* and *R v ENL*, crown immunity was the subject of argument both within the courts and without.\(^76\)

Immunity of the crown and court decisions that uphold it, including those involving Eldorado, have spurred arguments advocating for legal reform to remove blanket crown immunity at both the provincial and federal levels. Arguments for a reversal of crown immunity have come from stakeholders such as the provinces, who have a jurisdictional stake in the matter, yet also from academic law professors and provincial and national law reform agencies, who have advocated for a reversal of crown immunity based on principle.\(^77\) I briefly highlight a few of these reform arguments here to illustrate the underlying principles and the complexity of the stakes involved. Noteworthy is that several of these arguments draw on the above court cases involving the immunity of Eldorado.

Shortly after the dismissal of charges against Eldorado for the raffinate spill and then the uranium cartel case, constitutional law expert Professor Denys Holland pointed out that there

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\(^{76}\) The Ontario Law Reform Commission attributes the ongoing ambiguity and debate over the scope of crown immunity to the precedent set out in the *Province of Bombay v Municipal Corporation of Bombay* case. This decision, which was relied upon heavily to uphold the immunity of Eldorado by the provincial courts in *Regina v Eldorado Nuclear Limited* and by the Supreme Court of Canada in *R. v ENL* “settled a uniform rule, which cast immunity in the widest possible terms and applied to all statutes regardless of their purpose or of the kinds of rights affected. However the court in Bombay did not answer or ask the policy question why such an immunity is needed. And a rule without a clear and understandable rationale is an unstable thing. Courts that have affirmed their adherence to the Bombay rule have nevertheless struggled to find ways of escaping it; the result has been the creation of many exceptions or distinctions that have severely undermined the rule, and introduced grave uncertainty as to its operation.” Ontario Law Reform Commission, *Report on the Liability of the Crown*, 1989, p. 97, also see page 107.

was potential for government and crown corporations to abuse their “crown prerogative.”\textsuperscript{78} He highlighted that many crown agents were unaware of the scope of their immunity. However, for those that were aware of these privileges, he argued that they seldom invoked immunity in order to avoid “public outcry,” as this could lead to pressure for legal reform. Holland offered the following solution to the core issue that crown immunity is inconsistent with equality as set out in the Charter of Rights and Freedoms:

\begin{quote}
Only new legislation can undo the harm which has been done by the common law and by the interpretation acts in Canada. The mere repeal of the relevant provisions of the interpretation acts would be an inadequate measure of reform. What is needed is new legislation providing that the Crown, its agents and servants shall be bound by legislation in the absence of express words to the contrary.\textsuperscript{79}
\end{quote}

In effect, Holland was not merely arguing for concurrency of jurisdiction, but for a reversal of crown immunity, such that legislation applies to the crown unless the crown is expressly exempted. Noteworthy in his suggestion for reform is the emphasis that blanket crown immunity has caused harm. Within the context of his overall argument, I interpret this to imply the abuse of state power for the advantage of the crown and its agents.

The Canadian Environmental Law Association advocated that the Canadian Constitution must be amended to provide concurrent federal and provincial jurisdiction over environmental matters, with the federal state having paramountcy in the case of a conflict. Appearing before the Legislative Assembly of Ontario in 1991, Andre Raynauld of the Canadian Environmental Law Association stated:

\begin{quote}
The other area we have identified is the whole issue of immunity of federal agencies and departments from provincial law. I think people might be aware that a number of years ago there was a prosecution of Eldorado Nuclear Ltd under the Ontario Water Resources Act that ultimately resulted in charges being dismissed because the courts found that Eldorado was a federal crown agency and not subject to provincial laws.

We have recommended that this committee recommend that the Constitution be amended to provide that federal government agencies and enterprises be subject to
\end{quote}

\textsuperscript{78} David Helwig, “Governments Can Ignore Law,” \textit{Globe and Mail}, January 18, 1983. This article set out a timeline of court cases involving crown immunity and highlighted the case on uranium price fixing involving Eldorado Nuclear Limited and Uranium Canada.

\textsuperscript{79} David Helwig, “Governments Can Ignore Law.”
provincial and municipal laws, except to the extent that they are specifically granted immunity by federal legislation. In other words, the general rule should be that provincial law does apply to these agencies.\(^{80}\)

In the exchange that followed, Mr. Muldoon, a member of the legislature, further added that concurrent jurisdiction would end the uncertainty in environmental protection by holding governments accountable. Had concurrent jurisdiction existed in the OWR Act, Eldorado would have been subject to the Act and to prosecution by the province for the raffinate spill.

In their 1989 paper, *Report on the Liability of the Crown*, the Ontario Law Reform Commission argued that legal privileges to the crown, notably regarding liability and immunity, stem from “medieval conceptions of monarchy.”\(^{81}\) While they specifically advocate reform to Ontario provincial law, I draw on aspects of their analysis that are relevant to federal crown immunity. In viewing crown privileges and immunity as inappropriate unless absolutely justified, the Commission sought reforms that would make the crown subject to substantially the same law as civil society.\(^{82}\) That the crown enjoys legal privileges separate from an “ordinary person” is key to their critique:

…but the present law governing liability of the crown insofar as it provides privileges and immunities not enjoyed by ordinary persons is opposed to popular and widely held conceptions of government. We share a deeply held notion that the government and its officials ought to be subject to the same legal rules as private individuals, and in particular, should be accountable to injured citizens for unauthorized action. This is a


\(^{82}\) Ontario Law Reform Commission, *Report on the Liability of the Crown*, 1. In my analysis of crown immunity, I draw more extensively on the report from the Ontario Law Reform Commission than similar reports from other provinces, as Ontario is the jurisdiction within which the Eldorado Port Hope uranium refinery operated. I find their analysis also pertinent given that the Provincial government of Ontario through the Ministry of the Environment was the Appellant in *Regina v Eldorado Nuclear Limited*.
notion that lies at the heart of a ‘rule of law’ and of ‘constitutionalism’ as those concepts have been conventionally understood in the common law world.\(^8^3\)

With direct reference to the crown immunity of Eldorado and their alleged involvement in illegal uranium price fixing, the Commission pointed out that the court unsuccessfully sought to bind the crown:

The Crown’s immunity from statute was recently criticized by Dickson J (now C.J.) in R v Eldorado Nuclear Ltd…in which the Supreme Court of Canada reluctantly decided that federal crown corporations that were alleged to have participated in a price-fixing cartel were not bound by the Combines Investigations Act.\(^8^4\)

In citing Judge Dickson’s unfavourable comments towards the immunity of Eldorado in \(R. v\) ENL, the Ontario Law Reform Commission also highlighted the lack of rationale for such crown immunity:

There is no good reason, for example, why the Crown should be exempt from planning laws designed to order our environment, or building codes designed to promote health and safety.

and in addressing Eldorado directly, they clarified:

We agree with the view that, as a matter of general principle, Crown corporations engaged in the production of uranium or any other activity should be required to play by the same rules as their private counterparts. Otherwise, the public policies pursued by those rules are defeated.\(^8^5\)

The Commission referenced the uranium cartel decision that dismissed charges against Eldorado, yet their comments are equally applicable to Eldorado’s earlier immunity from environmental legislation for the raffinate spill.

As a caveat, the arguments presented for reform are not articulating that privatization is the preferable route for crown corporations. Rather, reform is intended to reverse the presumption of crown immunity to ensure that any immunity is clear and justifiable. Stated clearly, the Ontario Law Reform Commission strongly advocated amendments to the *Interpretation Act* because

“crown immunity should be the exception and not the rule.”\textsuperscript{86} As such, legal reform aims to concretely address the lack of mechanisms by which to hold the state and its corporations accountable for its actions and inaction. Reform advocates call for increased control and accountability of the state, particularly from blanket politico-juridical privileges that set the state apart from or above civil society.\textsuperscript{87}

\textbf{Immunity Revisited}

\textit{I would be interested to see whether or not they [Eldorado] broke the law, I don’t know if they did.}\textsuperscript{88}

As upheld by the court in \textit{Regina v Eldorado}, Eldorado acted within its powers as an “agent of Her Majesty” when spilling raffinate at the uranium refinery and allowing it to enter the Port Hope harbour. If the only legal ramification for spilling the radioactive waste could be a license penalty, or perhaps charges by the AECB, then effectively one federal crown corporation (AECB), with a mandate to regulate atomic energy for the nuclear state, had exclusive jurisdiction for another federal crown corporation (Eldorado), that had a mandate to maintain a dominant and profitable position for Canada in the domestic and international uranium industry. This close-knit relationship served to enclose and contain all matters pertaining to the nuclear industry within their own domain.

Given that an agent of the crown may only exercise its powers as such, then the question that subsequently arises is: Was the widespread contamination of radioactive waste throughout the public and private spaces of Port Hope executed by Eldorado within its powers and ‘for all its purposes’ as an agent of Her Majesty in Right of Canada? Despite an absence of charges against Eldorado for these deleterious events, the question is not rhetorical. The applicability of crown

\textsuperscript{86} Ontario Law Reform Commission, Report on the Liability of the Crown, 112. The final recommendation of the Commission to reform crown immunity in Ontario reads as follows: “The Interpretation Act should be amended to provide that every Act and regulation made under it binds the Crown unless the Act or regulation specifically provides otherwise,” 113.

\textsuperscript{87} At the time of writing, neither the federal nor the Ontario provincial Interpretation Acts had reformed the clauses for crown immunity.

\textsuperscript{88} Interview #12: Anonymous, Port Hope Resident.
immunity is relevant to other significant polluting events to which the refinery, in its capacity as a crown corporation, was clearly implicated. I therefore set out the following problematic.

First, I argue that Eldorado was exercising its powers and acting within the scope of its purpose as an agent of the crown when, over a period of decades, it dispersed radioactive waste and materials throughout the Port Hope area. Indeed, it appears these actions were incidental, mere externalities – to draw on Timothy Mitchell – to its purpose in refining uranium for the national interest. According to the ruling in Regina v Eldorado the legal issue of their immunity should then pivot on whether or not they acted outside the AEC Act. Second, if Eldorado acted outside the scope of its purpose, that is, if they exercised their powers contrary to the AEC Act, then their actions could be found to legally constitute a crime and, therefore, not attributable to Her Majesty in Right of Canada. To put this conundrum bluntly, either the contamination of Port Hope was enacted by the powers and for the purposes of the crown, or the acts were committed outside the powers and purposes of the crown, in which case Eldorado was a rogue corporation, losing immunity. I cannot see how these opposing positions can both be true in law.

Yet I can see how both these scenarios could be true on the ground. Leaving the legal question of immunity aside for a moment, I argue that the nuclear state acted through the Eldorado uranium refinery and the Eldorado uranium refinery acted on behalf of the nuclear state. Maintaining state control over the uranium industry and market were explicitly Eldorado’s purpose as a crown corporation. However, does this mean that the state condoned all of Eldorado’s actions? Clearly not. Does this also mean that everything the uranium refinery did was, for all its purposes, as an agent of the state? Put another way, could Eldorado act in any other capacity than by and for the nuclear state? No, Eldorado’s actions, condoned or otherwise, cannot be separated from the state. To push this analysis further, even if the court ruled that Eldorado had lost crown immunity by acting outside its purpose, or in committing a crime that could not be conferred upon the state, the state is not off the hook. Regardless of the letter of the law, Eldorado could not exercise its powers or be anything but an agent of the crown even if the law found otherwise. Not only did

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the state enact the juridical framework that encompasses crown privilege such as immunity, it created Eldorado as a corporate arm for the building of the nuclear state, then granted itself exclusive jurisdiction over all matters pertaining to atomic energy, and then exercised limited oversight over its operations on the ground. In so doing, the state created a political-economic-juridical sphere for Eldorado to operate with significant latitude. In all its dealings, Eldorado may have had purposes of its own, but it acted in its capacity as a commercial corporation, and did so by strategically using its privileges and purposes as an agent of the crown. As I argue in this dissertation, the state and the corporation are inextricably linked: Eldorado Nuclear Limited embodied the nuclear state in corporate form.

Moreover, these events show fissures in the narrative of radioactive contamination as stemming from past practices, a scourge attributable to the past, and reveal how the contamination of the harbour was not singularly due to “historic low-level” waste, but rather, was an ongoing process involving highly radioactive materials. As the events detailed herein may at first appear relatively minor, particularly when compared to the massive contamination of Port Hope, they could easily be dismissed. Yet the conditions of their production and the precedent-setting outcomes of these court decisions are not trivial. The stakes for Eldorado to retain crown immunity and continue to produce uranium refinery at this particular juncture were very high. A critical expansion of their production was underway. The “emergence of challenge” – that gauntlet thrown down by an exasperated MOE – posed potential threats to crown-corporate legitimacy – and had to be contained. 90

The raffinate spill is also a further example of how Eldorado, embodying the nuclear state, incrementally transformed Port Hope into a nuclear landscape and there was little the community, or provincial government, could do to stop them. The contaminated harbour, now one of the most contaminated sites in Canada, is another form of dispossession of civil society from public space and a threat to corporeal and psychosocial security. Yet it too is invisible to ordinary senses – a hallmark of nuclear landscapes – its contamination elided as quite banal and

ordinary. In fact, the spill and court case occurred during the enclosure of the West Beach park and Eldorado’s UF6 expansion plans in Port Hope, yet there is little trace of it in those debates. The raffinate spill was, on the outside, a minor, trivial event, easily contained amid the bigger picture of refinery waste on one hand, and refinery expansion on the other. To draw again on the insights of Stoler, and as I have now demonstrated in this chapter, “minor histories should not be mistaken for trivial ones.”

Critics of crown immunity argue that the ‘Rule of Law’ of government and of constitutionalism are intended to hold governments accountable for wrongdoing. Blanket immunity, as seen with Eldorado, caused harm, not just to the environment but to civil society in Port Hope. This is an affront of crown privilege, one that Eldorado was exceedingly aware of and chose to strategically execute. The state corporation drew on the mechanisms of law to empower itself, not civil society, and to legitimate its own dealings. In so doing, Eldorado once again set itself as separate from and above civil society. The ‘presumption of immunity’ encodes a separation of the state from civil society within the juridical sphere, yet also for actions that play out on the ground in material ways. As argued by Joshua Barkan, the precedent of corporate immunity is a mode of power that is encoded through the institutions of law-making. As I have shown in this analysis, in the case of the immunity of a crown corporation, such as Eldorado, this precedent effectively means that the state may commit acts that would be crimes if committed by ordinary persons in civil society. These are serious concerns of constitutionality raised by the immunity of Eldorado, and pointed out by the dissenting judges and the Attorney General of Canada. However, as demonstrated by E.P. Thompson, law is an instrument of power utilized by the dominant, but is not totalizing. Yes, law “says what shall be property and what shall be crime” but it is, as also argued by Thompson, not monolithic: law is “a place, not of consensus, but of conflict.” The state against the state, and dissenting views are traces of fissures within the state.

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93 Barkan, *Corporate Sovereignty: Law and Government Under Capitalism*.
Conclusion

Derek Hall argues that analyses of the links between enclosure and capitalism require attention to the “social institutions that govern capitalist social relations.” Law and the courts are such social institutions, and power stems through their decisions, even reluctant ones. The political and juridical context under which Eldorado operated as a crown corporation facilitated conditions for the refinery to operate with scant political, juridical or civil recourse. These cases also point to far-reaching implications for the inapplicability of provincial legislations for the uranium refinery in Port Hope, and by extension, the immunity of all federal crown corporations from provincial legislation, if not explicitly named therein. As I demonstrated through this analysis, the failure of provincial prosecution and the upholding of immunity was precedent-setting and contained the refinery from further legal challenges. Similarly, Eldorado’s immunity from federal criminal charges of conspiracy reveals more of how the crown corporation strategically sought autonomy from politico-juridical oversight and accountability. The combination of blanket immunity and exclusive federal jurisdiction set the stage for Eldorado to operate with impunity and legitimated its dealings, even the further spread of radioactive waste.

Attention to the specificities of these cases has revealed fractures within the federal state – the nuclear state was not monolithic, all-powerful, nor autonomous. There was contestation within the state. Yet another pivotal issue is raised by conspiracy charges laid by the Attorney General of Canada against Eldorado, that of the state’s priorities. The federal state only laid conspiracy charges against Eldorado for allegedly meddling in the uranium market, actions they found objectionable, but they laid no charges, nor took punitive actions against the refinery for the contamination of Port Hope. Immunity serves as a convenient excuse for their purported impotence to hold Eldorado accountable. Laws can be changed, but institutional neglect and inertia are mechanisms of containment. In Port Hope, inaction – conscious decisions to not

96 Gaventa, Power and Powerlessness, 190.
pursue punitive action against Eldorado, contained adverse repercussions for this cornerstone of the nuclear state. Law is “socially selective.”  

John Gaventa argues that “conflict can be contained,” obscured behind what he terms the “hidden faces of power.” Crown immunity for Eldorado functioned as a form of containment, it was hidden power that enclosed the uranium refinery in a politico-legal sphere, an inoculation from the adverse consequences of its actions. Immunity secured exclusive federal control by narrowing channels of accountability, and thereby delimited the interference of other agents of the state, including the courts. Through these events, crown corporation status enabled Eldorado to maintain its dominant position and further consolidate power. Of significance, is that both these court cases occurred during a key time period when the refinery was undergoing intensive expansion of UF6 production in Port Hope, an expansion which was critical to Eldorado’s position in the international uranium market. That Eldorado was a cornerstone of Canada’s nuclear industry cannot be overstated. This one refinery was pivotal and its status as a crown corporation deliberately chosen to effect particular objectives and outcomes of the nuclear state. I now return to the beginning, to the formation of Eldorado as an arm of the nuclear state, in order to view how Eldorado’s actions in the immediate wake of the discovery of radioactive waste in Port Hope, fit within the political landscape of crown corporations in Canada.

98 Gaventa, Power and Powerlessness, 227.
You might hear me and say ‘god damn those corporations’ but that’s not what I’m saying. What I’m saying is somebody has allowed these corporations in and that’s the mistake that was made. Given the opportunity the corporations will always take that opportunity, and they’re not doing anything wrong by doing it. If there is a misdeed, it was letting them in, in the first place, and generally they’re let in for money.\footnote{Interview #12: Anonymous, Port Hope resident. This community member also commented on the increasing corporate influence in town, first with Eldorado, then Cameco sponsorship, noting in particular the Cameco Capital Arts Theatre and numerous other social services in the community sponsored by the refinery, as increasing the appearance (and perhaps fiscal dependency) that the town needs the refinery for its survival. Most of the people that I interviewed, both refinery supporters and its critics, raised this issue without prodding, noting it as problematic.}

Here is a local resident’s reference to Eldorado as fundamentally a corporation (in private and public ownership). Eldorado always was a corporation, yet one that influenced the form and function of the nuclear state. Indeed, historian Robert Bothwell observes that by the late 1950’s, “from being a political instrument, the uranium industry was becoming a political actor.”\footnote{Robert Bothwell, Eldorado: Canada’s National Uranium Company (Toronto: University of Toronto Press, 1984), 339.}

Owned and operated as a federal crown corporation between 1944 and 1988, the refinery was entitled to political, legal, and economic privileges not afforded to private enterprise and ordinary persons in civil society. These privileges shaped its operations and influenced its relationships with other scales of the state and informed the uneven power relation between the refinery and the community. Eldorado was not just the town’s largest employer: the refinery was owned, operated, and backed by the federal state. As such, Eldorado embodied the latent power of authority, what Bourdieu et al term “symbolic capital,’ that conferred legitimacy upon its dealings.\footnote{Pierre Bourdieu, Loic J.D. Wacquant, and Samar Farage, “Rethinking the State: Genesis and Structure of the Bureaucratic Field,” Sociological Theory 12, no. 1 (1994): 12. Bourdieu et al also theorize the state as a site of “meta-capital” that is, a site where different forms of power culminate. There is merit in this argument in so far as the Eldorado crown corporation was a site for the condensation of power. Stuart Hall also terms the state as a site for the condensation of power. See Stuart Hall, “Toad in the Garden: Thatcherism Among the Theorists,” in Marxism and the Interpretation of Culture, C. Nelson and L. Grossberg eds. (Chicago: University of Chicago Press, 1983).}
Crown corporation status was productive for the uranium refinery. At times, this status functioned as a screen that, intentionally and unintentionally, distanced the refinery and the state from adverse repercussions. At other times, it functioned as a politico-legal tool that gave Eldorado immunities and indemnities within the juridical sphere. Yet, as a crown corporation is an instrument of the state, and in many ways embodies the state in corporate form, crown agency status also led to confusion in distinguishing between the state and this ‘good corporate citizen.’ Further, crown corporation status complicated whether fiscal, political, and social accountability rested, or should rest, with the Eldorado refinery, other apparatuses of the federal government, or other scales of the state. Crown agency status lent an air of legitimacy to the refinery’s dealings in the aftermath of radioactive waste and to the refinery’s response to this discovery. That the refinery was owned and operated as a federal crown corporation also helped alleviate local concern over the implications of the contamination for the local community.

Eldorado was acutely aware of its crown agency privileges and the power that the refinery wielded because of federal state backing. At each opportunity, Eldorado sought to use agency status to its advantage. But how did the Eldorado uranium refinery fit within the broader context of crown corporations in Canada? Was Eldorado’s demonstrated tendency to protect its own legitimacy in the face of controversy antithetical to its objectives as a public enterprise? Was Eldorado a rogue? Or was its response in keeping with its crown-corporate mandate as an instrument of public policy? To shed insight into these questions, in this chapter, I zoom back out from the micro-scale to place the Port Hope refinery within the broader context of crown corporations in Canada. I first return to where I began, to the creation of Eldorado as a federal crown corporation.

Illinois Press, 1988). In Max Weber’s category of legitimate rule, Eldorado’s authority would be rational-legal authority. This is not to dismiss Weber’s analysis of legitimacy, but rather to further the analysis beyond obedience and dominance. Eldorado held a dominant political and economic position within the nuclear state and the small community of Port Hope, yet the retention of its authority in times of relative stability and in times of crisis, or its legitimacy to continue to operate a uranium refinery in the heart of the same small community that it was just discovered to have contaminated, was not secured through obedience, but was the outcome of political-economic and social struggle, through processes of enclosure and containment — mechanisms that delimited the emergence of challenge.
Federal Crown Corporations: Form and Function

Public enterprises as instruments of national policy have a long history in Canada, dating to the formation of the Canadian National Railways in 1919. Many crown corporations have since been created, however there was no formal system of oversight and accountability until the passing of the *Financial Administration Act* in 1951. This Act was established to better define the financial accountability of crown corporations and their respective Minister to Parliament. As noted by the Privy Council of Canada, the Act was drafted for strictly financial purposes and did not address policy direction, control, or other measures of accountability. This latter issue is noteworthy, as the purposes, roles and responsibilities of crown corporations as instruments of public policy, including those of Eldorado, have been the subject of debate ever since. Crown corporations are not easily defined. The *Financial Administration Act* defines a crown corporation as: “a corporation that is ultimately accountable, through a minister, to Parliament for the conduct of its affairs.” A crown corporation “is an institution with corporate form brought into existence by action of the Government of Canada to serve a public function” yet the lines of authority and accountability between a crown corporation and the respective Minister vary considerably. However, there is no single operative definition of crown corporations that encompasses the multiplicity of public sector enterprises in Canada.

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4 Canada, Privy Council Office, *Crown Corporations: Direction, Control, Accountability* (Ottawa: Minister of Supply and Services, 1977), 11. This report is commonly referred to as the Blue Paper. Canadian National Railways is recognized as the first official crown corporation, however other state-corporate enterprises preceded its formation.


Offering an alternative to this dilemma, public policy analysts Trebilcock and Prichard suggest that “formal” and “functional” categories, while not exhaustive, are useful descriptors. The formal category emphasizes the legal relationship of the corporation to the crown, and the degree of crown ownership and control. Yet again, as these factors differ widely, there can be no single formal definition. On the other hand, a functional category necessitates an examination of its purpose in relation to the public. The functional definition is one “in which the government has a de facto controlling interest” and the crown corporation “provide[s] goods or services directly to the public on a commercial or quasi-commercial basis, i.e., sell their outputs in a market.” Given the breadth and scope of crown corporations in Canada, the functional category still does not account for “why a Crown corporation is engaging in market activity, on what terms and to what ends.” Drawing on the above, it becomes apparent that the definition of a crown corporation is tied to both its form and function. Yet an analysis of a particular crown corporation, such as Eldorado, also needs to consider its intended purpose, while recognizing that this purpose may shift over time. These factors, to which I now turn, are crucial to understanding the political economy of the Eldorado crown corporation.

**Eldorado: An Instrument of Public Policy, Clothed in Corporate Trappings**

*Form and Function*

In the midst of controversy over the widespread contamination of Port Hope, that the Eldorado crown corporation protected its own fiscal and legal interests is not surprising. Eldorado had been expropriated to operate as a corporation. Incorporated under the *Dominion Companies Act* in 1944, Eldorado was created as a “body corporate and politic within the legislative jurisdiction of the Parliament of Canada.” Eldorado was intended from the outset to be a profit-oriented commercial enterprise:

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...Whereas the Minister of Munitions and Supply reports that he is of the opinion that, having regard to the fact that the main business of the corporation consists of the exploration, development and operation of mineral properties and the production, refining and sale or other disposal of radium and other products, it is desirable and in the public interest that the said business [Eldorado] should be carried on as nearly as possible in the same manner as the business of an ordinary trading or commercial company with share capital.\(^\text{14}\)

Eldorado was subsequently listed under Schedule D of the *Financial Administration Act* of 1951 as a proprietary commercial public enterprise, thereby losing its former tax exemption. Proprietary crown corporations are “usually responsible for the management of commercial and industrial operations involving the production of or dealing in goods and the supplying of services to the public.”\(^\text{15}\)

In the early 1940s, the political decision to turn the uranium company into a crown corporation was, as previously noted, clearly for “national security and security of [uranium] supply.”\(^\text{16}\)

These remained key reasons why Eldorado was not reverted back to public shares following World War II.\(^\text{17}\) The “calculus of instrument choice” for converting and maintaining Eldorado as a crown company was to build Canada into a leading uranium supplier.\(^\text{18}\) Trebilcock and Prichard elaborate on the establishment of crown corporations for purposes of national security and international relations, noting that crown agency status entails certain privileges.

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\(^\text{14}\) Governor General in Council, “Order in Council 8265.”


\(^\text{18}\) Trebilcock and Prichard, “Crown Corporations: The Calculus of Instrument Choice.” Through Eldorado the federal state gained a monopoly in the uranium industry. In his historical account of Eldorado, Bothwell argues that the conversion of Eldorado into a crown corporation in World War II “occurred by coincidence rather than by design.” He bases this argument on scientific discoveries that catapulted uranium into the most strategic commodity in the world and the subsequent demand for uranium towards the American atomic weapons program, a turn of events that dislodged radium as the primary commodity. However, it seems understated for Bothwell to reduce the nationalization of Eldorado to that of coincidence. For it is also apparent that sovereignty, control and monopoly over uranium resources were deliberately asserted as nation building strategies, not only in the initial acquisition of Eldorado, but through the heart of this crown corporation over the next four decades. See Bothwell, *Eldorado*, 434.
Opportunity for decision-making with a relative degree of secrecy may make public ownership particularly suitable in situations involving national security and substantial amounts of confidential information...[and] in which Canada’s international relations will be affected by a firm’s conduct and in which Canada’s international posture is intimately related to a range of international objectives.\(^{19}\)

While Trebilcock and Prichard rightly slot the state’s purpose for expropriating Eldorado as national security and security of uranium supply, it is also apparent that this crown corporation was instrumental in building Canada into a nuclear state. This “nation-building” project clearly had the markers of “promoting Canadian nationalism, i.e., developing a national identity and preserving Canadian control over certain services and sectors of the economy.”\(^{20}\) In effect, Eldorado was “the government’s agent of control over the uranium industry.”\(^{21}\) Further, Canada’s asserted sovereignty over uranium resources through Eldorado made Canada a leading uranium supplier at the international scale, a position it retains today. As I have shown in this dissertation, control and secrecy over information were not limited to international affairs: they remained a marker of how the crown corporation dealt with the fallout over radioactive waste throughout Port Hope.

Many public enterprises fulfill a capitalist function of facilitating private sector ventures that may otherwise be prohibitive in the absence of state intervention. Although Eldorado retained a monopoly in refining, sales and markets since 1944, the crown corporation also made significant contributions to the development of private enterprise in uranium. For example, even before the company was nationalized, the state, most notably through the Department of Mines, played a

decisive role in making the private venture of the Labine brothers a viable enterprise.\textsuperscript{22} A further example is the government stockpiling programs in the 1960s that helped private uranium companies in a temporarily down turned uranium market.\textsuperscript{23} These actions propped up private operators; they also ensured the viability of the nuclear state, and its cornerstone Port Hope refinery. Leo Panitch describes the relationship between Canadian federal state and private enterprise, including crown corporations, as one that facilitates capital accumulation.\textsuperscript{24} Eldorado, as an instrument of public policy, was also an instrument of capital accumulation, in part, by making possible the conditions of accumulation – mines, infrastructure, research and development, technology, and refining - for private enterprise – aspects of uranium production that were prohibitive for private ventures.\textsuperscript{25}

Eldorado was a very influential, yet also controversial, crown corporation and proud of these achievements. Former CEO Nick Ediger, boasted that Eldorado was “heavily involved in the evolution of resource policy, federal/provincial relations, the role of crown corporations, and the medical, military, and energy application of radioactive minerals.”\textsuperscript{26} The uranium refinery played a pivotal role in federal-provincial relations, both as an adversary to the province of Ontario, as seen in legal challenges over radioactive waste, and as its partner in multi-stakeholder forums related to the remediation of Port Hope. Increasingly, as I showed in the previous chapter, from 1975 onwards, these tensions were fought in various arenas, including the courts. These conflicts, which generally fall into main themes of fiscal liability, legal immunity, indemnity,

\textsuperscript{22} Bothwell, \textit{Eldorado}, 25, 37. The Mineral Resources Division and the Ore Dressing and Metallurgy Division provided government service to Eldorado including essential research and development of uranium ore processing.
\textsuperscript{23} Wojciechowski, “Federal Mineral Policies, 1945-1975,” 31. At this time the federal government also created the crown corporation Uranium Canada Limited as a stockpiling agency to secure uranium reserves for domestic supply.
\textsuperscript{24} Leo Panitch, \textit{The Canadian State: Political Economy and Political Power} (Toronto and Buffalo: University of Toronto Press, 1977).
\textsuperscript{25} See Bothwell, \textit{Eldorado}, for commentary on the importance of Eldorado to the establishment and viability of private ventures in the Canadian uranium industry. Eldorado was also a profit-oriented corporation and this was recognized by the federal government. Of the 27 crown corporations studied by the Auditor General in 1976, Eldorado was the only one that “appears to be truly commercially oriented and financially viable.” Eldorado, \textit{1976 Annual Report of Eldorado Nuclear Limited and Subsidiaries} (Ottawa: Eldorado), 3.
\textsuperscript{26} Bothwell, \textit{Eldorado}, ix.
and privileged status in the regulatory process, both frustrated and shaped the federal-provincial relationship.

Eldorado was undoubtedly aware of its influence and actively asserted its crown agency privileges at every turn. The combination of fiscal profits, legal immunity, indemnity, and regulatory privilege were significant factors in its refinery operations.\(^{27}\) Crown privilege could also be inauspicious. These privileges constituted extra-legal and extra-economic spaces that conferred direct and indirect advantage. Moreover, these privileges had a bearing on the uneven power relationship between the uranium refinery and civil society: that the uranium refinery and the federal government were cut of the same cloth, certainly influenced its dealings with the local community, again, to crown-corporate advantage.

Aside from scant Ministerial oversight and the AECB for regulatory matters, Eldorado operated independently of state departments and agencies. Bothwell notes that Eldorado was even “outside the umbrella of the various civil service acts…yet was ultimately responsible to Parliament and through Parliament to the Canadian people.”\(^{28}\) However, the affairs of Eldorado were not routinely debated in the House of Commons as it had a direct reporting relationship to the respective Minister with jurisdiction over the company. Minister C.D. Howe, who had jurisdiction over Eldorado until the mid-1950’s, had a “passive” style of Ministerial oversight, and he never visited the refinery, nor any of Eldorado’s other facilities.\(^{29}\) Aside from political and economic support to Eldorado and the uranium industry as a whole after 1942, until the public outcry over widespread radioactive waste in Port Hope beginning in 1975, the only other state apparatus that seemed to concern itself in any substantial way in its affairs was the AECB on regulatory procedures, and the Auditor General for financial matters.\(^{30}\) For the most part, Eldorado operated on its own.

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\(^{28}\) Bothwell, *Eldorado*, 182.

\(^{29}\) Bothwell, *Eldorado*, 341.

\(^{30}\) Bothwell, *Eldorado*, 270.
However, it is important to note that the general system of Ministerial or Parliamentary oversight of crown corporations and their accountability to Parliament during the tenure of Eldorado was “particularly weak.”\textsuperscript{31} Therefore the lack of federal oversight of Eldorado may parallel that of other crown corporations during this time period. This is significant, for it points to systemic problems with accountability and control of crown corporations. Indeed, given the paucity of oversight and formal mechanisms with which to hold Eldorado accountable, the unfortunate events in Port Hope are failures attributable to not just the uranium refinery, but the capitalist state that created and then set loose the Eldorado crown corporation as a profit-seeking enterprise.

\textit{Accountability and Control}

Since the 1970s, crown corporations have been under increased scrutiny, primarily for issues of financial accountability and transparency amid calls for increased privatization.\textsuperscript{32} Reports by the Auditor General of Canada detail concerns over the fiscal accountability and control of crown corporations generally, but several highlight Eldorado as a particular concern. A review of the reports of the Auditor General and the Standing Committee on Public Affairs clearly highlight that the Auditor General was concerned with the financial accountability and control over Eldorado, whose autonomy did not go unnoticed. In 1982, as Eldorado was expanding in Port Hope and getting the new refinery underway in Blind River, it decided to forego an audit by the Auditor General, a move that the Public Accounts Committee concluded “was unacceptable and could not be justified for the reasons stated by the company. Your Committee also regrets the

fact that the Auditor General has been replaced as Eldorado’s auditor by a private firm.”

Here again, Eldorado used its crown agency status to assert fiscal autonomy from state oversight.

In addition to stressing more financial oversight, the Fifteenth Report of the Standing Committee on Public Accounts criticized the ambiguity regarding the purpose and role of Eldorado as an instrument of public policy. In 1982, Eldorado also refuted to the Committee that it was a direct agent of public policy, precisely because it was a commercial enterprise. These latter two claims are noteworthy, for again, Eldorado selectively relied on crown agency status when seen as an advantage and repudiated its implications when a disadvantage.

Selective use of crown privilege did not go unnoticed by the Auditor General. In response, the Committee detailed the federal government’s role in its affairs, noting Eldorado that should not be allowed to continue with such autonomy:

Your Committee concludes that Eldorado is subject to public policy constraints and that the Government should clearly and publicly define Eldorado’s public policy objectives. If the Government does not wish to set policy objectives for Eldorado, it should renounce its involvement in the company’s affairs and formally establish Eldorado’s status as a truly commercial Crown corporation.

Here, it is apparent that Eldorado’s purpose as an agent of the Crown was considered unclear. Therefore, in citing further concerns over a lack of fiscal restraint in another of Eldorado’s facilities, the Committee also recommended:

The Government consider the advisability of introducing Crown corporations legislation which would enable it to establish and set objectives for government controlled corporations, to improve the way Government and Parliament monitor, control and receive an accounting from Crown corporations for their use of public funds, and to establish a new ministry to oversee all Crown corporations on behalf of the Government and report to Parliament in this regard.


35 Auditor General of Canada, “Appendix C: Report of the Standing Committee on Public Accounts to the House of Commons.” These comments were sparked by fiscal concerns with the operations of Eldorado’s Beaverlodge operation in Saskatchewan.
These recommendations further show how Eldorado operated with a high degree of independence from state direction, and indicate the lack of formal mechanisms of accountability. The above examples also demonstrate that Eldorado remained steadfast in retaining autonomy from state oversight. In fact, Eldorado’s position stated above, that it is a commercial enterprise and therefore not subject to federal oversight, is at odds with its position taken in *R v Eldorado*, in which they relied on crown agency status to prove that they were subject to federal oversight (and not provincial), a strategic move to evade legal prosecution. Noteworthy too, is that these reports reveal internal rifts within the federal state over the privileges of crown corporations, with particular regard to Eldorado.

As commercial entities, Elaine Kirsch notes that in practice “crown corporations are simply instruments of public policy…clothed in corporate trappings” but differ from the private sector as they are “rarely created to strictly generate profits; rather, they are established to fulfill other policy objectives.” In practice, however, the success of crown corporations, including Eldorado, is evaluated by economic criteria, rather than any non-economic benefit (or ill), that arise in relation to their operations. This economistic trend is apparent in state reports of crown corporations, most notably by the Auditor General of Canada and the Privy Council, several of which directly name Eldorado. For example, in their Blue Paper proposal for improving the accountability and control of crown corporations, the Privy Council highlight that, despite commercial goals, crown corporations are policy instruments for the national interest. They clarify:

> There is a certain amount of conventional wisdom surrounding Crown corporations performing activities on a commercial or quasi-commercial basis to the effect that the government and Parliament must avoid all but the most cursory intervention into their affairs lest their commercial performance be jeopardized. This view ignores the fact that without exception such corporations were established by the Government of Canada to achieve broad policy objectives. In the case of proprietary Crown corporations the implementation of broad policy objectives was to be carried out, as much as possible within commercial disciplines, but the pursuit of commercial goals was never intended to

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37 Writing in 1981, Tupper and Doern echo the tendency for the objectives of crown corporations to be increasingly articulated in economic, corporate terms. See Tupper and Doern, *Public Corporations and Public Policy in Canada*, 22.
override the broad social, cultural or economic goals that Crown corporations were established to pursue, especially since many of those goals could never be justified on purely commercial grounds. These broad policy goals supplement the economic objectives of the corporation. 

However, in all the above state reports, only fiscal measures of accountability are addressed. Social and environmental issues are absent in state reports on the accountability of Eldorado (and other crown corporations). Yet the timing of these reports coincides with the exact period during which Eldorado’s abysmal practices with radioactive waste in Port Hope were becoming clear. The timing also coincides with Eldorado’s UF6 expansion plans for Port Hope. Absence and erasure, and turning a blind eye, are also mechanisms of containment. The atrocious record of Eldorado with respect to the care and handling of radioactive materials in Port Hope did not result in any punitive measures by Parliament, respective Ministers, or any federal agency.

What seems apparent, is that while Eldorado was created as an instrument of public policy, and intended to be ultimately accountable to the public interest, it was ultimately created as a corporation, first and foremost. The lack of accountability, gaps in oversight, fiscal measures of state scrutiny, and paucity of consequences indicate that what was meant by public interest, meant best interest for the nuclear state. While crown corporations are intended to “serve a public function,” the function of Eldorado was the “production, refining and sale or other disposal of radium and other products.” The originating Order-in-Council that created Eldorado set the corporation to operate as a strictly commercial enterprise. Building a profitable uranium industry was its prime objective. This was deemed “in the public interest.”

Yet achieving these goals entailed social costs in Port Hope. Elaine Kirsch points out that there are particular costs and privileges of crown corporations “which derive directly from the legal and institutional environment within which it operates.” Despite crown corporations incurring

40 Kirsch, *Crown Corporations as Instruments of Public Policy*, iv. Elaine Kirsch describes these costs as “some obvious, some ‘hidden.’” She further argues that both costs and privileges of Crown corporations “translate into potential costs to society,” 5.
unintended costs onto civil society, she asserts: “none of the players in the public enterprise sector likely has adequate structural incentive to reduce (let alone eliminate) these superfluous costs.” While Kirsch refers to economic factors, this caveat is applicable to social costs, that is, the costs borne onto civil society that result from the legal and institutional context of a crown corporation such as Eldorado. The juridical and political context of Eldorado facilitated certain privileges, opportunities, and costs, which in turn, were linked to an array of deleterious outcomes for the community in Port Hope. While these costs certainly entailed financial implications, as the 1970s remediation and the pending $1.2 billion dollar clean up lay bare, it is the social costs of Eldorado that are not addressed. Kirsch’s caution that there is a lack of structural incentive for crown corporations to mitigate adverse effects is apt to the radioactive contamination of Port Hope. Indeed, in the wake of publicity, the crown corporation took advantage of structural incentives.

Crown corporations, “although largely independent of Parliamentary scrutiny and control, are still in the final analysis instruments of Parliament.” This relationship raises the question: Is Parliament accountable for the actions of Eldorado that had adverse consequences to the community of Port Hope? The formal lines of accountability to answer this question are elusive. The Privy Council argues that the board of directors are “clearly responsible for the management of the business and the affairs of their respective Crown corporations within the framework of the broad policy objectives defined by the government and Parliament. Boards will be held accountable by the government for their performance of these duties.” As this is not set out in legislation, accountability is only tied to broad policy objectives that are unclear. As I

44 As crown corporations differ in legal and political economic context and objectives, they have an array of organizational structure that necessitates an understanding of the balance between “corporate autonomy and institutional control” that each crown corporation operates within. Stevens argues that the “game analogy” theorem of crown corporations offers a useful lens for thinking through the individual ‘players’ in the crown corporation ‘game’, who, while constrained by the ‘rules of the game,’ actively manipulate information to achieve their own objectives.’ However, in acknowledging the evident self-interest of crown corporations, or any organization, for their own survival, Tupper and Doern caution against an overly prescriptive analysis of self-interest as the main explanatory factor for all organizational behaviour. While the latter point is well taken, I do attend to several moments within the historical record of
demonstrated in Chapter 2, the Eldorado board of directors were indemnified from liability for the Port Hope contamination and not subject to punitive measures by the federal state.

Crown corporations are not supposed to receive privileged status in the legal and regulatory process over and above those afforded to private enterprise. Tupper and Doern clarify: “in a practical political sense, however, they are intended to get a special deal.”45 These analysts of Canadian public policy further note: “there are strong grounds for ensuring that Crown corporations are not given special treatment in any procedural sense before regulatory boards, but it is utterly unrealistic to expect that they will not be given discriminatory treatment (positive and negative) in a substantive sense, for they were created to be an instrument of policy and hence of politics.”46 As I have demonstrated, the Eldorado uranium refinery enjoyed substantive advantages within the state bureaucracy, the courts and the regulatory process.

Two observations have emerged through this overview of crown corporations. First, the inextricable link between politics and crown corporations is clear: “they are brought into being by a government which determines the purpose to be served, the form of administration, and the composition of the management; they perform a public function.”47 Second, crown corporation status is purposefully chosen by the state to achieve a political and economic objective, and this decision entails privileges to the crown, and often costs to civil society. Not only are they created to serve a specific objective of the state, it is precisely the “ability of Crown corporations to implement, modify or reverse government policy decisions through low-visibility, informal, incremental means, that makes them such attractive public policy instruments.”48 Thus, crown corporations are strategic instruments of the state, even though the line of state accountability and oversight over the corporation is often questionable. Eldorado was no exception in this regard.

Eldorado that lend themselves to a consideration of Steven’s game analogy. Tupper and Doern, Public Corporations and Public Policy in Canada.  
45 Tupper and Doern, Public Corporations and Public Policy in Canada, 31.  
47 Ashley and Smails, Canadian Crown Corporations: Some Aspects of Their Administration and Control, 9.  
The inefficiencies, mismanagement, and failures of a crown corporation, economic or otherwise, as the Port Hope situation makes evident, may feed polarized arguments for increased state intervention or privatization. But on a cautionary note, Trebilcock and Prichard et al insightfully argue that to focus an analysis of crown corporations exclusively on this binary choice misses a fundamental point of considering why crown corporation status was chosen to begin with. In other words, an analysis of crown corporations necessitates an understanding of what purpose the designation of crown corporation served; what were the costs and benefits of this choice, not simply in economic terms but in relation to a supposed public good; and, how did the politico-legal designation of crown corporation function to distance the activities of the crown corporation from the state.\textsuperscript{49} As I have shown throughout this dissertation, the Eldorado crown corporation was created to facilitate the building of Canada into a leading nuclear state. Crown agency status proved instrumental in Eldorado achieving its objectives.

While policy analysts of Canadian crown corporations caution that agency status should not be used to “evade political responsibility,” it appears that this was often the case with regards to Eldorado.\textsuperscript{50} Indeed, the very basis of crown corporation status enabled Eldorado to exercise “selective responsibility,” maximizing credit for positive outcomes such as fiscal returns, while employing a “‘distancing’ strategy” with respect to “zero or negative political returns,” such as radioactive waste and its attendant fiscal and legal implications.\textsuperscript{51} Crown corporation status was used selectively and advantageously by Eldorado to maximize benefits and minimize fallout. Yet to return to the definition of crown corporation in the \textit{Financial Administration Act}, these instruments of public policy are designed to be accountable to the Minister and to Parliament “for the conduct of its affairs” in financial terms. Absent are any other measure of accountability. Indeed, “the theoretical virtues of the crown corporation have seldom been translated into practice in Canada.”\textsuperscript{52} As I have shown in each preceding chapter, there was an atrocious record regarding radioactive wastes stemming from the state owned and operated refinery. Yet, the

\textsuperscript{52} Tupper and Doern, \textit{Public Corporations and Public Policy in Canada}, 13.
success of the crown corporation was determined solely based on fiscal measures and the adverse
events in Port Hope did not even factor into how the success of this crown corporation was
calculated. Eldorado’s polluting of Port Hope did not diminish its continuance as a key
component of the nuclear state. Rather, Eldorado intensified its operations and expanded the
refinery in the wake of this controversy. Crown agency status helped Eldorado to achieve these
aims. While Eldorado faced scrutiny by the state, according to the financial criteria by which
crown corporations were evaluated, Eldorado was a very successful crown corporation, one of
the best.

The Privatization of Eldorado Nuclear Limited

When Eldorado left in 1988 they should have closed it down, they really should have
instead of selling it to Cameco, But if you stop and think, the government, the federal government owning ENL they could
have closed that facility down, now, selling it to the private....if they try to shut the
facility down, they could be sued billions.

Shortly after the 1975 discovery of radioactive waste in Port Hope, Eldorado analyzed the pros
and cons of crown corporation status, noting that reverting to public shares would deprive the
corporation of “prerogative rights” yet commenting that it was “difficult to quantify value that
may attach to unforeseen fact situations.” The contamination of Port Hope was such a
situation. While crown corporation status certainly facilitated Eldorado weathering the fallout
after 1975, in 1988, the federal government created the Canadian Mining and Energy Company
(Cameco) as a publicly traded company through the merger and privatization of Eldorado
Nuclear Limited and the provincial crown corporation, Saskatchewan Mining Development
Corporation. Cameco, now one of the world’s largest uranium producers, continues to own and
operate the uranium facility in Port Hope. As a private corporation, Cameco owns and operates

53 See Matthew J. Bellamy, Profiting the Crown: Canada’s Polymer Corporation 1942-1990
(Montreal and Kingston: McGill-Queens University Press, 2005) for an example of how crown
corporations, such as Polymer, a petro-chemical giant, continue to be evaluated by economic
measures. Bellamy terms Polymer the “cornerstone of chemical valley” a “model of state-owned
industrial success,” xii.
54 Interview #10: Anonymous, Port Hope resident.
55 Interview #11: Anonymous, Port Hope resident.
56 Eldorado, “Agency Status,” RG 134, ENL Fonds, 1995-96/012, Box 6, File 1-460, October
1976.
the Port Hope Conversion facility (established in 1932 by Eldorado) and the Cameco Fuel Manufacturing Inc. (established in 1957 under the name Zircatec Precision Industries Inc.) in Port Hope, as well as the uranium trioxide facility in Blind River. Cameco also owns the land parcel known previously as the West Beach public park, now not even held “in trust” by the federal state, but private property. By 1992, Canada was producing one-third of the “Western World’s natural uranium,” with approximately 85% produced for export. 57 Here, what Panitch describes as public enterprises (Eldorado) laying the foundations for the grown of private monopoly capital accumulation (Cameco) is made apparent. 58

Converting Eldorado into a private sector enterprise was raised several times before being implemented by the federal Conservative government in 1988. In 1956, Eldorado President Bennet proposed to Minister C.D. Howe that the crown corporation be converted back into a private sector enterprise due to concerns about the potential for the uranium market to decline. 59 They again considered privatization in 1958 under Eldorado President Gilchrist, although it was contemplated that certain facilities that benefited the entire uranium industry, such as the refinery, should remain a crown corporation. 60 As the rationale for originally expropriating Eldorado was national security and security of supply of uranium for the United States atomic program, it seems logical to assume that privatizing Eldorado in 1988 could simply be attributed to a change in this political objective. 61 However, a change in supplying uranium for United States military purposes to products geared towards nuclear energy supply occurred decades before. Rather, through these market changes, the Canadian state deepened its political and economic aspirations for uranium. The federal government undertook measures to remain a leading supplier of uranium products and technology, expanding further into global markets, begging the question of other motives for the privatization of the Eldorado crown corporation.

59 Bothwell, Eldorado, 413.
60 Bothwell, Eldorado, 419.
61 See, for example, Trebilcock and Prichard, “Crown Corporations: The Calculus of Instrument Choice,” 92. They argue that the privatization of Eldorado was due to “a shift in objectives.”
Margot Wojciechowski noted that in 1983 the Canadian Development Investment Corporation (CDIC) was reviewing the possibility of a divestiture of Eldorado and this crown corporation “may be among the first to go” from among CDIC subsidiary corporations. Wojciechowski recorded the 1983 assets of Eldorado as $915.2 million. However, she also lists their long-term debt in 1984 as close to $600 million. Noting that Eldorado “continued to suffer from soft markets,” she observed that the “sale of Eldorado to the private sector had been under consideration before the change of government.” While the conversion to public shares did not begin until 1988, there were attempts to sell the crown corporation between 1985 and 1987, to no avail. The privatization of Eldorado occurred during a period marked by increasing neoliberalization of public assets in Canada, and this processes was observed by political theorist Bruce Doern in relation to Eldorado as the Conservative government “[signaling] less government.”

But the timing of privatization is also in the aftermath of increased public and political scrutiny over the contamination of Port Hope. Whether, or how much, the extensive contamination of Port Hope factored into the decision to privatize Eldorado is unclear. These records are sealed in the state archive and my attempts to access them through Freedom of Information requests were denied. What is clear however, is that through the privatization of Eldorado in 1988, Cameco, the private successor, received limited liability of $25 million dollars for the radioactive and other wastes dispersed throughout Port Hope. The privatization of Eldorado in 1988 shifted the role of the nuclear state with regards to the uranium refinery in Port Hope. Notably, however, the state did not disappear, but remained the central regulatory authority of the refinery through its agents the AECB, and its successor the CNSC. The federal state also remains in Port Hope through agencies slated with managing and containing the refinery’s radioactive waste, notably the LLRWMO and AECL. The presence of the crown corporation also remains in the over two

63 Wojciechowski, Mineral Policy Update 1983, 7. Here she refers to the coming to power of the federal Conservative party.
65 G. Bruce Doern, Government Intervention in the Nuclear Industry, 6, 46.
million cubic metres of radioactive waste left behind by Eldorado. Remnants of the nuclear state are also evident in the uneven power relations that still underpin the relationship between the refinery and the community, and in the ongoing controversy over its waste that continues to cast a shadow over the social fabric of the town. Through its legacy of waste, the crown corporation remains indelibly imprinted in the physical and psychosocial fabric of Port Hope.

Eldorado: An Arm of the Capitalist State

The incremental expansion and intensification of the Eldorado crown corporation, with assistance from their respective Minister(s) and the AECB, add credence to the assertions of Karl Polanyi of the myth of laisse faire, or the free market. The uranium industry, both in the public and private sector, relied on the state to build a national uranium industry, and to shift and dodge obstacles in its path. This not only propped up the Eldorado crown corporation but also elements of the private uranium sector. The Eldorado crown corporation, the uranium industry, and nuclear regulations “grew up together,” to borrow a phrase from Polanyi. Hans Baur observes that nuclear regulatory institutions, such as the AECB, are “ostensibly designed to protect the public but which actually serve to pacify its concerns.” He notes in particular the tendency of coordinated nuclear agencies of the state, what Hecht terms nuclear techno-political regimes to “legitimate the activities of the nuclear industry” in times of crisis, rather than protecting workers and the public. This trend, Baer observes, is a hallmark of the capitalist state. Uranium production in Canada was always a national project of the capitalist nuclear state. The federal state not only facilitated the conditions for the production of uranium, but then turned around and, at least in appearance, made out to ameliorate its negative consequences, while leaving the inequitable conditions and relations of production in place.

67 Karl Polanyi, The Great Transformation: The Political and Economic Origins of our Times (Boston: Beacon Press, 1944). Polanyi terms fictitious commodities as land, labour, and money, the commodification of which leads to social disintegration.

68 Polanyi, The Great Transformation, 71.


Eldorado was a very successful crown corporation. The uranium refinery achieved the goals it was established to accomplish, notably increasing Canada’s economic position and geopolitical power in the uranium industry on the international stage. Eldorado held substantial power and privilege in the political realm. They also held considerable sway in the small community of Port Hope. Their powers and privileges permeated their operations and dealings at the uranium refinery, and underpinned their conduct, if not their contempt, with anyone who interfered in their affairs. Crown corporation status also enabled the refinery to operate in a space of immunity, maximizing political and economic gains, while distancing itself from adverse consequences. In this regard, Eldorado also was extremely successful: the refinery maximized benefits and minimized fallout of the Port Hope contamination, not only for the continuance of the refinery but also for the nuclear state.

Eldorado also successfully achieved its hidden function: crown corporation status screened the state from the repercussions of its uranium refinery in Port Hope. However, crown corporation is only a screen. The Eldorado uranium refinery was the nuclear state embodied in corporate form; the refinery was, and could only ever be, not just in law, but in practice, an arm and agent of the federal state. Its propensity to act with a market logic even when responding to the contamination of homes in the community it had operated in for over forty years, is testament that Eldorado had, in the last instance, the interests of retaining itself as the cornerstone of the nuclear state in mind. In this regard also, Eldorado was successful. By all standards of accountability by which crown corporations are ordinarily measured, Eldorado was one of the best: Eldorado was financially profitable and innovative in building Canada into a leading nuclear state, a position it steadfastly retained from the end of World War II, through the political uncertainties of the Cold War and the Port Hope crisis, all eras marked by secrecy and security.

Over its eighty-two year history, the uranium refinery in Port Hope has been enshrouded in both mystery and contestation. The twin positioning of the town and the residents of Port Hope as nation-building and as national sacrifice is implicit in the refinery’s role in the making of the first atomic bomb deployed over Hiroshima under the Manhattan Project. This was why Eldorado was originally expropriated. The uranium industry is inextricably linked to weapons production,
and the refinery in Port Hope is a prime example of the state-military-industrial roots in the development of the atomic bomb. The Eldorado refinery further contributed processed uranium to the United States for the Cold War arms race. Secrecy and security, the reasons why Eldorado was nationalized in the first place, continued to infuse the refinery’s dealings, even as the industrial role of the refinery shifted to supplying fuel for nuclear power generation.

Eldorado no longer exists in its former incarnation, however Port Hope retains remnants of its Manhattan Project and Cold War era. These remnants are hidden within the radioactive waste left behind, yet also interwoven into the social fabric. One local resident observed:

*That [Manhattan Project] was a state sponsored project, it was the nuclear bomb, and so there is you know, there is a relationship between the nuclear industry and government that is highly visible and you know, very, very close. And they would say, at the time it was a matter of state security and in fact, act of war and all this kind of thing. You know there’s huge license taken when you talk about the state taking over parking lots and the state taking over west beaches.*

*There’s also huge license taken in the nuclear industry in Port Hope because I think there’s a bit of residual state of war from the Manhattan Project mentality, that we’re doing good works here, we were saving the world … when we look back on it it’s terrific, but we were dropping the bomb on Japan to end the war of all wars … you know the psychology of the population was at such a level of rage that everybody thought that was normal behaviour, drop a nuclear bomb on somebody, and in fact heroic, I’m sure it was, there were very few people that spoke out against it.*

*So there’s a kind of residual Eldorado federal government, a residual nobility, or nobles about that whole project that carries to this day, sort of a sacred trust that we got in this to save the world, and now in fact that’s not true. Labine got in it to make money because he figured radium, which I think was in the glow in the dark stages, radium was going to be profitable, to get back to the corporation, willing to make a profit no matter what because corporations aren’t, my view of corporations are that they’re not meant to be ethical. Corporations are put in place to make money.*

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71 Interview #12: Anonymous, Port Hope resident. Alice Mah observes that communities facing industrial decline or toxic contamination may show “nostalgia for a shared industrial past.” See Alice Mah, “Devastation But Also Home: Place Attachment in Areas of Industrial Decline,” *Home Cultures* 6, no. 3 (2009): 287-310. In Port Hope, this shared past had enveloped the community into a historical-geographic narrative of nation-building within a geopolitical context of World War II and the Cold War. As observed by this Port Hope resident, this is a powerful narrative for social cohesion. Through this role, Port Hope is included in the historical telling of Canada’s role in these events, yet as I have demonstrated throughout this dissertation, this ‘history’ has only partially been told.
Eldorado’s objective was clearly to build a profitable national uranium industry, regardless of social costs. In fulfilling its objectives, Eldorado not only occupied but incrementally subsumed the local community in the fulfilling of its capitalist-corporate goals. David Harvey argues (after Friedrich Engels), that the state “arises out of society and places itself above it, therefore alienating itself from it [civil society].”\(^\text{72}\) My analysis of the Eldorado uranium refinery in Port Hope has provided a thick description of how the state is separated out of civil society and elevated above the social body. Pushing this tendency to elevate the state even further, it seems evident that the Eldorado crown corporation then arose out of the state and placed itself not just above civil society, but above the state itself. From this perch, Eldorado sought to operate without state, juridical, or civil recourse.

Capitalism is parasitic on not just territory and their resources, but also social relations. The corporation is a sociopath. This is not to say that the individuals in corporations are sociopaths, but that the political and economic power of a corporation may subsume the social, as if the corporation had also arisen out of civil society, then placed itself above.\(^\text{73}\) Commenting on Eldorado, one long-term Port Hope resident observed:

> I don’t think corporations have a conscience. I don’t necessarily believe they should have a conscience, I believe it’s up to governments to protect individuals from corporations. They need to catch them breaking the law but they need to put the laws in place to protect society.

> ... If state legislators think that corporations are somehow benign, they got it all wrong ...they’re not benign, they’re not evil, they’re not anything, they’re amoral, and that’s dangerous if politicians think they’re moral, cause they’re not. They’re in it to make money so the minute politicians start to get all glassy eyed and say ‘we’ll let the [industry] self-police, because self-policing isn’t part of their mandate, it’s not part of shareholder value ...we need to turn this back on politicians and say look, ‘you guys make the rules, and you guys police the rules, so whenever you give up your responsibility to make the rules or police the legislation you’re abdicating your responsibility as politicians and as leaders in a democracy.’\(^\text{74}\)

This latter comment is not an argument for privatization, but for accountability of corporations, including Eldorado as a crown corporation, to civil society.

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\(^{74}\) Interview #12: Anonymous, Port Hope resident.
This is not to say that individuals with the Eldorado crown corporation knowingly acted to harm or otherwise cause undue suffering to others, or that they did not care about their fellow Port Hope citizens. Rather, the point is that the power and privileges afforded to Eldorado culminated over decades into a corporate culture with the market logic of capitalism and over-determined power. On this point, it seems that Eldorado as a federal public enterprise was not alone, for, as remarked by Leo Panitch, C.D. Howe and his “boys” fostered public enterprises to be corporations, and created within the federal state:

a confraternity of power of such dimensions as to permit the clear employment of the term ‘ruling class’ in the political as well as the economic sense in the Canadian case [of the state]. It suggests, above all, an ideological hegemony emanating from both the bourgeoisie and the state which is awesome, which is reflected in the sheer pervasiveness of the view that the national interest and business interest are at one, and which certainly ensures the smooth functioning of the relationship between the state and the capitalist class.75

Yet this tendency is not intentionally, consciously rooted in what I term as the ‘socio-pathic tendencies’ of the capitalist state, but is systemic. Panitch argues that “the problem is not that political and bureaucratic officials decide to favour capitalist interests in case after case; it is rather that it rarely even occurs to them that they might do other than favour such interests. The problem is indeed a systemic one.”76

Fast Forward Forty-two Years Later

The Eldorado crown corporation was a site for the condensation of power, not a person and not a citizen, ‘good’ or otherwise. While privatized in 1988, the uneven political and economic power relations that cultivated between Eldorado and Port Hope left their mark in this community, evident, yet still invisible, in the radioactive waste left behind. The contamination of Port Hope came into the public light in 1975. Eight years later, as the extent of the contamination was still being discovered, one resident wondered:

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76 Panitch, *The Canadian State: Political Economy and Political Power*, 14 (emphasis in original). Panitch terms this type of state decision-making as “non-decisions.”
Each day melds into the next, slowly adding up to weeks and months. Does it eventually have to be years?\textsuperscript{77}

Almost forty years later, the remaining radioactive waste still remain largely in place. The exact extent of contamination in Port Hope is still unknown, yet estimates are now greatly in excess of even the most conservative 1970s forecasts. Radioactive and other waste are now calculated to be a staggering 1.7 million cubic metres, and estimated costs of remediation have ballooned to $1.2 billion. In a departure from their 1970s position, Port Hope has now agreed to host these wastes in perpetuity. In 2001, the Municipality of Port Hope signed an agreement to permanently host the radioactive waste, to be managed and contained in an engineered long-term facility, currently under construction.\textsuperscript{78} Projecting into a futuristic timeframe of nuclear proportions, the containment facility is planned for state surveillance to the year 2500.\textsuperscript{79}

This about face is, I argue, not because the community now wants to keep the waste in town, although a ten million dollar payment may be incentive to some. Rather the town does not appear to have a choice. In order to have the radioactive waste, and hopefully the stigma, removed from the public and private spaces of Port Hope (the parks, roadways, ravines, beaches, harbour, homes, and backyards), and in the absence of an alternative willing host, Port Hope had to offer itself to the nuclear state. The town signed this agreement after twenty-six years of knowingly living amongst radioactive waste, its stigma, and the uncertainty it evokes for property values. The alternative appeared to be no clean up at all. These are the stakes for the community. While this outcome appears to be based on the consent of the community, it was achieved through coercive means, what Gramsci terms force that “appear[s] to be based on the consent of the

\textsuperscript{78} LLRWMO, http://www.llrwmo.org/?page_id=207. The Port Hope Area Initiative lists the amount of radioactive waste as 1.2 million cubic metres, http://phai.ca/en/port-hope-project/clean-up-sites-revised. This latter figure is comprised of 760,000 cubic metres from “urban Port Hope” and 455,000 cubic metres from the nearby Welcome site, a former Eldorado landfill; Also see \textit{An Agreement for the Cleanup and the Long-Term Safe Management of Low-Level Radioactive Waste Situate in the Town of Port Hope, the Township of Hope and the Municipality of Clarington} (as amended, December 2009).
\textsuperscript{79} Government of Canada, \textit{Screening Report}, 43. The report notes that around 500 years from now, in the year 2500, that “in addition to maintenance activities, any required replacement components would be carried out.”
majority.” Over years, rather than solve the problem, the nuclear state enveloped the residents into the problem and put them to work for the state. This form of “active consent” appears as common sense, yet is achieved through long periods of domination infused throughout social and political life. This outcome continues the patterned relationship between the refinery and the community that was configured over eight decades, a pattern born of uneven power relations in which the state incrementally shifted responsibility for the waste onto the community, while distancing itself from the adverse implications. But, what are the stakes for the nuclear state in the new clean up?

So it’s going to be a huge cleanup.

Question: I wonder, of course I don’t know, and I won’t know, can it be done?

Well, that’s a good question, I think that’s a really good question ... and what’s it going to look like when it’s done, that’s the other thing. I really don’t know. I think that’s an excellent question, I don’t know if there’s any examples ... I do know, if you take world wars for example. Dresden I think was leveled as a city and they rebuilt it, so I think you know if there’s a will, if there’s a political will then things can be done, but at what cost. I mean you have to ask yourself.

And then there’s a thing where governments get into something and I think this may be Port Hope, they get into something, as Lady Macbeth said, we’re so far into this that ... tis’ as easy to go on as to go back, or as difficult. In other words what she was saying was ‘we’ve got such a bloody mess going on, we killed so many people including Kings that we’ve got to keep going ’cause we can’t go back.’ And that was her realization ... And sometimes I think, and this might be something for your thesis, that governments get the Lady Macbeth syndrome which I’ll coin right here, that they have to go on because they can’t go back, because they’re so deep into it now you know that there’s no possible

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80 Antonio Gramsci, Selections From the Prison Notebooks (New York: International Publishers, 1971 [1928]), 80, fn. 49. Stuart Hall furthers that the “appearance” of consent is the outcome of what is visible, what is ordinarily encountered and experienced, yet is not to be mistaken for less important. “Practical common sense,” and the “powerful categories of bourgeois legal, political, social and philosophical thought,” as noted by Hall, “arises, out of daily, mundane experiences.” As also argued by Hall, usage of the term “appearance” or “appear” in no way denotes an insignificance, nor does it imply “false,” “less real,” or “unimportant”; rather appear refers to everyday encounters. See Stuart Hall, “The Problem of Ideology: Marxism Without Guarantees,” Stuart Hall: Critical Dialogues in Cultural Studies, Kuan-Hsing Chen and David Morley (eds.), (Routledge, 1996), 35, 38.

81 Gramsci, Selections From the Prison Notebooks, 244. Shifting responsibility onto local scales without corresponding power is a marker of neoliberalism. The corresponding move is institutions gaining power without responsibility. See Jamie Peck and Adam Tickell, “Neoliberalizing Space,” Antipode 34, no. 3 (2002): 384-404.
way to retrench and say ‘let’s just call it all off’ and you know although in some circumstances I guess you can retire out of politics and blame previous generations, but there are things that they get hold of that they probably wish they hadn’t, or who knows, but anyway that’s maybe what’s going on here, because I can’t imagine why they’re spending a billion in a town of 5,000 or 10,000 or 15,000 people otherwise, because the cost per capita is unbelievable, you do the math.82

Both refinery supporters and critics pose similar questions: Why clean up something that is not a problem? If the radioactive waste is not a problem, then what is the problem? To these questions, I can only speculate. Mechanisms of containment may have managed to prevent a potentially catastrophic uprising against the state’s key uranium producer in the past, yet the radioactive waste still lingers as a blemish, not just on Port Hope, but on the nuclear state, which is now motivated to remove this blemish, this “dark legacy,” this “holy horror.”83 So perhaps within the radioactive waste lie the seeds of a problem that can eventually grow into something uncontainable. Again, the answer is as elusive as radiation.

**Conclusion:**

In this chapter, I zoomed back out from the micro-scale to situate Eldorado’s actions and priorities in the aftermath of 1975 within the context of this crown corporation as an instrument of public policy “clothed in corporate trappings.”84 To return to the definition of crown corporations, they are “an institution with corporate form brought into existence by action of the Government of Canada to serve a public function.”85 The “public function” of Eldorado was to be an instrument of the nuclear state and to position Canada among the leading uranium suppliers to international markets. At this, they were successful. But the market logic of corporatism subsumed the social.

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82 Interview #12: Anonymous, Port Hope resident. I posed the question. As an academic exercise, the calculation is $240,000, $120,000, and $80,000 per person, respectively, much higher than the $83 per person cost-benefit calculation estimated by the AECB in 1976 as meriting clean up, based on the potential risk of estimated radiation exposure.

83 Ian Montagnes refers to the contamination of Port Hope as a “dark legacy.” Ian Montagnes, *Port Hope: A History* (Ontario: Ganaraska Press, 2007), 193; The contamination was called a “holy horror” by Interviewee #8: Anonymous, Port Hope resident.

84 Kirsch, *Crown Corporations as Instruments of Public Policy*.

The vast political economic resources afforded to Eldorado as a crown corporation, combined with its subsidiary companies and federal regulators (another crown corporation, the AECB), culminated into what Hecht terms a “techno-political regime,” that is, an array of people, institutions and technologies that “act together to govern technological development and pursue techno-politics” aimed at a “series of specific material goals.” Hecht furthers that a techno-political regime “prescribes policies and practices but also broader visions of the sociopolitical order.” Here, the link between the practices of the nuclear state and its occupation of Port Hope are linked to a broader intent, the continuance of the nuclear nation-state. The consolidation of Eldorado’s power through a period marked by crisis was facilitated through a multitude of institutional forms of containment from within this nuclear techno-political regime, yet also enabled from political-legal institutions (laws, courts, and crown privilege) in the broader state-system.

Having now analyzed the consequences of unchecked state power, as exercised through one particular crown corporation, I teeter on a razors edge. One might come to the conclusion that crown corporations need to be abolished through privatization: neoliberal economists espousing a supposed free market would certainly agree. Yet to so conclude would miss a fundamental point of my analysis. Crown corporations do not need to be abolished, albeit their objectives as instruments of public purpose certainly need explicating. An infusion of social accountability into the very fabric of crown corporations, such that the public good is redefined on social, rather than economic grounds, would be a huge step in this regard, yet insufficient on its own. Nor should one conclude that increased state intervention alone will ameliorate the problems of crown corporations so clearly made evident by the Eldorado uranium refinery in Port Hope, although certainly more oversight and accountability could mitigate some adverse consequences, such as widespread waste. Rather, what is needed is an infusion of the social into the very fabric of the capitalist state, such that the state, and its corporations, cease to be capitalist. The capitalist state is a socio-pathic enterprise concerned first and foremost with its own legitimacy and consolidation of power. While not monolithic, nor totalizing, it has tendencies to subsume. Eldorado is but one example of its offspring. This is not to say that individuals working for the capitalist state are sociopaths or intend any misdeeds; rather, it is to point out that the systemic,

86 Hecht, *The Radiance of France*, 16-17.
expansionary tendency of the capitalist state subsumes the social: a market logic, rather than social wellbeing, are ingrained in its very purpose. That society and its public and private spaces are dispossessed in its wake, are as much its byproducts, as is radioactive waste.
The Woal of Whats In It

In this dissertation, I have provided a thick description of how the state is held as separate from, and even above, civil society. The material and ideological separation of the state from civil society that is productive to state power is maintained through processes of enclosure and containment. This analysis of the stability (and expansion) of Eldorado as a cornerstone of the nuclear state in spite of a series of challenges also demonstrates how state power is over-determined, enabled from multiple sites within the state yet also facilitated from among the social body. The radioactive contamination of Port Hope could have become a crisis of legitimacy for the nuclear state, a problem that the state could not contain. But Eldorado retained its legitimacy as a vital arm of the nuclear state, and expanded its operations in Port Hope through incremental processes of enclosure and containment. Drawing on its powers and privileges, this crown corporation strategically fought off political opposition, while foreclosing public dissent. The hegemonic primacy of the economic over the social that was predominantly articulated through the institution of property also helped to contain dissent by manifesting as social coercion and self-discipline in civil society. My analysis shows how uneven power relations produced over long periods of time endure, and even intensify, in spite of crisis.

Through my analysis of the Eldorado uranium refinery in Port Hope, I have also rendered visible the obscured social relations that reproduce nuclear landscapes as spaces of dispossession, insecurity, uncertainty, anxiety, and sacrifice. The roots of these conditions are deeply entrenched and difficult to trace. In the post-apocalyptic novel *Riddley Walker* by Russell Hoban, the main character Riddley highlights the impossibility of seeing nuclear landscapes in their entirety:
If you cud even jus see 1 thing clear the woal of whats in it you cud see every thing clear. But you never wil get to see the woal of any thing youre all ways in the middl of it living it or moving thru it. Never mynd.¹

Hoban’s insight is that the conditions of nuclearism are often obscured. This is not just because the techno-political structure of the nuclear industry may conceal these links, but also because we are all enveloped in the atomic age. Each of us is living with nuclearity in some way.²

Hoban’s remarks highlight a key insight of this geographic analysis, that the everyday and the apocalyptic are intertwined. As I wove together seemingly disparate threads to demonstrate how the nuclear state was built through the incremental dispossession and sacrifice of the local community, it became clear that it was not radioactive waste, but the social and political response to the contamination that was contained. Hoban’s observations were inspiring as I sought to decipher and keep in mind what Riddley Walker describes above as the “whoal of whats in it.” This approach necessitated an analysis of the implications of the state and state power, yet also attendance to the social relations of everyday spaces. Even still, lingering questions remain, partially hidden, yet residing in the radioactive waste, and in the nuclear state’s plans to, once again, try to remove this “dark legacy.”³

Writing Crown-Corporate History: Practices and Politics of Containment

The title “Into Eternity” is borrowed from the film about the building of Onkalo in Finland, soon to be the world’s largest deep geologic repository for nuclear waste. See Michael Madsen, Director, Into Eternity: A Film for the Future (Copenhagen: Magic Hour Films).

¹ Russell Hoban, Riddley Walker (London: Pan Books Ltd., 1980), 181. While “never mynd” suggests a futility, this caveat does not, however, mean we should not try to see the conditions of nuclear landscapes, which is precisely the social critique embedded in this popular cult novel of nuclear apocalypse and in this dissertation.


Piecing together this counter-narrative of Eldorado, a fine grained analysis of the historic-geographic complexities of a very powerful crown corporation, necessitated a mixed methods approach, yet one which relied quite heavily on state archives, including those of Eldorado. Ann Laura Stoler argues that “shadowed places are what states create, emblematic conventions of the archival form. States do more than traffic in the production of secrets and their selective dissemination. State sovereignty resides in the power to designate arbitrary social facts of the world as matters of security and concerns of state.”⁴ Through the contents of the archive and the restrictions imposed on access, the state may, intentionally or unintentionally, enclose and contain information. The state disallows certain histories to become known and brings into being other histories, or at the very least, their partial telling. Gillian Rose asserts that “the writing of certain kinds of pasts is legitimated by, and legitimates, only certain kinds of presents.”⁵ These insights have direct relevance for if and how individual, community, or crown-corporate stories become known and understood, and weighs heavily on how the archive as a repository of state records may help to cast new light on the productive work of enclosure and containment.

The inadvertent erasure or purposeful hiding of historical records not only obscures or eliminates historical events, such as Eldorado’s priorities in the immediate aftermath of the discovery that Port Hope was contaminated with radioactive waste, but as noted by Rose, may also hide the act of erasure.⁶ How Eldorado protected its own interests in the wake of contamination is contained in numerous state archives that are each subject to various access restrictions. Many records pertaining to Eldorado and the AECB are closed or severely redacted, both means of containment that keep certain histories secret. Other means of containment make particular histories disappear from view. For example, the former John Street neighbourhood and West Beach public park have vanished, not just materially, but from the maps and official plans of Port Hope. If you do not know of their former existence through other means, you also would not know that they had been erased. Viewed in this way, the state archive is a product of history but

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also invariably produces particular versions of history through its structure, content and accessibility.

Practices of data control are multi-sited and the fact that Eldorado’s crown-corporate history has predominantly been told as one of success and grandeur is telling about practices of containment. Mechanisms of containment can be seen in the production of Eldorado history, most notably the corporate biography of Eldorado, commissioned by the crown corporation to historian Robert Bothwell following the discovery of contamination in Port Hope. Bothwell’s book is a praise-ridden biography of the early history of the corporation from the late 1930s through roughly the 1960s. Corporate sponsored biographies are also a means of containment, for they are purposeful narratives that privilege particular histories, and in so doing, elide others. The following book review summarizes the Eldorado biography:

A company history is often a sign of trouble. It frequently signifies the passing of a generation of managers, the need to clean up the company image after a corporate catastrophe, or the loss of institutional memory. Increasingly corporate histories are now being written as part of a long-range planning process. This book by Robert Bothwell is an example of all of the above.

Benedict Anderson insightfully links the narrative of nations with historical junctures: “all profound changes in consciousness, by their very nature, bring with them characteristic amnesias. Out of such oblivions, in specific historical circumstances, spring narratives.” The Eldorado biography was produced as a form of national narrative, a manufactured history. At the time of its writing, the events in Port Hope were fresh, and the book coincided with the

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7 Bothwell also comments on the period marked by the radioactive waste crisis in Port Hope. Despite the above caveats, as noted by Peter van Wyck and as experienced by myself, Robert Bothwell’s book on Eldorado is a “kind of proxy archive of necessity” given the exceedingly difficult access to Eldorado corporate and government records. Therefore, where I rely on Bothwell’s biography of Eldorado to piece together the historical context of the crown corporation in its early years, I supplement these notes with extensive material from other sources and note the limitations of the biography in shedding insight into the political economy of the Port Hope radium refinery and all its contestations. See Robert Bothwell, Eldorado: Canada’s National Uranium Company (Toronto: University of Toronto Press, 1984).


9 Benedict Anderson, Imagined Communities (London and New York: Verso), 204.
containment of the political and public response to the waste, the UF6 expansion in Port Hope, and the new U03 facility in Blind River. The Eldorado biography skips and glosses over the contamination of Port Hope, as if an insignificant blip in Canadian crown-corporate history. As I demonstrate in this dissertation, this was the case for Eldorado, for they weathered it well. But presenting texts or history as a totality are “modes of exclusion” that “take the form of repression.”

The production of this biography at this particular moment produced and legitimated a particular crown-corporate history, one that was productive to certain political and economic ends, to containing the narrative of the nuclear state as one of success.11

John Gaventa also terms controlling information as a form of containment.12 “Conflict can be contained” through such means as controlling the agenda and dissemination of information.13 Controlling the dissemination of information about the uranium refinery remains evident in Port Hope. The Port Hope Planning Department repeatedly refused my attempts to access legally public documents. In this regard, individuals within the local state continue to work for and comprise a key element of the nuclear state. Containing the possibility of adverse publicity around contamination in Port Hope remains common sense. By withholding and delimiting information, the local state seeks to control the perception of Eldorado and the image of the town. Actions such as these may be aimed at protecting the community from adverse publicity about radioactive waste and stigma and in some ways, achieve their goal, yet they also paint a picture of non-disclosure, casting suspicion, not on what is disclosed, but what is not.

11 I attend to Jameson’s insights into containment through a case study lens, yet also to illustrate a broad example: if nuclearism is viewed along a historical timeline since the dawn of the atomic age, shifting patterns emerge that indicate how the production of uranium was contained on ideological grounds within nuclear states, including Canada. During WWII and through the Cold War, ideological grounds for the justification of the nuclear industry included the threat of nuclear war. Current ideological grounds for the continued commodification of uranium include nuclear energy as a source of “clean” energy and substitute for fossil fuels. Climate change is the new “external threat.” Elsewhere, I argue that these state facilitated discourses and practices are used to justify the continued pursuit of geopolitical and economic power.
13 Gaventa, Power and Powerlessness, 227.
While the state sanctifies or produces particular histories as the official version, and other versions are relegated to the margin as unofficial, these practices are not totalizing. Penny Sanger’s book *Blind Faith* is one counter-history. *A Hot Commodity: Uranium, Containment, and the Nuclear State* is another. Perhaps more counter-histories will follow, but that this remains necessary is also disturbing. As remarked upon by Kelly Lynn Anders in her analysis of the Karen Silkwood case,

> Must there always be a ‘David versus Goliath’ element to make these stories compelling? Would it be less interesting if these companies literally cleaned up their act without being dragged through the mud of courts and popular public opinion? Would there even be a story worth telling without such drama? If not, what does that say about us as a society?\(^{14}\)

Indeed, it is not just the story itself, of a powerful state-owned uranium refinery polluting a little town, but the necessity of its re-telling in histories such as this one, to make visible its hidden faces, that also sheds insight into society.

Throughout this work, I have demonstrated that the state and the uranium industry are inextricable, and that the scales and the stakes in the political economy of the Port Hope uranium refinery are interwoven. The nuclear state relied on this small community to build itself into a leading nuclear state; in turn, the community relied on the nuclear state for the purported economic viability of the town. Their economic stakes were meshed together over a period of decades, articulated and expressed as dependency. Yet this dependency was always informed by uneven power relations that heavily favoured the state.

### The Nuclear State, Power and the Everyday

Theorizing the state and power through abstraction has merit for shedding light into systemic uneven power relations, yet a nuanced understanding of this one factory in this one town necessitated digging into its historic-geographic specificities. David Harvey argues that as an abstract concept, the state is useful for “generalizing about the collectivity of processes whereby power is exercised and for considering that collectively within the totality of a social formation,” but not for “describing the actual processes whereby power is exercised.”\(^{15}\) Stuart Hall also

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criticizes abstract theorizations as mere “speculation” if not grounded in historical detail.\textsuperscript{16} As E.P. Thompson set out with historical specificity in \textit{Whigs and Hunters: The Origins of the Black Act}, forensic analysis of seemingly minor events reveals uneven power relations.\textsuperscript{17} He further argues that the “consolidation of power” over long periods of time also merits analysis, for “stability, no less than revolution, may have its own kind of Terror.”\textsuperscript{18} I was inspired by Thompson’s approach to investigate stability rather than crisis and to focus on seemingly minor events. Minor events are not “trivial.”\textsuperscript{19} Rather, minor events reveal how power is articulated through a myriad of mechanisms, and the consolidation of power relies on everyday occurrences and interactions. Minor events may elide systemic power relations. In this detailed analysis of the stability (and expansion) of Eldorado in spite of crisis, I have made a contribution to the political geographies of micro-history by showing not just why, but how, power is secured over long periods of time. This approach required an analysis of the role of the state in these processes.

Eldorado’s status as a federal crown corporation imbued the refinery with specific privileges it opportunistically pursued to concentrate its power, yet these processes were dynamic and relational. Gramsci describes the state as a “relation, a process of exercising power via certain institutional arrangements.”\textsuperscript{20} He argues that the modern state retains its legitimacy by appearing to represent the general interests of civil society. The attendance to Gramsci’s interplay between the political and the social is key, as civil society is not left behind, as if dominated by a monolithic state, and domination, however long it may endure, is not a totalizing process. As a social relation, it is not the state as an object, or thing, that demands analysis, but “the social

\begin{itemize}
\item \textsuperscript{17} E.P. Thompson, \textit{Whigs and Hunters: The Origin of the Black Act} (New York: Pantheon Books, 1975).
\item \textsuperscript{18} Thompson, \textit{Whigs and Hunters}, 258. Elsewhere, Thompson observes that “the renewed emphasis on power and power relations, especially in history, is right.” See E.P. Thompson, “Agenda for Radical History,” in \textit{Making History: Writings on History and Culture} (New York: The New Press, 1994), 362.
\item \textsuperscript{19} Stoler, \textit{Along the Archival Grain}, 7.
\end{itemize}
nature of capitalist production and its economic, political and ideological pre-conditions.” The nuclear state relied on ideological pre-conditions, notably the constructs of property and the symbolic power of state authority, to contain dissent. However, the social body also “participates in the ideological construction of the state.”

While the state situates itself as separate from, and even above civil society, after analyzing the contestation in Port Hope I argue that the social body also participates in the reproduction of the state as separate from, and above, civil society. The specificities of the nuclear state and the events in Port Hope, while certainly situated within a capitalist mode of production, must be seen as the result of complex interactions, not the predetermined result of an all-powerful crown corporation, or even a nuclear state, acting in isolation. Rather, Eldorado operated within a system that conferred advantages upon the crown corporation which they strategically used to secure and expand the uranium refinery, despite an apparent crisis. Crown corporation status further facilitated an appearance of legitimacy that most certainly influenced the refinery’s dealings with the local community. The refinery embodied the authority of the federal government. The powers and privileges of the Eldorado crown corporation were condensed from within multiple state institutions, yet also facilitated through the social body. Civil society continued to support Eldorado, despite its contamination of their homes and appropriation of their public spaces, but did so under duress that manifested as economic dependence in terms of potential job loss and devaluation of property. The nuclear state relied on this dependence to build itself into a leading supplier of uranium commodities for national and international markets. The nuclear state also relied on the techno-politics of the nuclear industry to secure its own geopolitical and capital power, as integral components of a nation-building project. Port Hope was a national sacrifice zone in these processes.

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21 Bob Jessop, State Theory: Putting Capitalist States in their Place (Pennsylvania: University of Pennsylvania Press, 1990); 45.
Minimizing Fallout: Containing Radioactive Waste/Containing the Response

The wasteland discourse and material practices that posit the small town of Port Hope as a national sacrifice zone for geopolitical and economic power are still powerfully operative.\textsuperscript{24} Even if the radioactive waste is not a health hazard, as the state insists, there is no denying its disruption of the social relations in Port Hope. This too lingers. Further, despite the privatization of Eldorado, the nuclear state also plans to remain in Port Hope. The permanence of the nuclear state is implicit in its proposal to contain the radioactive waste for hundreds, if not thousands of years.\textsuperscript{25} Given the historical record of shifting global political and social arrangements (and territorial boundaries), these projections are exceedingly unlikely, yet assumed in the 500 year plan for managing and containing the radioactive waste in Port Hope. But the state’s assurance that the radioactive waste is benign is troubled by their forty-year inability to find a suitable containment site, and by their stated need for an engineered containment facility to hold these wastes for a minimum of 500 years – after which state intervention is forecasted to again be needed to repair the facility. Regardless which, if any, of the competing claims about the waste are true, the nuclear state and its radioactive waste have had deep material, social, and psychosocial impacts on this small community, and these too are hallmarks of a nuclear landscape.\textsuperscript{26}

\textsuperscript{24} Valerie Kuletz, \textit{The Tainted Desert: Environmental and Social Ruin in the American West} (New York and London: Routledge, 1998); 13, 215. Valerie Kuletz terms the wasteland discourse of national sacrifice zones as justifying adverse material and social consequences of nuclear colonialism, equally applicable to other nationalist projects of the nuclear industry. Kuletz goes so far as to term national sacrifice zones as “expendable” by the state. The social and ecological ramifications of uranium production are to result in sacrificial landscapes that subsume the environment and people for the so-called ‘greater good’ of geopolitical and economic power.


\textsuperscript{26} Masco also observes the “Cold War nuclear state” as “rupturing interpersonal relationships between family and friends.” Masco, \textit{The Nuclear Borderlands}, 231. In this outcome in Port Hope, I see elements of what Jurgen Habermas referred to as a “negative utopia,” that is, the emphasis on implementing techno-political ‘solutions’ instead of eliminating social inequalities. See Jurgen Habermas, “Technology and Science as Ideology,” in \textit{Towards a Rational Society: Student Protest, Science and Politics.} (Boston: Beacon Press, 1971), 81-122.
To return to Blake Fitzpatrick’s theorization of the post-cloud nuclear landscape, in removing the focus on the atomic bomb, while not shedding it entirely in this dissertation, I have undertaken a nuanced analysis into the complexity of social relations and historical context that underpinned the Eldorado uranium refinery, including, but not limited to its role in atomic weaponry. Un-framing the atomic cloud to focus on events that might otherwise be dismissed as trivial, has facilitated understanding how the conditions of nuclear landscapes are reproduced through everyday practices and ordinary people, not through apocalypse. Filling ones backyard with dirt is everyday and ordinary. So too is building a shed, replacing the front steps, or wearing shoes home from work. In fact, the obverse appears true: it is through the everyday and ordinary that apocalypse is made possible. It is also through the everyday and ordinary that the ramifications of apocalypse are contained. As one means of containment, rendering nuclear landscapes as benign and banal, and the contaminated spaces and objects within these landscapes as normal, contributed to the acquiescence among residents.

In the aftermath of 1975, radioactive waste and its stigma lingered in Port Hope, resulting in deep divides among community members. In pouring over this long and complicated history, I wondered why the citizens of Port Hope did not instigate individual or class legal action against the crown corporation, or the federal government. During interviews with Port Hope residents, I inquired whether there were lawsuits, yet no one knew of any. In all my research, I only came across a few tangible references to possible lawsuits that did not appear to amount to litigation against Eldorado. Despite contaminating the town, Eldorado was not the primary target of blame. Other levels of government, even the media, were variously accused of causing Port Hope’s problems. Threats of social exclusion also helped to keep a lid on public dissent.

In *Power and Powerless: Quiescence and Rebellion in an Appalachian Valley*, John Gaventa questions “the means by which corporate power turned itself to the shaping of its own legitimacy” in order to understand why, “in the face of massive inequalities” dissent does not

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occur? Gaventa’s work on the coal industry in the Appalachian parallels this analysis, and I drew on Gaventa’s approach to investigate the means by which state-corporate power sought to legitimate itself in the face of adversity and to understand how uneven power relations endure over a long period of time. His work explain how uneven power relations not only contained, but also shaped the grievances themselves. This insight is useful in understanding the response of the social body to the contamination of Port Hope. The radioactive contamination of Port Hope, and the responses of the crown corporation and community after 1975, arose from uneven power relationships already fostered over four decades. Power is “accumulative by nature; each dimension serves to reinforce the others.” The nuclear state figured prominently in everyday life. The local community wanted to believe the crown corporation was one of them, a ‘good corporate citizen,’ and as one of them, would have their best interests at heart. Eldorado also wanted community members to believe it was one of them. In fact, refinery workers, even as they were ‘ordinary’ members of the local community, participating in aspects of social life, were encouraged by the state to be involved in local political life. Individuals were citizens, yet Eldorado, while nicknamed a ‘good corporate citizen,’ was a corporation and a local manifestation of the federal government. A latent authority was embedded within its position as a crown corporation.

While the Eldorado crown corporation was certainly powerful, its powers were not autonomous, nor did they go unchallenged, even by those inside the state. However, support for Eldorado far outweighed any resistance and multiple mechanisms of containment worked to contain dissent. For how else could “the public secret,” that which is generally known, yet cannot be acknowledged, be kept silent. On the heels of the 1975 discovery, one might ask: Why was

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30 I discuss this issue in Chapter Two, Eldorado: The Good Corporate Citizen.
31 Pierre Bourdieu terms power embedded with the authority of the state as “symbolic capital,” that is, perceived as power even if it is not always exercised. Yet Bourdieu terms the state as embodying a “quasi-divine power” and as noted previously, in so doing, appears to leave civil society behind, as if cemented in place. Pierre Bourdieu, Loic J.D. Wacquant, and Samar Farage, “Rethinking the State: Genesis and Structure of the Bureaucratic Field,” *Sociological Theory* 12, no. 1 (1994): 8.
there not much apparent dissent, or even disdain for the uranium refinery, the crown corporation, or the nuclear state? After all, these are all the same character playing multiple roles. Herein lies a partial answer. Rolled into one being, Eldorado was the factory, the largest local employer, the crown corporation, the federal government, a community benefactor, a neighbour, and a ‘good corporate citizen.’ Each face of Eldorado held, or was perceived to have held, a prominent role within the community, and each did its own work behind the scenes. Eldorado’s powers were not entirely state-centered. Rather they were multi-faceted and infused throughout everyday life: each of its roles reinforcing the others. Yet all of these individual manifestations were one and the same, however slippery the perceived parts. Together, they formed one very powerful, formidable figure.

In actuality, the community held the power, not Eldorado and not the nuclear state, but the community did not exercise it because there was an overwhelming sense of powerlessness. “Power may prevent conflict from arising in the first place.”[^Gaventa11] The federal government caused the problem and the federal government was needed to solve the problem, yet as the historical record shows, state inaction left Port Hope in an interstitial space of uncertainty, living among the remaining wastes for almost forty years. This posed a dilemma for local residents, yet people have been living alongside the uranium refinery since the 1930s. It is older than most residents in Port Hope. For many, the refinery has simply always been there. People have come and gone but the refinery remains, and now along with it, so too will the radioactive waste – moved to long-term storage to be managed and contained, but remaining in the town that the nuclear state has depended on for over eighty years.

There was a clear reluctance among community members to publicly acknowledge doubts or blame Eldorado for the contamination of the community. But as an inversion of culpability, Eldorado and other elements of the nuclear state blamed Port Hope residents for the contamination of their own homes, a tactic of containment also noted by Adriana Petryna as foreclosing dissent in Chernobyl.[^Petryna161] This pattern of blame also reveals uneven power relations and

the separation of the state from civil society. The federal government was responsible for the livelihoods of many Port Hope residents and that the federal government also contaminated their homes was seen by many as a betrayal, yet a problem which the federal government would quickly solve. Individuals and local community groups which formed to demand answers and action were (and continue to be), subject to social exclusion. These factors, combined with coercive economic disincentives, such as fear of job loss and property values, also shaped residents response to the contamination, long standing patterns illustrative of Gaventa’s observation of how “patterns of power …shape conflict.”

For many, common sense held that Port Hope without the uranium refinery was unthinkable. Common sense elided the possibility of alternatives.

Common sense also held that economic considerations should take priority over the social and ecological consequences of the Eldorado uranium refinery. This tendency is rooted in the dichotomous choice between economy and society, argued by Karl Polanyi as a false distinction characteristic of capitalism’s separation of the economy from society. This dichotomy between the economic and the social appeared necessary for a majority of Port Hope residents, who supported the refinery even as the community was discovered to be more and more contaminated. Raymond Williams terms dominance as experienced to be “lived hegemony,” a process that is continually “renewed” yet also “continually resisted.” Stuart Hall adds that common sense is internally complex, a contradictory process of “everyday reasoning,” the “horizon of the taken for granted,” rather than an external imposition. The primacy of jobs and

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38 Williams, *Marxism and Literature*, 112,
39 Hall, “Toad in the Garden,” 54, 44.
property values in Port Hope were experienced as everyday common sense, even as this disrupted social relations among the community.

As I have shown through this geographic analysis of Port Hope, forms of economic coercion are apparent in the privileging of economic considerations, seen most clearly in the sale of the West Beach public park to Eldorado, in the primacy of jobs, and in the lack of outcry over the radioactive contamination of private homes because of fear of property values. This tendency towards individualized self-interest is a form of self-discipline, and a mode of containment erected through systemic relations of capitalism and the institutions of private property, yet articulated and manipulated through site-specific circumstances.\(^\text{40}\) Other factors contributed to the lack of dissent. Actions of the nuclear state may have partially mitigated the negative effects of the refinery’s contamination, yet left the conditions of contamination (as well as significant volumes of waste) firmly in place. These tactics are what Gramsci terms “concessions aimed towards civil society” yet “which cannot touch the essential,” the systemic relations of power and the conditions of capitalism.\(^\text{41}\) These partial concessions, such as property value protection programs, “[stopped] narrowly short of corporate interests.”\(^\text{42}\) Partial concessions were means of containment that ensured the continued operation of Canada’s uranium production at a crucial moment in the international uranium market.

### Containment Revisited

Reflecting back on his Cold War containment strategy, the author, George F. Kennan, wrote in 1976 (coincidentally, the year that the Port Hope radiation crisis took off), that in the immediate aftermath of World War II, people in Europe were:

> … disoriented, discouraged, apprehensive, frightened by the experiences of war, and it would not have been too difficult for Italy or for France, if they had lost their confidence in us then, to turn to the Soviet Union and let their Communist parties take over. It seemed to me that it was important for Europe, and for us, and in the long run, even for

\(^{40}\) Michel Foucault terms the individuation of society in capitalism as a process whereby a subject of right was transformed into a subject of interest, that is, self-interest (homo-economicus). See Michel Foucault, *The Birth of Biopolitics: Lectures at the College de France 1978-79* (New York: Palgrave Macmillan, 2007), 28.

\(^{41}\) Gramsci, *Selections From the Prison Notebooks*, 182.

\(^{42}\) Gramsci, *Selections From the Prison Notebooks*, 182.
the Russians – that this should not happen. It just wasn’t desirable … When I talked about containment, what I had in mind was an effort on our part to stiffen the hope, the confidence, of European nations in themselves, and to persuade them that they didn’t need to yield to one great power or another, that they could resume life. We would help them do it.43

I certainly do not want to overreach the comparison between the context of Cold War grand strategy of containment in Europe and that of the Canadian nuclear state. However the parallel is this: in the aftermath of discovering that their homes and community were contaminated with radioactive waste from the town’s largest employer, many people in Port Hope were disoriented, discouraged, apprehensive, and frightened. With assurance from the capitalist nuclear state that radioactive waste was “natural,” “normal,” and “common,” everyday life in Port Hope quickly resumed, in part, through coercive strategies of containment targeted at this domestic social body. The analogy of Port Hope as a Cold War space is not limited to the Manhattan Project and the nuclear arms race. Community members references to East Germany and the former Soviet Union speak to a culture of containment in everyday life, a ripple of anxiety when the refinery even emerges as a topic of conversation. Dissent, to quote Andrew Ross, is attempted to be “neutralized by being fully absorbed.”44 Containment became infused in everyday life in Port Hope, manifest as “lived experiences.”45 Matthew Farish argues that “geographies of panic are also geographies of control.”46 Panic can relate to fear of an unknown threat, such as anxiety over radiation. Geographies of panic can also be manufactured through fear of economic catastrophe over job and property value loss. The crisis of 1975 was managed and contained through a series of mechanisms, and each element of containment revealed “variable ethical commitments” and the underlying motives behind the stakes.47

44 Andrew Ross, *No Respect: Intellectuals and Popular Culture* (New York: Routledge, 1989), 46. While Ross terms dissent as ‘fully absorbed,’ he implies that this is the objective. As indicated throughout *A Hot Commodity: Uranium, Containment and the Nuclear State*, containment was certainly a dominating process, yet not a totality. Rather, “fully absorbed” speaks to the intent of containment, not the outcome.
45 Elizabeth Wheeler, as quoted in Matthew Farish, *The Contours of America’s Cold War* (Minneapolis: University of Minnesota Press, 2010), 212.
Strategies of containment also delimited the crown corporation’s fiscal and legal ramifications of the waste and indemnified Eldorado executives against potential liability. Mechanisms of containment were then skillfully executed through the courts, whereby Eldorado fought to retain its autonomy from federal regulators, provincial jurisdiction, and even juridical reach. These latter moves highlight that the target of containment was not merely the social body, but other factions within the state. The nuclear state, as a system of institutions working together towards a common goal, parallels what Gabrielle Hecht terms a “techno-political regime.” As a regime, diverse aspects of the nuclear state culminated to contain the implications of the Port Hope fiasco to ensure the continuance of the national uranium industry. Yet this regime was not internally consistent, indeed it was often fractured. Within this regime, each involved government (AECB, federal Minister, provincial authorities) undertook measures towards protecting their own interests, Eldorado most aggressively. These strategies point out how the stakes at play were broken down within the state; they were not monolithic, nor at the scale of an abstract nuclear state, but distributed across various institutions. Alison Mountz similarly argues that “attributing the state with autonomous power underestimates the role of people in its enactment. The state is powerful but not all powerful.” The state is “an everyday social construction.”

Strategies of containment may delimit, yet may also be expansive and productive, enabling certain material conditions and dominant social relations to continue, or to come into being, while disallowing others. In the uranium industry in Port Hope, the aggregate effect of what was contained, or attempted to be contained, was not simply territory, uranium commodities, or radioactive waste, but people, knowledge and power. Alan Nadel observes that “if containment thus names a foreign and domestic policy, it also names the rhetorical strategy that functions to foreclose dissent, preempt dialogue, and preclude contradiction.” These strategies include setting the agenda, determining what is official information, and delimiting criteria by which radiation is deemed significant or insignificant, practices of containment that categorize

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48 Hecht, *The Radiance of France*, 16-17.
information into “legitimate” (official – safe – rational - property) and “illegitimate” (unofficial – unsafe – irrational - health) categories.\textsuperscript{51}

**Enclosure and Containment: An Integral Relation**

Mechanisms of enclosure and containment are evident in Port Hope. Enclosure and containment are related processes embedded within the production of nuclear spaces and, as I have shown in this dissertation, are linked practices. Nik Heynen and Paul Robbins argue that enclosures do not just subsume common resources, such as land, but also result in “the exclusion of communities to which they are linked.”\textsuperscript{52} Enclosure in Port Hope resulted in an in-situ dispossession, what Feldman et al describe as “a loss of place …while remaining in place,” processes that are markers of post-World War II nation-building projects. Displacement is not just spatial dislocation, but an attendant “shift in economic, social, and political security while remaining in place.”\textsuperscript{53} Dispossession of the home through contamination is a cogent example. Enclosure of the refinery, the beach and other public spaces due to radioactive contamination or outright sale, also had an inclusive tendency to contain from within and a concurrent exclusionary tendency to close off, restrict, or contain from without. These processes subsumed space while dispossessing the former social relations.

Uneven power relations enabled the nuclear state to gradually execute a literal and metaphoric occupation of the local community. Contamination foreclosed many spaces in Port Hope from public use, creating what Adriana Petryna terms as “zones of exclusion,” processes Valerie

\textsuperscript{51} Petryna also links the plethora of state generated information on radiation as “chronic information stress,” “strategically used by the state” to contain dissent in Chernobyl. Petryna, *Life Exposed*, 167, 169; Also see Scott Kirsch, *Proving Grounds: Project Plowshare and the Unrealized Dream of Nuclear Earthmoving* (New Jersey: Rutgers University Press, 2005), 28, 110; In *Power and Powerlessness*, John Gaventa also observes that controlling the agenda and information are strategies to contain dissent.


Kuletz furthers are a dehumanization of the landscape, a “deterrenoriality” that renders nuclear landscapes as sacrifice zones. Through a multifaceted occupation, the nuclear state re-ordered the community, processes that David Scott argues break down and subsume not just territory, but social relations, and re-configure them in the image of the dominant. Processes of enclosure also expanded the refinery’s property holdings and increased securitization. Through territorial expansion, the refinery incrementally subsumed private and public spaces, thereby enclosing the refinery through infrastructural barriers. But Eldorado’s effective occupation of Port Hope exceeded its physical property holdings. Infrastructures of containment, such as chain link fences, guard houses, megaphones, and radiation monitors also facilitate dispossession in intangible ways. Imposing infrastructure constitutes material signifiers of state power. Each element alone is a symbol of hazardous substances. Together they discourage public use and access by their physical presence and through what they signify, notably the state, security, and radiation. Kuletz labels these elements of nuclear infrastructures as “signs of power.” But neither the presence or absence of radiation symbols and signs could entirely contain the psychosocial implications of radioactive waste. The refinery subsumed the community through the widespread dispersal of radioactive waste, infusing the nuclear state into the everyday lives of local residents, transforming their public and private areas into spaces of anxiety and uncertainty, characteristics endemic to nuclear landscapes. But the widespread dispersal of waste – and fissures of dissent – also confirms the “fantasy” of “total containment” of nuclear waste. Containment is not totalizing; it is subject to leakage.

While enclosure and containment are distinct concepts as well as practices, there is an integral relation between them, as each not only facilitates but may also appear to become the other. As such, I conceive of enclosure and containment as in a dialectic that is at once both expansive and limiting. For example, enclosure precipitates accumulation by dispossession and therefore

54 Petryna, Life Exposed, 2; Kuletz, The Tainted Desert, 7.
56 Kuletz, The Tainted Desert, 40.
enclosures have an expansive tendency to accumulate territory and resources, which in turn can lead to more enclosure, and so on. Enclosure begets enclosure. Eldorado was territorial and the refinery had expansionist tendencies. Most clearly illustrating this trend is Eldorado’s appropriation and destruction of the John Street neighbourhood, which then facilitated its possession and destruction of the adjacent public West Beach park, which then enabled its UF6 expansion on the waterfront. These were a series of enclosures executed separately; together, they expanded the refinery’s property holdings on prime waterfront lands, containing the refinery from within, and dispossessing the community from these former public spaces. Enclosures contained the nuclear state by keeping civil society out.

Yet in relation to environmentally and socially destructive practices, enclosure may also be self-limiting as the enclosure may exhaust or degrade the resource beyond practical use. Indeed, radioactive contamination is a form of dispossession in and of itself. So too is the destruction of social relations – they too may be exhausted. These patterns defined the relationship between Port Hope and the Eldorado uranium refinery. Processes of enclosure backed by strategies of containment facilitated the material and psychosocial dispossession of people from their private and public spaces. Processes of enclosure and strategies of containment subsumed lands and resources, and targeted people, information, infrastructure, and radioactive waste, relying on a myriad of techniques, including crown agency privilege, as well as coercive mechanisms articulated through the social fabric. The outcome is a core condition of nuclear landscapes, fundamental material and psychosocial insecurity experienced as daily life.

The extent of radioactive waste and other toxins in Port Hope is still not known, leading to a further element of uncertainty. Anxiety and the stigma that accompanies radioactive waste characterize nuclear landscapes, such as Port Hope, as not just physically tainted and delimited,

59 Although I note, after George Henderson, that these limitations or perceived barriers of uranium production may constitute opportunity for capital accumulation. See George Henderson, “Nature and Fictitious Capital: The Historical Geography of an Agrarian Question,” Antipode 30, no. 2 (1998): 73-118.
but as psychologically oppressive spaces. Similar to the productive potential of enclosures, these oppressive traits are conducive to achieving certain political and economic interests. Security and insecurity are at once both material and psychosocial.\textsuperscript{60} The interplay between security and insecurity also imbue nuclear landscapes as disciplinary spaces. As seen in Port Hope, the “socio-spatial” ordering of the refinery exceeds its physical form to also order the community.\textsuperscript{61} Self-discipline of the social body to normalize elements of power goes hand in hand with infrastructures of containment.

Relations of power are maintained, even strengthened through mechanisms of enclosure and containment. Instilled over long periods of time, uneven power relations become embedded in material practices and the psychosocial landscape of both the powerful and the seemingly powerless, and in so doing, influence what is perceived as possible and what is not. Within nuclear landscapes, questions of concern over health and safety are framed as irrational, emotional, uninformed, and inexpert.\textsuperscript{62} Acceptance of the uranium refinery and its waste is rational, normal, and informed by state-authorized expertise and the market logic of a local elite. Uneven power relations perpetuated these conflicts in Port Hope, relegating opposition to the dark corner of irrationality. In Port Hope, power successfully shifted the fight from a struggle between the refinery and the community to conflict within the community, where it was stifled, yet still lingers.

**Everyday Spaces of Nuclearity**

As part of everyday life, the uranium refinery appears quite ordinary: even the radioactive waste, still stored under huge black tarps in various sites around town, hidden in fenced off ravines, and lurking under other, lesser known places, has taken on an appearance of banality. Black tarps are quite ordinary. Yet banality may be productive to certain interests. So may be its twin,

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\textsuperscript{60} See Masco, *The Nuclear Borderlands*; Farish, *The Contours of America’s Cold War*.


apocalypse. Susan Sontag argues that the “twin specters” of the nuclear age are “unremitting banality and inconceivable terror.” Hand in hand they permeate popularized atomic culture. They also infuse material life. I argue that these characteristics of nuclearism are not separate twin, opposite beings, but distinct conditions that exist in a self-reinforcing, dialectic relationship. The banal or the mundane, and the apocalyptic or the unthinkable, are necessarily intertwined. These conditions and characteristics of nuclear spaces are reproduced through processes of enclosure and strategies of containment that are articulated through coercive means, not just through the nuclear state, but also across the breadth of civil society.

Attention to the banality and the everyday aspects of nuclear landscapes, as advocated by Scott Kirsch, Blake Fitzpatrick and other members of the Atomic Photographers Guild, dislodges the spectacle of nuclearity and shifts insight into the everyday practices and social relations that reproduce these spaces of material and psychosocial insecurity. Focusing on the spectacle, the atomic fetish, the phantasmagoria, and the exceptional, is a trapping of nuclearity. Yet focus on the spectacle continues to feed a long imbued cultural, and scholarly, fascination with apocalypse and its links with western science and technology, and the misguided perception that these also are exceptional. Fitzpatrick even admonishes the use of exceptional terms to describe the conditions of nuclearity as “occlusions” that “overwhelm viewers with histories beyond comprehension or relevance.” Hecht further notes that terming nuclear landscapes as

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64 See Sontag, “The Imagination of Disaster,” 225 and Masco, The Nuclear Borderlands, 8, regarding theorizing the “unthinkable” consequences of the atomic industry. Shiv Visvanathan also comments that despite the apocalyptic capabilities of the nuclear industry – as demonstrated in real time and space – “the nuclear future as catastrophe has the everyday quality of a railway timetable.” See Shiv Visvanathan, “Atomic Physics: The Career of an Imagination,” in Science, Hegemony and Violence: A Requiem for Modernity (Tokyo and Delhi: United Nations University and Oxford University Press, 1998), 157. I argue that normalization is in part enabled through the power of abstractions to distance not only nuclear expertise and the state, but also populations not obviously affected in a material way by the nuclear industry.

exceptional “does not correspond to techno-political practices.” 66 Fascination with nuclear as
exceptional, rather, is a fetish in itself, one that reveals how deeply all things atomic pervade the
social fabric, yet elides how nuclear landscapes are reproduced through the everyday, not
through apocalypse. Rather, it is through the everyday that apocalypse is made possible. 67
Banality is also manufactured.

Embedded within the exceptional is what is thought to be the unthinkable, or at least the
anomaly, yet the unthinkable – whether bombs, contaminated homes and objects, beaches, or
bodies, is embedded within the banality of everyday life. 68 Indeed, it is necessarily so, as it is
through the everyday that these conditions are also produced. There is a tension between
imagining the unthinkable and acknowledging its material existence as already present. 69 The
unthinkable has been here for quite some time. Therefore, rather than focusing on the
exceptional, the necessity lies in relentlessly critiquing the conditions and circumstances under
which everyday nuclear landscapes are reproduced. Unseating these conditions is no easy task,
for, to borrow a phrase from John Lewis Gaddis, historian of Kennan’s containment strategy,
“the historical record, however, does not reassure.” 70

The promises of progress and rationality of uranium, noted by H.G. Wells in 1914, permeates
atomic culture, yet so too do its ‘holy horrors.’ 71 Shiv Visvanathan describes the nuclear state as
a Company Town – the Atom Staat – a “tragedy of liberalism,” that “secular myth” that “carries
the seeds of its own tyranny,” including violence against its own citizens. 72 In my view, the

67 As noted by Lloyd Berkner (quoted in Farish), however, it is not just the spectacle that may be
fascinating, but also the process of containing it through mechanisms of power:
“Our interest in disasters stems not so much from their spectacular aspects, as from the fact of
our growing realizations that even the worse events can be brought under some measure of
68 Also see Masco, The Nuclear Borderlands for analysis of banality, apocalypse and
militarization tied to The Manhattan Project.
69 Fitzpatrick, Visibility and Invisibility in the Nuclear Era.
70 John Lewis Gaddis, What is Grand Strategy? Karl Von Der Hayden Distinguished Lecture,
Duke University, American Grand Strategy After War conference, 4.
http://www.ndu.edu/keystone/docUploaded/What%20is%20Grand%20Strategy.pdf [Last
accessed March 10, 2014].
dispossession and exclusion characteristic of nuclear landscapes echo Visvanathan’s reflections, and can be furthered still by drawing on Susan Buck-Morss’ observation that the fundamental gulf between the tenets of Enlightenment, or in contemporary terms – liberalism - and the corresponding reality constitutes a “glaring discrepancy between thought and practice.” It is these latter conditions that reveal cracks and fissures in the principles espoused by liberalism for equality and freedom, and the concrete reality of contaminated homes and toxic landscapes of a civil society materially and psychosocially dispossessed by the nuclear state.

Conclusion

I’m kind of glad that I can at least tell one person now that I’m getting older, because a lot of people here, if you say anything they get kind of angry with you, and it’s kind of nice to have one person at least you can say it to, what you believe is out there someplace, just in case you know.

Reflecting on the ‘woal of whats in it,’ I agree with Walter Benjamin’s observation: “the astonishment that the things we are experiencing in the 20th century are ‘still’ possible is by no means philosophical …the concept of history, on which knowledge rests is untenable.” The contestation surrounding the uranium refinery and contamination of Port Hope with radioactive waste is no exception. Practices of enclosure and containment elide particular histories – although clearly without erasing them altogether. Piecing together the fragments reveals fissures in the dominant narrative. The insistence that there never was, nor ever will be, anything to worry about, is indeed on shaky ground.

I have spent the last five years researching nuclear landscapes through a body of academic work, through art, film and literature, and through extensive empirical research on the political

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73 Susan Buck-Morss, “Hegel and Haiti,” Critical Inquiry 26, no. 4, (2000): 821; In different terms, Leo Panitch similarly notes “the large role played by the state in Canadian society, in the context of industrial militancy, is beginning to lay bare the inconsistency between the apparent legal and political equality of liberal democracy and the socio-economic inequality of capitalism protected and maintained by the state. Leo Panitch, The Canadian State: Political Economy and Political Power (Toronto and Buffalo: University of Toronto Press, 1977), 23.

74 Interview #10: Anonymous, Port Hope resident.

economy of one uranium refinery. I have come to see that the conditions of nuclear landscapes – dispossession, insecurity, anxiety, fear, uncertainty, and sacrifice – produce an over-determined material and psychosocial effect – that manifests as an interstitial space. Masco theorizes that the nuclear age has produced an interstitial space between the present and the future, and I agree, yet the interstitial spaces of Port Hope also hover between the real and the imagined, between the rational and irrational, and between everywhere and nowhere. This interstitial space is also intrinsic to nuclear landscapes, such as those found in Port Hope. Born in uneven power relations, the uranium industry is emboldened with practices and discourses of security, yet the material reality is contestation, insecurity, and stigma. These characteristics are infused within the material and social fabric of nuclear landscapes. Further, these material and psychosocial aspects are articulated through an incremental dispossession of social relations from public and private space in all their manifestations.

In many respects the uranium refinery held the appearance of a corporation that was separate from government, however from 1944 to 1988 the refinery was an inextricable part of the state, owned and operated as a federal crown corporation. Indeed, this politico-legal status enabled the refinery to execute the state’s political and economic objectives, while screening the state from the adverse repercussions of its uranium processing industry. While civil society contributed to the dominant position of Eldorado, the uneven power relations that played out over decades strongly favoured the refinery. This assertion is substantiated by the immense temporal and spatial scope of the contamination, but also through the state’s response to both the waste and the community that it most profoundly affected. The uranium refinery acted in its capacity as a commercial corporation and through its powers and purposes as an agent of the crown. The state and the corporation were inextricably linked: Eldorado Nuclear Limited embodied the state in corporate form.

76 See Masco, The Nuclear Borderlands, 12. I further this analysis of the interstitial space. Widespread contamination in Port Hope certainly suspends the community between the present and the future, yet also anchors them to their past. In my analysis, the interstitial is between everywhere and nowhere, between the rational and irrational, and the real and imagined, conditions arising from uneven power relations, processes of enclosure, strategies of containment, and from the everyday uncertainty of what living with unseen and invisible radioactive waste means for the future.
But a lingering question remains. Was dispersing 1.7 million cubic metres of radioactive materials among the public, then deflecting blame for its cause, an abdication of the state’s responsibility towards civil society, a betrayal of more than good corporate trust; rather, a betrayal of the implicit assumption among civil society that the state upholds social well-being as first and foremost, rather than the interests of the state itself. As seen through the comments of local citizens since 1975, this betrayal (when articulated), rather than any corporate misdoings, per se, is what the historical record shows. Yet the separation of the state and civil society is problematic to begin with. According to Gramsci, the state is both the political and the social, and in this sense, the state is constitutive of, and constituted by, a civil sphere. The political has become alienated from the social. This pattern is seen in the priorities and practices of the nuclear state in one town. Gramsci argues for “the re-absorption of the political society into civil society” a process that he terms would entail the end of the state, its own disappearance. In this sense, an end to the state would entail a dissolution of the false barrier between the state and civil society, and a dissolution of the coercive element that clearly ripples through both.

In this dissertation, I have highlighted the impossibility of complete containment, of radioactive substances, and of territory, people, and information. The state is infused throughout the everyday spaces of Port Hope. Henri Lefebvre implicates the state as existing in a parasitic relationship with capitalism, yet insists the specificities of the state and capitalism remain contingent on everyday practices and social relations of capitalism. Parasitic state-corporate capitalism is evident in the case of Port Hope and the Eldorado uranium refinery. Similar to Gramsci, Lefebvre’s work is infused with political possibility, attendance to everyday life, and variegated forms of resistance. Indeed, he notes: “one must want the impossible in order to realize the possible.” This dialectical relation between the real and the possible offer potential for political change. Several local residents in Port Hope pointed out the possible – that if enough people in Port Hope dissented, then the radioactive waste would be removed – yet at the same time, they acknowledged a sense of powerlessness to effect change. As demonstrated with regards to the uneven power relations between the state and civil society in the nuclear town of Port Hope, the possibility of change does not guarantee its outcome.

77 Gramsci, Selections from the Prison Notebooks, 253.
78 Henri Lefebvre, State, Space, World: Selected Essays (Minnesota: University of Minnesota Press), 288.
Analyzing the specificity of events in Port Hope through empirical detail does not diminish their relevance to broader social critique. Rather, as demonstrated by E.P. Thompson and by Timothy Mitchell, critiques of the state, power and capital require a close historical-geographic lens to avoid falling prey to a simple universal logic. A close lens into events which may, at first glance, seem trivial, magnifies how power is exercised through a myriad of strategies and practices. As with attention to the everyday, attendance to specificity reveals the productive ability of state and capitalist interests to adapt to crisis, to contain adverse events and reap benefits. Historical specificity also shows many of the resistances that the refinery had to work against to retain dominance and this approach reveals how the appearance of consent through coercive means is not confined to state practices but also achieved among civil society. Power “criss-cross[es] the social body.” Moreover, as the radioactive waste in Port Hope, or at the very least its discovery, was unanticipated, my analysis of these events also highlights how stability is achieved both in times of relative calm and in times of crisis.

Attention to historical specificity also shows what Ann Laura Stoler terms cracks, fissures and inconsistencies internal to the state, while sometimes also revealing their failures. Widespread radioactive waste is an obvious failure. Inconsistencies, cracks, fissures, and failures within the state are also evidence that containment is not a totalizing process. Nor was containment totalizing among the social body: here also, resistance, while stifled through economic coercion and social exclusion, including verbal abuse and bodily threats, was still present. Through this detailed analysis of how a uranium crown corporation expanded in the wake of crisis, I have contributed to the body of literature in nuclear landscapes that seek to render visible the hidden conditions and circumstances that produce nuclear landscapes. This case study lens is an empirical contribution to those works that ground the material and psychosocial repercussions of the nuclear state in real people facing systemic inequalities and I add theoretical insight into how

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80 Here, I draw on Gramsci’s inclusion of resistance into processes of dominance, as the opposition that “hegemonic practice has to work to control.” Gramsci, *Selections From the Prison Notebooks*, 113.
81 Hall, “Toad in the Garden,” 53.
82 Stoler, *Along the Archival Grain*. 

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the reproduction of nuclear landscapes is enabled through the everyday and ordinary. In demonstrating how power was articulated, and to what ends, through historical specificity and a micro analysis into seemingly minor events, I also add to the body of scholarly work in political geography on the state and state power by showing the myriad of pathways through which power and the productive, yet false, barrier between the state and civil society are actually exercised through incremental mechanisms of enclosure and containment. Hopefully, by contributing to how, and not only why, dominance is achieved over long periods of time, ways towards its dissolution can eventually be found. This dissertation is also a contribution to historical geography, however this work is not a geographic history of a distant past without explicit relevance to the present, but an analysis of how uneven power relations are secured, despite crisis. Stability has long roots.
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Archival Collections

Library and Archives Canada

Archives Ontario

Toronto Archives

Port Hope Archive
Appendix 1: Acronyms

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<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AECB</td>
<td>Atomic Energy Control Board</td>
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<tr>
<td>AECL</td>
<td>Atomic Energy of Canada Limited</td>
</tr>
<tr>
<td>Cameco</td>
<td>Canadian Mining and Energy Corporation</td>
</tr>
<tr>
<td>CNCS</td>
<td>Canadian Nuclear Safety Commission</td>
</tr>
<tr>
<td>EMR</td>
<td>Federal Ministry of Energy, Mines and Resources</td>
</tr>
<tr>
<td>ENL</td>
<td>Eldorado Nuclear Limited</td>
</tr>
<tr>
<td>FARE</td>
<td>Families Against Radiation Exposure</td>
</tr>
<tr>
<td>FPTFR</td>
<td>Federal-Provincial Task Force on Radioactivity</td>
</tr>
<tr>
<td>HWC</td>
<td>Health and Welfare Canada</td>
</tr>
<tr>
<td>LLRWMO</td>
<td>Low-Level Radioactive Waste Management Office</td>
</tr>
<tr>
<td>MOE</td>
<td>Ontario Ministry of the Environment</td>
</tr>
<tr>
<td>MOH</td>
<td>Ontario Ministry of Housing</td>
</tr>
<tr>
<td>Mh</td>
<td>Major contamination, high priority</td>
</tr>
<tr>
<td>MI</td>
<td>Major contamination, low priority</td>
</tr>
<tr>
<td>mR/l</td>
<td>Milliroentgens per litre (of gamma radiation)</td>
</tr>
<tr>
<td>NRCan</td>
<td>Natural Resources Canada</td>
</tr>
<tr>
<td>OMH</td>
<td>Ontario Ministry of Health</td>
</tr>
<tr>
<td>OML</td>
<td>Ontario Ministry of Labour</td>
</tr>
<tr>
<td>pCi/gm</td>
<td>Picocuries per gram (of radium products, such as Ra226, soil)</td>
</tr>
<tr>
<td>pCi/l</td>
<td>Picocuries per litre (of radon gas or radon daughter products, air or water)</td>
</tr>
<tr>
<td>PHAI</td>
<td>Port Hope Area Initiative</td>
</tr>
<tr>
<td>PHCHCC</td>
<td>Port Hope Community Health Concerns Committee</td>
</tr>
<tr>
<td>PVP</td>
<td>Property Value Protection Program</td>
</tr>
<tr>
<td>Ra226</td>
<td>Radium 226 (Radon gas)</td>
</tr>
<tr>
<td>Rh</td>
<td>Resurvey high priority</td>
</tr>
<tr>
<td>Rl</td>
<td>Resurvey low priority</td>
</tr>
<tr>
<td>U02</td>
<td>Uranium dioxide (fuels Candu nuclear generating stations – domestic)</td>
</tr>
<tr>
<td>U03</td>
<td>Uranium trioxide</td>
</tr>
<tr>
<td>UF6</td>
<td>Uranium hexafluoride (feedstock for enrichment plants to produce fuel for light water nuclear reactors – international)</td>
</tr>
<tr>
<td>S</td>
<td>Soil sample to be taken</td>
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<tr>
<td>WL</td>
<td>Working Level (of radon gas or radon daughter products)</td>
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Additional Acronyms in References

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<tr>
<th>Acronym</th>
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<td>Acc</td>
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<td>AO</td>
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<td>PHA</td>
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<td>RG</td>
<td>Record Group</td>
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Appendix 2:
Eldorado Nuclear Limited: Timeline of Key Events

1932  Labine brothers begin refining pitchblende ore (uranium) for radium in Port Hope

1944  Eldorado acquired as federal Canadian crown corporation

1975  Eldorado conducts investigation into past waste disposal practices

1975  (December) News that St. Mary’s School has elevated radon levels

1976  News (ongoing) that Port Hope is widely contaminated with radioactive waste

1976  (February) AECB opens office in Port Hope to co-ordinate survey of radioactive contamination of Port Hope

1976  (February) Federal-Provincial Task Force on Radioactivity (FPTFR) established to co-ordinate investigation of radioactive contamination in Canada, including Port Hope but also Elliot Lake, Uranium City and Bancroft

1976  FPTFR forms a Working Group to find waste management site for Port Hope wastes

1976  (August) MacLaren authorized by AECB to begin remedial clean up (Port Hope Remedial Program)

1976  (October) MacLaren begins transport of radioactive waste to Chalk River

1981  Eldorado new uranium hexafluoride plant approved

1988  Eldorado merged with Saskatchewan Mining and Development Corporation and converted to publicly traded shares

2001  Port Hope enters into an Agreement to host the radioactive waste in long-term facility as part of Port Hope Area Initiative (PHAI)¹

¹ In 2001, the Corporation of the Town of Port Hope entered into this agreement, along with the Municipality of Clarington, and the Township of Hope. In 2001, the Corporation of the Town of Port Hope and the Township of Hope were merged into the Municipality of Port Hope. In this dissertation, I refer to Port Hope as the town, except where as otherwise indicated.
Appendix 3: 
Eldorado Fuel Chart

ORE BODY
Natural uranium is mined from the host rock

MILL
Host rock is chemically treated to produce “yellowcake” which is 70-80% U3O8.

STORAGE
Yellowcake is shipped to Eldorado, sampled, and stored in drums

REFINERY → DIGESTION
Yellowcake is digested in Nitric acid

SOLVENT EXTRACTION→ WASTE
The solvent extraction produces a waste called “raffinate”

BOILDOWN
Uranyl nitrate is produced, and further treated chemically to become UO2

Fuel
Ceramic oxide (UO2) is pelletized to become fuel for Candu reactors

DENITRATION
Uranium trioxide (UO3) is produced, as an intermediate product

CONVERSION
Uranium trioxide is chemically treated with hydrofluoric acid to become uranium hexafluoride (UF6)

ENRICHMENT PLANTS
UF6 is physically upgraded to increase the U235 content (plants in U.S., U.S.S.R., soon Europe)

FUEL FABRICATOR
Enriched UF6 is processed to uranium oxide and fabricated into fuel rods
Appendix 4:
Eldorado Nuclear Limited: Organizational Structure

Reporting Ministers, Government of Canada

1944-1946  Minister of Munitions and Supply (CD Howe)
1946-1951  Minister of Reconstruction and Supplies (CD Howe)
1951-1955  Minister of Defense Production (CD Howe)
1955-1965  Minister of Trade
1965-1966  Minister of Mines and Technical Surveys
1966-1983  Minister of Energy, Mines and Resources
1983-1988  Canadian Investment Development Corporation

Eldorado Subsidiary Companies

1926  Eldorado Gold Mines Limited created by brothers Gilbert and Charles Labine
1932  Radium refinery opens in Port Hope
1933  Port Radium Mine, Northwest Territories begins production of pitchblende ore
1936  Northern Waterways Limited purchased by Labine brothers
      [Renamed Northern Transportation Company Limited]
1943  Company name changed to Eldorado Mining and Refining Limited
1944  Eldorado converted to federal Crown Corporation
      [Renamed Eldorado Mining and Refining (1944) Limited]
1952  Company renamed Eldorado Mining and Refining Limited
      Beaverlodge Mine opens in Saskatchewan along with Uranium City
      Port Hope refinery transitions from radium to uranium production
1953  Eldorado Aviation Limited formed (formerly Aviation Division of company)
1968  Company renamed Eldorado Nuclear Limited
1975  Rabbit Lake mine opens in Saskatchewan
1982  Eldorado purchases Gulf Minerals Canada Limited and Uranez to work on mines at
      Rabbit Lake
      Beaverlodge mine is closed
1983  Eldorado Nuclear Limited transferred to Canadian Investment Development Corporation
1988  Eldorado Nuclear Limited privatized through merger with Saskatchewan Mining
      Development Corporation (Eldorado Nuclear Limited Reorganization and Divestiture
      Act, S.C. 1988, c. 41)
      Company renamed Cameco (Canadian Mining and Energy Company)
      Canada Eldor created by CIDC to handle Eldorado’s administrative affairs
1995  CIDC finishes process of divestiture of Eldorado shares

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Appendix 5: 
Federal-Provincial Task Force on Radioactivity, formed February 1976

Dr. H Taniguhi, Health and Welfare Canada
Dr. P. Vasudev, Alternate, Health and Welfare Canada
Dr. J.G. Hollins, National Research Council
Major E.W. Gummeson, National Defence
Major D. Williamson, National Defence (seconded to AECB)
Mr. L.C. Watson, Atomic Energy of Canada Limited
M. P. Hughes, Ministry of the Environment (Ontario)
Mr. P. Bowen, Alternate, Ministry of the Environment (Ontario)
Dr. H.C. Rothschild, Environment Canada
Dr. E. Muller, Alternate, Environment Canada
Mr. F.C. Boyd, Energy, Mines and Resources
Dr. R.S. Eaton, Atomic Energy Control Board
Mr. G.B. Knight, Atomic Energy Control Board
Mr. S. Homulos, Indian and Northern Affairs
Mr. A.D. Oliver, Alternate, Indian and Northern Affairs
Dr. J.H. Aitken, Ministry of Health (Ontario)
Mr. J. Tai Pow, Ministry of Health (Ontario)

Requirements met for Port Hope (Fiscal year 1976-77):

- General Air Sampling: Continuing under MOE (samples by OMH)
- Sewage Sludge Measurement: Sample analysis completed (near background)
- Aerial Survey: Ground datum for radiation survey completed (EMR) – Geological Survey, Radiation and photographic survey
- Gamma Surveys: Assistance by ENL, HWC, and OMH
- Radon Surveys: Sampling by OMH
- Water Sampling: Continuing under MOE with support of OMH
- Instrument Development: Research and Development of an integrating radon instrument (AECL)

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Appendix 6:
Summary of FPTRF Clean-Up Criteria

Radon and radon daughter levels inside buildings:

- **Prompt Interim Action**: greater than 0.15 WL, or greater than 50 pCi/l
- **Primary Criterion**: greater than 0.02 WL, or greater than 7 pCi/l
- **Investigation Level**: greater than 0.01 WL, or greater than 3 pCi/l

Gamma Radiation inside buildings:

- **Prompt Interim Action**: greater than 0.10 mR/hr at 1 m above floor in centre of room
- **Primary Criterion**: greater than 0.05 mR/hr at 1 m above floor in centre of room

Gamma Radiation outside buildings:

- **Primary Criterion**: greater than 0.10 mR/hr at 1 m above bare ground
  greater than 0.25 mR/hr at 1 m above the surface of an existing road averaged over a distance of 1 km

Criteria took into account “actual or potential living or occupied areas of homes and other buildings” and included the risk of living near a licensed nuclear facility.\(^4\)

Criteria was also constructed to determine evacuation protocols for residents with significantly contaminated homes. Air with radon concentrations greater than 50 pCi/l was supposed to trigger “removal of occupants to temporary accommodation,” whereas levels between 3 and 50 pCi/l “efforts will be made to determine source of radon and feasibility of early remedial action which if it must be delayed may include temporary relocation of the occupants.” For readings less than or equal to 3 pCi/l “the need for remedial action will be considered in the case of continuously occupied dwellings.”\(^5\)

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\(^4\) AECB, Information Bulletin 77-2, “Criteria for Radioactive Clean-up in Canada,”, April 7, 1977, RG 60-9, 1993-94/093, BMD, File 77-23 to 77-162, LAC. The table is sourced from this Information Bulletin. While the criteria for roads are based on “naturally radioactive materials” many roads in Port Hope had elevated radioactivity from the Eldorado refinery. AECB consultants MacLaren Lavalin specified that by including an equilibrium factor of 0.5, approximate radon concentrations would change to Prompt Interim Action (greater than 83 pCi/l, Primary Criterion (greater than 12 pCi/l, and Investigation Level (greater than 5 pCi/l). See MacLaren Lavalin, *Port Hope Low Level Waste Management Study: Report to AECB* (MacLaren, April 1981): B-3.

## Appendix 7:
Eldorado Nuclear Limited Employment Data

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<td>1,076</td>
<td>256</td>
</tr>
<tr>
<td>1969</td>
<td>850</td>
<td>270</td>
</tr>
<tr>
<td>1970</td>
<td>806</td>
<td>289</td>
</tr>
<tr>
<td>1971</td>
<td>718</td>
<td>263</td>
</tr>
<tr>
<td>1972</td>
<td>681</td>
<td>249</td>
</tr>
<tr>
<td>1973</td>
<td>750</td>
<td>302</td>
</tr>
<tr>
<td>1974</td>
<td>797</td>
<td>314</td>
</tr>
<tr>
<td>1975</td>
<td>910</td>
<td>338</td>
</tr>
<tr>
<td>1976</td>
<td>1,105</td>
<td>403 (+65)</td>
</tr>
<tr>
<td>1977</td>
<td>1,288</td>
<td>480 (+77)</td>
</tr>
<tr>
<td>1978</td>
<td>1,499</td>
<td>480 est.</td>
</tr>
<tr>
<td>1979</td>
<td>1,610</td>
<td>480 est.</td>
</tr>
<tr>
<td>1980</td>
<td>1,737</td>
<td>480 est.</td>
</tr>
<tr>
<td>1981</td>
<td>1,653</td>
<td>455 est.</td>
</tr>
<tr>
<td>1982</td>
<td>1,334</td>
<td>455</td>
</tr>
<tr>
<td>1983</td>
<td>1,323</td>
<td>455</td>
</tr>
<tr>
<td>1984</td>
<td>1,199</td>
<td>419 (-36)</td>
</tr>
<tr>
<td>1985</td>
<td>1,111</td>
<td>337 (-85)</td>
</tr>
<tr>
<td>1986</td>
<td>1,049</td>
<td>337</td>
</tr>
<tr>
<td>2014 ( Cameco)</td>
<td>n/a</td>
<td>350</td>
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Appendix 8:
Eldorado Nuclear Limited Uranium Production Data

<table>
<thead>
<tr>
<th>Year</th>
<th>Net profit</th>
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<tbody>
<tr>
<td>1948</td>
<td>1,335,399</td>
</tr>
<tr>
<td>1949</td>
<td>2,199,590</td>
</tr>
<tr>
<td>1951</td>
<td>1,505,645</td>
</tr>
<tr>
<td>1952</td>
<td>804,040</td>
</tr>
<tr>
<td>1953</td>
<td>876,157</td>
</tr>
<tr>
<td>1954</td>
<td>5,033,194</td>
</tr>
<tr>
<td>1955</td>
<td>3,632,586</td>
</tr>
<tr>
<td>1956</td>
<td>3,519,807</td>
</tr>
<tr>
<td>1957</td>
<td>5,055,920</td>
</tr>
<tr>
<td>1958</td>
<td>4,649,003</td>
</tr>
<tr>
<td>1959</td>
<td>4,134,401</td>
</tr>
<tr>
<td>1960</td>
<td>3,474,259</td>
</tr>
<tr>
<td>1961</td>
<td>2,212,660</td>
</tr>
<tr>
<td>1962</td>
<td>4,210,354</td>
</tr>
<tr>
<td>1963</td>
<td>2,782,888</td>
</tr>
<tr>
<td>1964</td>
<td>2,450,490</td>
</tr>
<tr>
<td>1965</td>
<td>1,426,247</td>
</tr>
<tr>
<td>1966</td>
<td>176,195</td>
</tr>
<tr>
<td>1967</td>
<td>269,548</td>
</tr>
<tr>
<td>1968</td>
<td>178,860</td>
</tr>
<tr>
<td>1969</td>
<td>-1,218,785</td>
</tr>
<tr>
<td>1970</td>
<td>-1,827,691</td>
</tr>
<tr>
<td>1971</td>
<td>-2,329,355</td>
</tr>
<tr>
<td>1972</td>
<td>-3,640,832</td>
</tr>
<tr>
<td>1973</td>
<td>-2,941,876</td>
</tr>
<tr>
<td>1974</td>
<td>2,638,000</td>
</tr>
<tr>
<td>1975</td>
<td>9,700,000</td>
</tr>
<tr>
<td>1976</td>
<td>4,045,229</td>
</tr>
<tr>
<td>1977</td>
<td>6,933,000</td>
</tr>
<tr>
<td>1978</td>
<td>17,618,000</td>
</tr>
<tr>
<td>1979</td>
<td>398,000</td>
</tr>
<tr>
<td>1980</td>
<td>1,506,000</td>
</tr>
<tr>
<td>1981</td>
<td>-129,147</td>
</tr>
<tr>
<td>1982</td>
<td>-4,000,000</td>
</tr>
<tr>
<td>1983</td>
<td>9,958,000</td>
</tr>
<tr>
<td>1984</td>
<td>4,400,000</td>
</tr>
<tr>
<td>1985</td>
<td>-57,200,000</td>
</tr>
<tr>
<td>1986</td>
<td>-64,000,000</td>
</tr>
<tr>
<td>1987</td>
<td>12,000,000</td>
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</table>

Eldorado crown corporation net profit, 1948-1987.\(^6\)


<table>
<thead>
<tr>
<th>Year</th>
<th>Gross Revenue ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>34,130,000</td>
</tr>
<tr>
<td>1975</td>
<td>48,499,000</td>
</tr>
<tr>
<td>1976</td>
<td>47,708,000</td>
</tr>
<tr>
<td>1977</td>
<td>68,623,000</td>
</tr>
<tr>
<td>1978</td>
<td>124,046,000</td>
</tr>
<tr>
<td>1979</td>
<td>111,498,000</td>
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</tbody>
</table>


<table>
<thead>
<tr>
<th>Year</th>
<th>Uranium Produced (tonnes U)</th>
<th>Uranium Processed (tonnes U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>387</td>
<td>5,564</td>
</tr>
<tr>
<td>1980</td>
<td>423</td>
<td>6,339</td>
</tr>
<tr>
<td>1981</td>
<td>375</td>
<td>5,990</td>
</tr>
<tr>
<td>1982</td>
<td>555</td>
<td>5,211</td>
</tr>
<tr>
<td>1983</td>
<td>1,316</td>
<td>5,810</td>
</tr>
<tr>
<td>1984</td>
<td>2,029</td>
<td>4,399</td>
</tr>
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</table>

UF6 Production (lbs U), U02 Production, and U3 O8 Production by Eldorado, 1974-1982.

<table>
<thead>
<tr>
<th>Year</th>
<th>UF6 Production (lbs U)</th>
<th>U02 Production</th>
<th>U3 O8 Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>4,519,000</td>
<td>1,194,000</td>
<td>1,148,000</td>
</tr>
<tr>
<td>1975</td>
<td>5,433,000</td>
<td>1,188,000</td>
<td>986,000</td>
</tr>
<tr>
<td>1976</td>
<td>7,331,000</td>
<td>1,113,000</td>
<td>1,188,000</td>
</tr>
<tr>
<td>1977</td>
<td>8,525,000</td>
<td>1,855,000</td>
<td>1,185,000</td>
</tr>
<tr>
<td>1978</td>
<td>7,096,000</td>
<td>2,129,000</td>
<td>1,283,000</td>
</tr>
<tr>
<td>1979</td>
<td>9,890,000</td>
<td>2,919,000</td>
<td>1,006,000</td>
</tr>
<tr>
<td>1980</td>
<td>10,256,000</td>
<td>2,127,458</td>
<td>1,100,105</td>
</tr>
<tr>
<td>1981</td>
<td>10,256,000</td>
<td>2,949,782</td>
<td>974,442</td>
</tr>
<tr>
<td>1982</td>
<td>10,498,400</td>
<td>3,477,000</td>
<td>1,444,000</td>
</tr>
</tbody>
</table>


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Figure 1: Map of Port Hope
Figure 2: Uranium Refinery in Port Hope, looking west. Photo credit: Laura Pitkanen

Figure 3: Uranium refinery on a hot, still day. The haze is refinery emissions. View from Port Hope Yacht Club. Photo Credit: Laura Pitkanen
Figure 4: Mound of radioactive waste under black tarp on Crane property, refinery in background, Port Hope docks in foreground. Photo Credit: Laura Pitkanen

Figure 5: Mound of radioactive waste and refinery, view from East Beach playground, Port Hope. Photo Credit: Laura Pitkanen
Figure 6: Mound of radioactive waste under tarp and refinery. Photo credit: Laura Pitkanen

Figure 7: Mound of radioactive waste near waterfront trail, Port Hope. Photo Credit: Laura Pitkanen
Figure 8: Radon monitor disguised as bird house. Photo Credit: Laura Pitkanen