

Atomic Communication:

Andrew Ault and Jib Turner, Limestone Partners Canada Inc.

Introduction

Nuclear energy has been argued to have immense potential in contributing to the transition towards green energy, for its capability to compliment many other renewable sources. (Karakosta et. Al, 2013) However, a recent report from the Canadian Institute for Governance Innovation (CIGI) suggests this movement towards nuclear will proceed, only if it overcomes several challenges first. (Findlay, 2010) These include the need for mechanisms to safeguard against deadly military uses, separate from the lack of standards in decades past and communicate science behind nuclear depositories with the public. Accordingly, this paper explores how proponents and oppositions to nuclear energy communicate their messages with members of communities proposed for development of a deep geological repository (DGR) to store nuclear waste in Ontario, Canada. Further, it reviews newspaper articles through quantitative content analysis to discern main themes and discrepancies in the reporting each of these positions by the media. In specific, it asks three preeminent questions: (1) What elements of the DLR projects are communicated through community offices of the project proponent, the Nuclear Waste Management Organization (NWMO)? (2) How do opposition groups leverage social media to advance engagement, reach and influence? (3) To what extent does the press fairly report the various perspectives? Altogether, this paper hopes to serve as an exploratory foundation for it first gives context to nuclear waste in Ontario, explores the mediated environment, identifies weaknesses in communications strategies

of the NWMO, recommends a set of ideas for them to improve and suggests directions for further research in this regard.

Literature Review

There have been several studies conducted in recent years on public perceptions of environmental risks to nuclear waste disposal. (Fishlock, 1985; Pijawka, 1991; Slovic, 1991) While nearly two-decades old, the work of Richard Kuhn (1990) continues to remain relevant. Kuhn surveyed a number of residents in northern Ontario communities on their perceptions of site acceptability, to which he discerned a strong relationship between attitudes towards a depository and the perception of its risk and proximity of their residence relative to the proposed site. Thus, he recommended further integration of trust in the management of this project, as he argued such was an important element underlying each variable changed by it. While he lays a strong framework for decisions, there is also a number of studies involving media.

One of the few content analysis completed in regards to nuclear waste, was that of public attitudes towards a facility in Eurajoki, Finland. In their work, Hanninen and Yli-Kauhaluoma (2014) studied how the constructor of the facility portrayed the project to the local community for influence in that community's perceptions of risk. They focussed on how the developer sought to increase trust and acceptability of the industry, by creating a frame of aligned interests of between it and the community, such as the provision of highly-skilled careers. They conclude the new trend in pro-nuclear communication is not to defend it from the environmental perspective, but rather overpower it with the economic. These general themes, along with that of government were applied to a framing analysis also of a European project.

A recent framing analysis of nuclear waste management was published, which analyzed media's portrayal of nuclear waste at the local level in the Czech Republic. (Dawson, 2006) His research drew upon three frames, namely that of responsibility, risk and the dysfunctional state, to analyze local opposition to a DGR which stores nuclear waste over 200 kilometers deep in bed rock. The findings suggests that high public support for the DGR was received when framed in an economic, utilitarian manner, and that risk was the most frequently reported. This paper employs a similar manner to theirs, to examine different frames in answering its question on mediation.

Overall, there has not been any quantitative studies on the role of communications strategies in developing discourse over nuclear waste in Canada; and hence this paper aims to assist in the filling of this gap. To meet such bold aim, this paper first develops a theoretical and conceptual framework for nuclear waste communications in Canada, by engaging existing literature. Next, it analyzes messages Canada's constructor, NWMO, wishes to convey to its stakeholders within local communities, by using the case study of the *Learn More Centre* in Elliot Lake, Ontario as an case. Then, it employs artificial intelligence for comprehending Facebook groups of opposition movements in civil society, by focussing on engagement, reach and influence. Lastly, it conducts a five-frame content analysis of nuclear waste in Canada, by drawing on three national newspapers (The Globe and Mail, National Post and Toronto Star) and three newspapers of communities seeking development of a DGR (Elliot Lake Standard, Clinton News-Record and Kincardine News.) It then discusses its findings to suggest new directions in improving the dissemination of knowledge on nuclear waste in Canada.

Theoretical and Conceptual Framework

Canada's Plan in the National Context

Nuclear energy could be a vital organ to Canada's low-carbon transition in further decreasing the demands for fossil fuels, and would have impacts beyond the borders of Canada. (Findlay, 2010) However, just as with all clean technologies, nuclear energy does carry with it some 'baggage.' First, it is at risk of being used for military power which could be deadly. Second, there is a concern within certain section so the public that its 'wastes' will distort the environment from its natural environment in profoundly negative ways, and thereby needs a strong communication strategy to alter public opinion and thus acceptance. (Ibid) In Canada, the latter is governed by the *Nuclear Fuel Waste Act, 2002*, (NFWA) which enables the NWMO to design and build Canada's plan for long-term management of nuclear fuel. (Sladic, 2015) In 2007, this group passed their plans for *Adaptive Phased Management (APM)* through government, and now finds themselves to be a community-driven organization seeking community acceptance for the DGR of high-level waste. (Ibid) Canada has also mandated nuclear power creators themselves to ensure they account for low- and intermediate- level waste. For *Ontario Power Generation (OPG)* has thus attempted to establish their own, which though set to be near the *Bruce Generating Station*, has yet to be constructed. Simultaneously, NWMO is still scouting for the location of Canada's high-level waste, which will encompass OPG, Hydro Quebec, NB Power and AECL. Each of these groups are to contribute collectively to trust funds to support the depository. (NWMO Website, Canada's Plan)

Communities are at the core of Canada's plan for NWMO's DGR. First, with the anticipation of its creation, it is likely to drive a significant amount of careers, in short- and long-term spans for the communities. (Belfadhel et. al, 2015) Several communities are depressed economically with lower-than-average household incomes and thus could benefit greatly through its establishment. (Statistics Canada, 2011) Second, its policy mandates communication and collaboration with community stakeholders in the sites in which it is considering. (NWMO, Aboriginal Policy) This includes the establishment of 'learn more' centres and Community Liaison Committees for Blind River, Central Huron, Elliot Lake, Hornepayne, Kinloss, Ignace, Manitouwadge, South Bruce, and White River, Ontario. (NWMO Website, Homepage) Lastly, consent of Aboriginal peoples impacted by the territory is factored into their decision, which Pic Moberg's disapproval thereof, may weaken the chances of Hornepayne in gaining the depository. (Pic Moberg, 2015) Thus, it can be observed that NWMO implemented several ideas of local-decision making often touted by Nobel Prize Winner Elinor Ostrom. Nonetheless, while NWMO's plans impact each community, such are also able to impact the world.

Canada's Plan in the Global Context

Several countries have systems of dealing with nuclear 'waste.' Only Japan currently exports its waste to other countries. (Adamantiades and Kessides, 2009) With exceptions of India and Russia, no countries take part in 'recycling' nuclear waste, and only China and Japan are reported to be planning for such a facility. (Naziemiec, 2016) However, one must understand what is actually meant by 'nuclear recycling. (Gill, 2016) The most common form of nuclear recycling is known as beta-decay, which uses atoms until their radioactivity is almost depleted. (Hakami, 2016) This process involves

separating plutonium, and other elements from nuclear fuel and is a costly process that effectively separates the waste into 'streams.' (Ibid) It is also not a green process as its name would suggest, meaning it is both an ineffective and inefficient way to deal with nuclear fuel in a manner over an extended period. (Ibid) France and the UK also took part in this, until recently where they followed suit of the rest of the world and developed a permanent repository, having successfully transitioned. (Ibid) Their motivations, along with other countries who engage, are based on energy security as opposed to production.

Methodology

Cases

Cases were selected based on the availability of presence to the studied phenomena. For the study of 'learn more' centres, this study employed a visit to that in Elliot Lake, Ontario, a community of 10,500 in northern Ontario, and was once known as the "uranium capital of the world." Cases for opposition groups were designated based on the presence of Facebook groups, for which all towns were searched consistently and resulted in Manitouwadge, Blind River/ Elliot Lake, Hornepayne, Bruce-Huron-Grey and Ignace being selected. Likewise, cases for newspaper analysis were chosen based on presence of community newspapers. Accordingly, the *Elliot Lake Standard*, *Clinton News Record* and *Bruce Kincardine News* were selected. This was in conjunction with three national newspapers, to assess discrepancies, being the *Toronto Star*, *National Post* and the *Globe and Mail*.

To gauge the unmediated relationship between the constructors and the public, this study collects and reviews literature available at the Elliot Lake 'Learn More' centre.

This study uses its visual exhibition's values as variables for a code book. An "x" was recorded if the variable existed in that piece of literature, for which was compiled from the office itself in print format.

To understand dynamics in groups within anti-movements of civil society, this study analyzes their interest-based community Facebook groups by applying results from www.sociograph.io. This artificial intelligence application searches groups for wanted statistics, for which were recorded for each group, separately. This application has been used in other research attempting to understand the nature of group dynamics in Facebook group communities. (Botangen, et. al, 2017) The results produced include the comments themselves, users, activity and nature of posts, which were recorded.

Lastly, a framing analysis analyzes newspaper articles from six sources as described above. Articles were queried using the Factiva database, which is highly used among content analysis research. The time was limited to 1/1/2013 to 31/12/2016, to cover a three-year period, of all articles containing either ("nuclear waste") OR ("nuclear" AND "depository"). Articles were then individually screened for relevancy, for which resulted in 157 articles. Articles excluded included those only briefly mentioning the topic, or events sponsored by the NWMO itself. Descriptive statistics for each of the above is what this study attempts to disseminate. Frames chosen for this analysis were (a) viability to reflect the potential of the project from happening (b) government and its problems, (c) the environment from an anti-nuclear perspective, and (d) the environment from a pro-nuclear perspective.

Results

1. *What elements of the DLR projects are communicated through community offices of the project proponent, the Nuclear Waste Management Organization (NWMO)?*

	Exhibit	What is Used Nuclear Fuel?	Description of a DGR and Centre [...]	Questions and Answers	Denison Community Update	NWMO Community Update	TOTAL
<i>Def. of DGR</i>	x	x	x	x		x	5
<i>Canadian Context</i>	x	x	x	x		x	5
<i>Current Management</i>	x	x	x	x		x	5
<i>Radiation - Context</i>	x		x	x	x	x	5
<i>Mandate</i>	x		x	x		x	4
<i>Def. of Used Nuclear Fuel</i>	x	x	x	x			4
<i>What is Canada's Plan</i>	x	x	x	x			4
<i>Radiation-Alpha, Beta, Gamma</i>	x		x	x	x		4
<i>Transportation Oversight</i>	x		x	x		x	4
<i>Rigours Testing</i>	x		x	x		x	4
<i>Community</i>	x		x	x		x	4
<i>APM</i>	x		x			x	3
<i>Multiple Barrier System</i>	x		x			x	3
<i>Radioactivity Declines</i>	x		x		x		3

<i>Natural Repositories</i>	x		x			x	3
<i>Supporting Econ/ Communities</i>	x		x	X			3
<i>FNs</i>	x		x				2
<i>Youth</i>	X		x				2
TOTAL	17	5	18	11	2	12	

Table 1. Source: Primary Data, Visit to NWMO Learn More Centre, 99 Spine Rd., Elliot Lake, ON on Feb.

24 '17

According to *Table 1*, it is clear the most included items in literature at the Centre were those on the plan itself, and those detailing radiation. Surprisingly, impacts involving minority groups, such as indigenous peoples and youth, are mentioned most infrequently. While the latter was expected, the former was not, given that aboriginal relations play such a strong role in selection of the site. More evidently, significant discrepancies exist in the informative value of documents. The *Description* document was the longest, and touched on all eighteen values. However, assuming people want quicker reads, the most effective, would be the *Questions and Answers* for its size, inclusiveness of values and format. The exhibit touched on all values and is highly effective at disseminating the messages NWMO wishes to convey. However, this requires attendance to the Centre which may not be high.

The *Question and Answer* document is crafted by the local *Community Liaison Committee*, opposed the Head Office, and thus highly adapted to individual community concerns. It is noted that most questions concerned the plan, and radiation. It is further observed that only this document, in addition to the *Community Update*, included any discussion of local employment contributions. This may not fully support the thesis of

Hanninen and Yli-Kauhaluoma, as it seems the communities themselves, in Canada, are framing this economically and not the NWMO itself, for its literature and exhibition were focused on other impacts.

Supporting documents, including the *Denison Community Update*, a document provided to residents on radiation levels of closed mining sites' tailings management areas, (TMAs) is a bi-annual report by the former mining company, Denison. As it is not related to nuclear waste, it could lend itself to the NWMO for its message of low-radiation and that the area already has higher-than-average radiation levels. That said, such could also have negative effects in that it raises concerns amongst the citizenry of there being spillage in local lakes despite being contested by academics. (Findlay, 2010)

Community	Citizens Concerned about Nuclear Waste in Elliot Lake	Citizens Concerned about Nuclear Waste in Manitouwadge	Citizens Concerned about nuclear waste	Citizens Concerned about Nuclear Waste in Ignace	Huron-Grey-Bruce Citizens Committee on Nuclear Waste	Citizens Concerned of Hornepayne	Average
<i>Members/Likes</i>	364	81	435	198	271	398	291.166667
<i>Population</i>	10700	2105	(N/A)	1202	(N/A)	1050	(N/A)
<i>% of Pop</i>	3.4	3.84	(N/A)	16.4	(Many)	37.9	(N/A)
<i>Total Reactions</i>	1100	125	568	604	84	583	510.6
<i>Per Member</i>	3.02	1.54	1.31	3.05	.31	1.45	1.78
<i>Shares</i>	30	23	5	110	137	53	59.66

<i>Comments</i>	305	45	208	124	13	254	158.16
<i>Photos</i>	35	3	29	9	3	16	15.83
<i>Videos</i>	22	5	8	12	1	15	10.5
<i>Links</i>	339	57	158	202	35	111	150.33
<i>Statuses</i>	113	30	46	91	6	55	56.83
<i>Status/Post</i>	21.48	30.92	19.08	27.70	12	27.5	23
<i>Events</i>	16	2	0	0	5	3	4.33
<i>Post</i>	526	97	241	317	50	200	238.5
<i>Authors</i>	39	18	21	25	4	26	22.16
<i>Commenters</i>	49	10	34	31	6	47	29.5

2. How do opposition groups leverage social media to advance engagement, reach and influence?

Table 2. Source: Primary Data Queried from sociography.io.

Several members of civil society opposed to their respective communities serving as the depository of Canada's nuclear waste, and have formed active Facebook groups. To this end, several interesting observations are made. First, is that, as a percentage of population, members of the group range from just over 3.4% in Elliot Lake, to an overwhelming 37.9% in Hornepayne. The latter has experienced significant opposition from groups outside the community, especially First Nations arguing against its construction on territorial lands without its consent, for which they will not grant. (Pic Mobert, 2015)

Results may also indicate that a population's familiarity towards radiation, increases acceptability of GDRs. Both Elliot Lake and Manitouwadge are former mining town sites, which thereby incur greater knowledge of the effects of radiation, whereas Hornepayne is a lumber town perhaps not as familiar with radiation. Ignace shares this economic base, and the economies of communities in Huron-Grey are primarily based in Agriculture. Thus, familiarity with mining seems as a lowers negative sentiment.

Second, activity is noted to be fairly active in specific groups. On a per-member basis, reactions are strongest in Ignace and Elliot Lake, at almost 3 per member, whereas the average is ~1.78. In terms of the number of posts shared, Ignace and Huron-Grey lead inferring passionate opposition to the topic in those communities as far stronger than others. Comments are also important for indicating engagement in the issue. Elliot Lake sees the highest, at almost an average of one per group member. However, when looking at the number of commenters, the engagement thesis becomes limited to a select few people in the group, generally within the 10% mark of those involved. It is also worth noting the centralization within the group itself means its administrators set the discussion thus control information the rest of the group is to be shown.

Lastly, the composition of the posts themselves are observed as also being significant, not between groups, but overall. Generally, links were most frequently posted in all groups, inferring a reliance on information being from sources beyond the group itself. The number of status' per post are as high as 30%, as in the case of Manitouwadge, to just 12% in Huron-Grey-Bruce. Based on these observations, it is evident these groups, while fostering discussion and engagement, have limited capacity in their own ways to analyze the actual policies and are more susceptible to sharing the links of groups that,

supposedly, align with their perspective. Given the rapid use of social media by opposition groups, one would expect there to be pro-nuclear groups, or at the very least, an account for NWMO. However, no social media accounts were found for either pro-nuclear civil society movements in the communities nor the NWMO itself. Results overall from this question seem to support Kuhn in that the more understanding of radiation, the more acceptable the public would believe a repository in their community would be. Further, the more opposed the public is, it is observed the less experienced they are with radiation.

3. To what extent does the press fairly report the various perspectives?

Frame	Number of Articles	A. Words	A. Page Number	NWMO	OPG	BOTH	COMM	NTNL
Viability	31	787.06	16.551	17	13	1	8	23
Government	29	703.65	11.59	11	16	2	5	24
Environment/ Economic – Neg.	70	631.76	15.93	14	36	20	6	61
Environment/Economic – Pos.	27	553.85	14.30	3	8	16	7	23
Total	157			45	73	39	26	131

Table 3. Source: Primary Data.

Table 3 depicts the four frames being depicted within the newspapers, and compared against each other on several variables. In terms of total articles, average word count varies substantially between those concerning the environment or economy and those on other factors, and between portrayals of the environment or economy positively or negatively, overall. In fact, there are over 70 words, on average, more for those on the negative arguments of nuclear waste than those in a positive. Further, page count also differs with environmental issues taking the second-most prominence to Government,

with viability taking the least. The NWMO was only portrayed environmentally positive as the dominant frame three times, compared to fourteen as negative. This is highly interesting as positive articles are allotted more prominence, yet reported less and far less with regards to the NWMO. Also, articles are far more likely to be reported positively at the community level than that of the national, given 7 of 23 articles (30.4%) are portrayed positively at the community level, compared to 6 of 61 (~10%) at the national. It is also noteworthy that the OPG depository had a much more environmentally-based press as a sole entity, which may lead readers into affiliating the two projects, when they are separate, and thereby have further negative sentiment toward the NWMO project.

Publication	N	Word Count**	# of Freq. Auth.	Viability	Gov't	Econ.	Env-Pos.	Env.-Neg.	Top Pos.	Top Neg.
Toronto Star	104	643	2	16	13	15	38	76	Generic	Risk
Globe and Mail	21	704	1	4	7	7	9		Low Rad./ Low Risk	Risk
National Post	3	1151	1***	2***	1***	1***	2***	1***	Plan/ Generic	Indig.
Kincardine News	16	705	1	1	1	8	11	6	Economic/ Comm.	Generic
Clinton News-Record	11	518	1	4	3	3	6	3	Economic	Plan/ Generic
Elliot Lake Standard	12	859	1	3	1	8	11	2	Economic/ Comm.	Generic

Table 4. Source: Primary Data. *Articles may have more than one frame. **Rounded Upward to whole numbers. ***Please note small sample size of 3.

To uncover discrepancies of this data, each was separated by source. The source depicting the phenomena has several consequences on the reporting of different frames. In most cases, newspapers have the same number of frequent authors, as measured in

producing 20% of more of the total articles. As observed, the *Toronto Star* is far more likely to portray nuclear waste negatively than any other publication, with others far less. In fact, the *Toronto Star* is what accounts for disparities between positive and negative viewpoints on the issue.

One final observation of this figure, are the differences between national and local newspapers on their integration of top issues for the pro- and anti-sides of nuclear waste. National newspapers attempt to paint the picture as *environmental risk* or in a *generic* sense positively, compared to regional papers mainly focusing on *economic growth* and *community engagement*. There is also no noticeable difference in the type of articles that get published between the newspaper types, as seen in Figure 1 below. Nonetheless, the difference of main themes are consistent with the thesis put forth by Hanninen and Yli-Kauhaluoma as the regional papers focus on economic benefits and national on environmental.

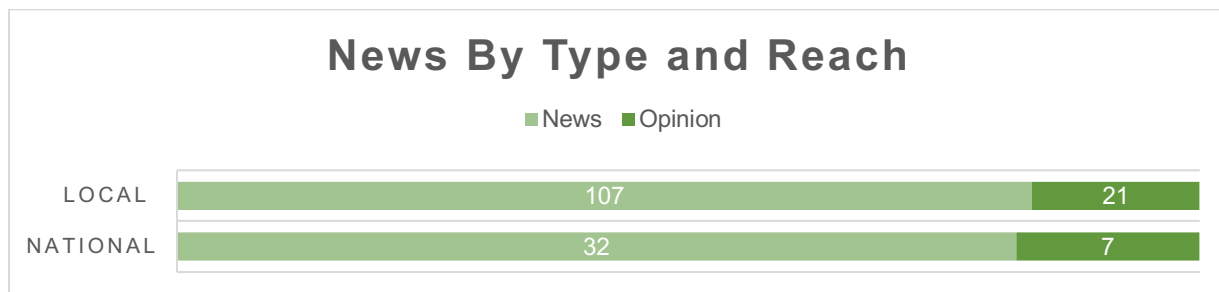


Figure 1. Source: Primary Data.

Discussion

The results of this study are significant for the analysis of campaign tactics employed by the NWMO in their attempt to increase sentiment in the communities to which they seek development. In terms of its own literature, it would be wise for the

NWMO to continue community engagement initiatives, and accommodate the communities it seeks to serve by providing strong exhibits. However, the literature provided that documents should be shorter to increase effectiveness, as some documents were in excess of 50 pages. The *Questions and Answers* document, would be highly effective at so doing, and is noted to be having developed at the community level. Secondly, with the organization of anti-groups in place, positive-groups focussing on the flip side could also benefit NWMO. Currently, NWMO does not have any social media presence, and anti-groups are increasing in their popularity online with many shares having occurred. Engagement tools, such as a Facebook account, may be key to answer questions promptly and sufficiently, ensuring satisfaction by the citizenry in hope they would spread the word and become more educated. With a plethora of misinformation, such as misperceptions of 'nuclear recycling,' it is quintessential for NWMO to correct these myths.

Lastly, and most importantly, community newspapers were found to mainly focus on economic issues when discussed positively, and environmental issues when discussed negatively. Given influence of the press on public opinion, it is important to note that environmentally-minded individuals who only subscribe to the community newspaper for information, would be of the conception that it is the environment being against the economy, and side with the anti-groups if environmentally cautious. Ironically, many scientists argue that nuclear is actually a green, renewable and reliable source of energy that offsets coal-fired plants which emit much more radiation. (Findlay, 2010)

This research also situates Canada in theories proposed in existing literature. Kuhn's argument would hold in this research, as polarization are related to economic base

and thus familiarity with radiation levels. The thesis as shown from Finland whereby the economy was most important locally are true in the press, yet do not hold value in that they were not directly made by the operator's head office but rather the community committee, as their literature did not emphasize this most. Also, unlike the Czech Republic, risk was not the most played issue in analysis.

Conclusion

This study sought to examine communication of risk with respect to Canada's plan for the storage of nuclear waste, to which it shows environmental sustainability being paramount in literature, social media as being a challenge that pro-nuclear waste groups must overcome and that media management must be taken more seriously for the disparity in results of the *Toronto Star*. There are, however, limitations to this study. Date ranges, sample sizes and lack of regressions point to these limitations, though were unnecessary to be extended for the exploratory nature of the paper. Further research is recommended in regards to widening the years considered to increase the sample of articles available, and use the content analysis used in newspaper articles specifically having environmental depictions of the NWMO case or both. Altogether, this paper provides an analysis of discourse of nuclear waste in Canada, which infers a number of changes the pro-nuclear movement must overcome to achieve its position.

References

Adamantiades, Achilles, And Ioannis Kessides. "Nuclear Power For Sustainable Development: Current Status And Future Prospects." *Energy Policy* 37.12 (2009): 5149-5166.

Ben Belfadhel, Mahrez, Bob Watts, And Jo-Ann Facella. "SITE SELECTION FOR CANADA'S NATIONAL REPOSITORY FOR USED NUCLEAR FUEL." *CNL Nuclear Review* 4.2 (2015): 99-104.

Botangen, Khavee Agustus, Shahper Vodanovich, And Jian Yu. "Preservation Of Indigenous Culture Among Indigenous Migrants Through Social Media: The Igorot Peoples." *Proceedings Of The 50th Hawaii International Conference On System Sciences*. 2017.

Canada, Government Of Canada Statistics. "NHS Profile, Elliot Lake, CA, Ontario, 2011." *Government Of Canada, Statistics Canada*. N.P., 27 Nov. 2015. Web. 1 Apr. 2017

Dawson, Jane I., And Robert G. Darst. "Meeting The Challenge Of Permanent Nuclear Waste Disposal In An Expanding Europe: Transparency, Trust And Democracy." *Environmental Politics* 15.4 (2006): 610-627.

Findlay, Trevor. "The Future Of Nuclear Energy To 2030 And Its Implications For Safety, Security And Nonproliferation: Part 3–Nuclear Security." *Centre For International Governance Innovation (CIGI)* (2010).

Fishlock, D. "Public Perceptions On Nuclear Waste." *Radioactive Waste Management. Proceedings Of The Conference Organized By The British Nuclear Energy Society, London, 27-29 November 1984.* 1985.

Gill, Matthew. *The Potential Impact Of Fast Reactors And Fuel Recycling Schemes On The UK's Nuclear Waste Inventory.* Diss. University Of Manchester, 2016.

Hakami, Bader A. "Radioactive Waste: The Problem And Its Management." *Technology* 7.1 (2016): 89-96.

Hänninen, Hannu, And Sari Yli-Kauhaluoma. "The Social Construction Of Nuclear Community: Building Trust In The World's First Repository For Spent Nuclear Fuel." *Bulletin Of Science, Technology & Society* 34.5-6 (2014): 133-144.

Hurlbert, Margot, Kathleen Mcnutt, And Jeremy Rayner. "Pathways To Power: Policy Transitions And The Reappearance Of The Nuclear Power Option In Saskatchewan." *Energy Policy* 39.6 (2011): 3182-3190.

Karakosta, Charikleia, Et Al. "Renewable Energy And Nuclear Power Towards Sustainable Development: Characteristics And Prospects." *Renewable And Sustainable Energy Reviews* 22 (2013): 187-197.

Kuhn, Richard G. "Social And Political Issues In Siting A Nuclear-Fuel Waste Disposal Facility In Ontario, Canada." *The Canadian Geographer/Le Géographe Canadien* 42.1 (1998): 14-28.

Naziemiec, Magdalena, Et Al. "Nuclear Fuel Reprocessing." *Energy* 1 (2016).

"Nuclear Waste Management." Pic Mobert First Nation. Pic Mobert First Nation., 01 June 2015. Web. 1 Apr. 2017

Nuclear Waste Management Organization. *Nwmo Aboriginal Policy*. 1st Ed. Nwmo, 2017. Print.

Pijawka, K. David, And Alvin H. Mushkatel. "Public Opposition To The Siting Of The High-Level Nuclear Waste Repository: The Importance Of Trust." *Review Of Policy Research* 10.4 (1991): 180-194.

Sladic, Ramona. "The Nuclear Fuel Waste Act And Canada's Plan For The Long-Term Management Of Its Nuclear Fuel Waste." (2015).

Slovic, Paul, Mark Layman, And James H. Flynn. "Risk Perception, Trust, And Nuclear Waste: Lessons From Yucca Mountain." *Environment: Science And Policy For Sustainable Development* 33.3 (1991): 6-30.