SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF ALBANY

In the Matter of

HUDSON RIVER SLOOP CLEARWATER, GOSHEN GREEN FARMS, LLC, TOWN OF NORTH SALEM, NEW YORK PUBLIC INTEREST RESEARCH GROUP FUND, INC., NUCLEAR INFORMATION AND RESOURCE SERVICE, BEYOND NUCLEAR, INDIAN POINT SAFE ENERGY COALITION, PROMOTING HEALTH AND SUSTAINABLE ENERGY, INC., GREEN EDUCATION AND LEGAL FUND, INC., SAFE ENERGY RIGHTS GROUP, INC., SCOTT CHASE, RICHARD HAMMER, JOYCE HARTSFIELD, JOSEPH J. HEATH, WILLIAM MCKNIGHT, SR., BRUCE ROSEN, GEORGE STADNIK, LYNNE TEPLIN, ELLEN C. BANKS, CARYL BARON, LINDA BELISLE, DANIEL BIRN, MIRIAM BLUESTONE, J. ALLISON CROCKETT, LAURA DEL GAUDIO, ALLEGRA DENGLER, MICHELLE FREEDMAN, DEAN GALLEA, VALERIE GILBERT, ALLAN GOLDHAMMER, CARLTON GORDON, JENNIFER GORMAN, STEVEN L. GOULDEN, CATHY A. HAFT, RICHARD HAMMER, BRIAN HOBERMAN, OBIE HUNT, ROBERT V. JACOBSON, **and**VICKEY KAISER, ALVIN KONIGSBERG, JUDITH A. LASKO, SUSAN D. LEIFER, MIKHAEL A. MARICICH, FREDERICK MARTIN, III, PATRICIA MATTESON, JANE MAYER, JANET MCBRIDE, VALERIE NIEDERHOFFER, TERESA OLANDER, VICTOR PALIA, CAROLINE PAULSON, GAIL PAYNE, THOMAS RIPPOLON, ROSEMARIE SANTIESTEBAN, CHERYL SCHNEIDER, CAROL SKRYM, MELVYN T. STEVENS, STEVEN STUART, MONICA WEISS, ERIC WESSMAN, TODD D. WOLGAMUTH, JUDITH M. ZINGHER,

Petitioners–Plaintiffs.

For a Judgment pursuant to Article 78 of the CPLR.

-against-

Index No. 07242-16

AFFIRMATION OF JOSEPH J. HEATH, ESQ., IN SUPPORT OF ONONDAGA NATION, HAUDENOSAUNEE ENVIRONMENTAL TASK FORCE and AMERICAN INDIAN LAW ALLIANCE'S *AMICI CURIAE* MOTION

NEW YORK STATE PUBLIC SERVICE COMMISSION; along with KATHLEEN BURGESS in her official capacity as Secretary; AUDREY ZIBELMAN, in her official capacity as Chair; PATRICIA L. ACAMPORA, GREGG C. SAYRE, and DIANE X. BURMAN, in their official capacities as Commissioners,

Respondents–Defendants,

and

CONSTELLATION ENERGY NUCLEAR GROUP; LLC, with subsidiaries and affiliates EXELON GENERATION COMPANY, LLC; R.E. GINNA NUCLEAR POWER PLANT, LLC; NINE MILE POINT NUCLEAR STATION, LLC; ENTERGY NUCLEAR FITZPATRICK, LLC, ENTERGY NUCLEAR INDIAN POINT 2, LLC, and ENTERGY NUCLEAR INDIAN POINT 3, LLC.

Nominal Respondents–Defendants.

JOSEPH J. HEATH, ESQ., an attorney duly admitted to practice law in the State of New York, affirms the following under penalty of perjury, pursuant to CPLR 2106:

1. I have been so licensed to practice law in the Courts of the State of New York since 1975. Pursuant to CPLR 2106 (a), I make this Affirmation in Support of the Onondaga Nation's, the Haudenosaunee Environmental Task Force's (H.E.T.F.), and the American Indian Law Alliance's (A.I.L.A.) Motion to join this matter as an *amici curiae*.

2. I am familiar with the facts and issues raised in the underlying Verified Petition; and I support Petitioners' effort to annul, vacate and set aside the Tier 3 portion of the Public Service Commission's August 1, 2016 and November 17, 2016 Orders.

3. The Nation, H.E.T.F. and A.I.L.A. seek to join this matter as *Amici*, to bring the following issues to the Court's attention, which might otherwise escape the Court's consideration or would otherwise be of assistance to the Court, and which the Nation, H.E.T.F. and A.I.L.A. believe the parties are not capable of a full and adequate presentation of these issues:

a. The negative impact of the nuclear power industry on Indigenous nations and peoples, both historically and currently. This includes mining, milling, transportation and storage;

b. The dangers of the three aging nuclear power reactors in Scriba, New York and the direct harm that would result to the Onondaga people, and Nation lands and waters from any accidental release of radiation, or worse, from the continued operations of these aging nuclear reactors;

c. How these three aging nuclear reactors in Scriba are interfering with the stewardship responsibilities of the Nation leaders to protect the natural world for future generations; and

d. The dangers to the Onondaga Nation, its waters and its people from the current transport of nuclear wastes down Interstate Route 81, directly through the Nation's currently recognized territory.

HISTORY AND BACKGROUND OF THE ONONDAGA NATION AND ITS INTERESTS IN THIS LITIGATION:

4. The Onondaga Nation is a traditional Haudenosaunee Nation and one of the Six Nations of the Haudenosaunee [Iroquois] Confederacy. The Nation is the Central Fire or Capital of the Six Nations and its currently recognized territory is just south of the City of Syracuse. The Nation and its environmental workers are active member of H.E.T.F

5. Today, the Nation's recognized territory, or reservation, is only about 7,500 acres which is merely a tiny fraction of the Nation original territory of approximately 2 ½ million acres, which was the homeland of the Nation and its people for centuries before the European colonization. A map which shows the general boundaries of the Nation's original territory is attached hereto, as Exhibit "A".

6. The Nation still governs itself under the traditional system of government that was given to them by the Peacemaker, over 1000 years ago, in the Gayanashagowa, the Great Law of Peace. The Nation is still governed by its Council of Chiefs, who are selected and nominated to these leadership positions by their respective Clan Mothers, who also hold the authority to remove from power a Chief, under certain specified protocol.

7. The Nation, its leaders and its people have a unique spiritual, cultural and historic relationship with the land. This relationship goes far beyond federal and state legal concepts of ownership, possession or legal rights. The people are one with the land, and consider themselves stewards of it. It is the duty of the Nation's leaders to work for a

healing of their land and waters, to protect them, and to pass them on to future generations.

8. The Nation and the other Six Nations of the Haudenosaunee hold three treaties with the United States government: the 1784 Treaty of Fort Stanwix, the 1789 Treaty of Fort Harmor and the 1794 Treaty of Canandaigua. In Article II of the Canandaigua Treaty, the United States government guaranteed the Nation the "free use and enjoyment" of their protected territory.

9. The Nation seeks to join this action, as *amicus*, on behalf of its people in the hope that it may hasten the process of healing historic harms and environmental dangers; and to bring lasting justice, peace and respect among all who inhabit the area. Further, their cultural and spiritual obligation to be stewards of the original lands and waters has been, and continues to be, negatively impacted by the continued operation of the three nuclear power reactors in Scriba, near Oswego, New York.

10. Lake Ontario and the Oswego River system are of great historical, cultural and spiritual importance to the Nation and the other Haudenosaunee nations, as they were used extensively by the Onondaga people before the arrival of Europeans, for fishing and transportation.

11. The Haudenosaunee Confederacy is governed by a Grand Council of Chiefs from all of the Nations and this Grand Council still meets at Onondaga. Before the arrival of the Europeans, the Grand Council often met at Three Rivers, because the various Nations: Mohawk, Oneida, Cayuga and Seneca could travel there by canoe on the

Oneida and Seneca River systems which meet at Three Rivers, to form the Oswego River, which connects with Lake Ontario, in Oswego.

12. The historical importance and use of Lake Ontario by the Onondagas is documented in the 1684 French drawing that depicts a meeting of French explorers and Onondaga Chiefs on the eastern shore of Lake Ontario, at what is now called Port Ontario, where the Salmon River enters the Lake. This 1684 drawing is annexed hereto, as Exhibit "B", and it is taken from page 282 of the New York State Museum's published book: *Wampum and Shell Articles Used by the New York Indians,* which was originally published in 1901 and reprinted by AMS Press in 1978.

13. Further evidence of the historic and cultural history of Oswego and Lake Ontario can be found in: *Aboriginal Place Names of New York, (1907),* which was originally published by the New York State Museum in 1907 and reprinted by Kessinger Publishing:

a. Under the heading: "OSWEGO COUNTY": *"Most of this country was in the territory of the Onondagas, but after the colonial period, the Oneidas increased their claims. The eastern part originally belonged to them but not the Ontario lake shore, the Onondagas having a village at the mouth of the Salmon River in 1654. Nearly all the names are thus Iroquois."* (Page 168.)

b. The word "Oswego" is derived from the Onondaga and Haudenosaunee: *"O-swe'-go, Osh-wa-kee and Swa-geh are forms of*

the well known name, meaning flowing out, *or more exactly* small water flowing into that which is large." (Page 171.)

c. "*Ga-so-te'-na, high grass is Scriba Creek.*" (Page 170.)

14. The Nation, its leaders and its people take their obligations to be stewards of their original lands and waters very seriously and within the past fifteen years have joined with citizens along the shores of Lake Ontario in two, separate environmental actions: one prevented the construction of an illegal golf course in Port Ontario which was planned to illegally drain into a wetland and which would have jeopardized an endangered species of turtles, and the other prevented the proposed construction of a "clean coal" plant in Scriba, New York.

15. The Nation's currently recognized territory is located with the peak injury zone, approximately forty (40) miles from the three nuclear reactors in Scriba.

THE HAUDENOSAUNEE ENVIRONMENTAL TASK FORCE AND ITS INTEREST IN THIS LITIGATION:

16, The Haudenosaunee Environmental Task Force (H.E.T.F.) is composed of delegates selected by each of the Six Haudenosaunee Nations–the Mohawk, Oneida, Onondaga, Cayuga, Seneca and Tuscarora–who are committed to identifying the environmental problems in their communities and to working together to find solutions to these problems. The mission of the H.E.T.F. is:

a. To assist the Haudenosaunee Nations in their efforts to conserve, preserve, protect and restore their environmental, natural and cultural resources;

b. To promote the health and survival of the sacred web of life for future generations;

c. To support other Indigenous nations working on environmental issues; and

d. To fulfill their responsibilities to the natural world as instructed by the Creator without jeopardizing peace, sovereignty or treaty obligations.

17. As Indigenous Nations, H.E.T.F. understands that all things are interconnected and that all peoples and nations need to work together to protect the natural world for the future generations.

18. Whenever one Haudenosaunee Nation is confronted with an environmental threat, such as the nuclear power plants on Lake Ontario, H.E.T.F. works to provide the collective support from all Six Nations. [1]

THE AMERICAN INDIAN LAW ALLIANCE AND ITS INTEREST IN THIS LITIGATION:

19. The American Indian Law Alliance (A.I.L.A.) is an Indigenous non-governmental organization in consultative status with the United Nations Economic and Social Council (ECO SOC). A.I.L.A. is committed to working with and on behalf of Indigenous Nations on a wide range of issues. One of the primary areas of the work of A.I.L.A. is environmental protection and the defense of Mother Earth, with an emphasis on leaving behind a healthy world for the next seven generations.

20. A.I.L.A. was founded by a now deceased citizen of the Onondaga Nation:

[1] See: www.hetf.org.

Tonya Gonella Frishner; and the current president of A.I.L.A. is also an Onondaga Nation citizen: Betty Lyons. Other leaders and citizens of the Onondaga Nation are active in the work of A.I.L.A., particularly the work in the United Nations Permanent Forum on Indigenous Issues. A.I.L.A. and the Onondaga Nation work closely together to mutually support each other and their work.

21. The vision of A.I.L.A. is to empower Indigenous Nations and communities by being the catalyst for the advancement of self-determination, in order to promote social, economic and cultural development. This is done through education capacity building and legal advocacy.

22 The ultimate goal of A.I.L.A. is protection of the natural world for the seven generations yet to come. By working with Indigenous Nations and communities globally, A.I.L.A. seeks to further the defense of Mother Earth, by protecting it for the next seven generations.

23. The missions of the A.I.L.A. indlude:

a. To assist the Indigenous Nations in their efforts to conserve, preserve, protect and restore their environmental, natural and cultural resources;

b. To promote the health and survival of the sacred web of life for future generations;

c. To support other Indigenous Nations working on environmental issues; and

d. To fulfill their responsibilities to the natural world as instructed by the Creator without jeopardizing peace, sovereignty or treaty obligations.

24. A.I.L.A. vigorously opposes the continued use of nuclear reactors and the proliferation of the nuclear industry; and this opposition is culturally, environmentally and spiritually based.

25. As an Indigenous organization A.I.L.A. understands that all things are interconnected and that all peoples and Nations need to work together to protect the natural world for the future generations.

26. Whenever one Indigenous Nation is confronted with an environmental threat, such as the nuclear power plants on Lake Ontario, A.I.L.A. works to provide the collective support from many Indigenous Nations. [2]

LEGAL STANDARDS AND FACTORS APPLICABLE TO *AMICUS CURIAE* MOTIONS:

27. In New York, trial courts have the discretion to allow a party to appear as *amicus curiae* or to submit an *amicus curiae* brief.

28. In an Article 78 proceeding, such as this one, CPLR 7802 (d) confers upon the courts "broader authority to allow intervention . . . than is permitted" under general intervention provisions.

29. The Nation, H.E.T.F. and A.I.L.A. are not seeking intervention with full rights of parties, but are merely seeking to appear as *amici*; and The Nation, H.E.T.F. and A.I.L.A. will comply with any limitations placed upon such *amici* appearance that the

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[2] See: https://aila.ngo.

Court may impose.

30. It is beyond debate that this case presents issues of important public interest because every ratepayer in the state is impacted financially and because the health and safety of millions of New Yorkers could well be negatively impacted.

31. The Court is well aware that although the CPLR does not contain rules or requirements for the filing of an *amicus curiae* brief or motion, other courts have applied factors similar to those required for intervention, or for the filing of an *amicus curiae* brief in the New York Court of Appeals or the Appellate Divisions.

32. In a recent case involving home rule and the authority of towns to ban fracking, *Anschutz Exploration Corp. v. Town of Dryden*, *supra*, Hon. Phillip R. Rumsey, JSC, sitting in the Tompkins County Supreme Court, compared intervention and *amicus*, examined the factors for evaluation of *amicus* requests, and ultimately granted motions for leave to file *amici curiae* briefs. The factors listed in *Anchutz* are identical to those listed in 2003, in *Kruger, supra*; and they are:

1. whether the applications were timely;
2. whether each application states the movant's interest in the matter and includes the proposed brief;
3. whether the parties are capable of a full and adequate presentation of the relevant issues and, if not, whether the proposed amici could remedy this deficiency;
4. whether the proposed briefs identify law or arguments that might

otherwise escape the court's consideration or would otherwise be of assistance to the court;

5. whether consideration of the proposed *amicus* briefs would subsequently prejudice the parties; and

6. whether the case involves questions of important public interest.

33. Justice Rumsey's decision was affirmed by the Third Department, which found "no abuse of discretion" in the lower court's granting of leave to appear as *amicus*. *Norse Energy Corp, USA. v. Town of Dryden*, 108 AD 3d 25, 30 (3rd Dept. 2013).

34. While no one factor listed in ¶ 32 above is dispositive, in this case, each of these factors are satisfied.

35. The *Amici Curiae's* interests are set forth above and included in this *amici curiae* Affirmation and the supporting Memorandum of Law.

36. Specifically, the proposed parties seek to join this action, as an *amici curiae* in order to address the Onondaga Nation's and H.E.T.F.'s unique historical and cultural relationship with Lake Ontario and the Oswego/Scriba area; the mandate of the Nation's leaders to protect their original territory; the damages inflicted upon other Indigenous nations and peoples by the nuclear industry; and the dangers to the Nation, its currently recognized territory, waters and citizens from its proximity to the three nuclear reactors in Scriba and from the transport of nuclear wastes on Route 81, through its currently recognized territory.

THE NEGATIVE IMPACT OF THE NUCLEAR POWER INDUSTRY ON INDIGENOUS NATIONS AND PEOPLES, BOTH HISTORICALLY AND CURRENTLY:

OVER ALL NEGATIVE IMPACTS OF URANIUM MINING ON INDIGENOUS NATIONS AND PEOPLES:

37. The Nation, H.E.T.F. and A.I.L.A. urge the Court to consider the entire life-cycle of the nuclear power industry and not just the isolated, final step of generating power. This entire life cycle has historically had hugely negative impacts on Indigenous nations and peoples: from the mining of uranium on Indian country and the vast amounts of nuclear wastes associated with the mining, the milling of uranium, the transportation of uranium, and the proposed, long term storage of high-level nuclear wastes on Indian county. These negative impacts continue to this day.

38. There are three stages of conventional uranium mining: first the ore containing uranium is extracted from the ground. Next, a mill grinds the ore into sand, which is run through a solution to separate the uranium from the waste rock, commonly known as "tailings." The uranium is then concentrated and dried into "yellowcake" for commercial sale. Finally, the tailings, which are radioactive, must be secured and stored.

39. To the Nation's, H.E.T.F.'s and A.I.L.A.'s knowledge, these broader, life-cycle negative impacts on Indigenous peoples were not considered by the Public Service Commission, despite their profound environmental justice impacts.

40. Uranium mining, milling and related industries have resulted in the destruction

of sacred sites, petroglyphs and ancestors' unmarked burial sites, [3] and the contamination of housing and drinking water supplies. [4]

41. Traditional lifeways have been made difficult or impossible to continue due to contamination of water and land; [5] sacred sites have been made inaccessible and physically dangerous; and Indigenous peoples have had to move away from areas of their homelands upon which they have lived for centuries. [6]

42. Water contamination from uranium mining and the resultant tailings has been widespread and especially damaging in the south western states where water is so scarce. Surface waters and aquifers have been polluted by all phases of uranium mining and production. The contamination of the waters has included various combinations of uranium, arsenic, copper, lead, molybdenum, selenium, sulfate, thorium, vanadium and

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[3] Jarding, Lilias J. *Uranium Activities' Impacts on Lakota Territory.* 2010, p. 8 Available at http://www.cleanupthemines.org/wp-content/uploads/2013/11/URANIUM-IMPACTS-IN-LAKOTA-TERRITORY.pdf

[4] Green, April. "Sacred N.M. Mountain Remains at Center of Uranium Fight." *New York Times*, 18 August 2011. Available at https://archive.nytimes.com/www.nytimes.com/gwire/2011/08/18/18greenwire-sacred-nm-mountain-remains-at-center-of-uraniu-22823.html (past mining on sacred Mount Taylor)

Winters, Rosemary. "Uranium Mill or Dump?" *High Country News*, 2 February 2004. Available at https://www.hcn.org/issues/267/14525 (White Mesa mill built on more than 200 Ute, Navajo, and Ancestral Pueblo ceremonial and burial sites)

[5] Tsosie, Rebecca. "Indigenous Peoples and the Ethics of Remediation: Redressing the Legacy of Radioactive Contamination for Native Peoples and Native Lands." *Santa Clara Journal of International Law*, vol. 13, no. 1, 2015, p. 208. Available at https://digitalcommons.law.scu.edu/cgi/viewcontent.cgi?article=1185&context=scujil

[6] Bleir, Garet. "Desecrating Medicine, Contaminating Water, Defiling Sacred Land." *Intercontinental Cry*, 20 October 2017, https://intercontinentalcry.org/desecrating-medicine-contaminating-water-defiling-sacred-land/

radium. [7]

43. Prior to any actual mining of uranium, extensive explorations have been conducted on Indian country and this exploration has included drilling thousands of holes and drill cores and the construction of extensive roads and truck pads on previously undisturbed and pristine lands. Most of these exploratory holes have not been sealed or capped and therefore, have created pathways between groundwater aquifers, which has resulted in the migration of contaminated water that has polluted clean drinking water supplies. [8]

44. Historically, when uranium mining began in earnest, in the late 1940s, virtually no safety measures were implemented for miners' safety, despite the known risks from exposure to uranium and its dust. Proper monitoring and ventilation were not employed. Consequently, miners were exposed to unnecessary inhalation of various radon isotopes and to direct, whole-body exposure from the air-borne radiation from the

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[7] Gallaher, Bruce M. and Steven J. Cary. *Impacts of Uranium Mining on Surface and Shallow Groundwaters, Grants Mineral Belt, New Mexico*. New Mexico Environmental Improvement Division Report EID/GWH-86/2, 1986.

Loomis, Brandon. "With Uranium Poisoning Wells, Navajos Must Drive Miles to Get Drinking Water." *Arizona Republic*, 11 August 2014. Available at https://www.azcentral.com/story/news/arizona/investigations/2014/08/05/uranium-mining-poison-wells-safe-drinking-water/13635345/

Stone, James, Larry Stetler, and Albrecht Schwalm. *Final Report: North Cave Hills Abandoned Uranium Mines Impact Investigation*. 18 April 2007, pp. 111-139. Available at https://www.fs.usda.gov/detail/custergallatin/landmanagement/resourcemanagement/?cid=stelprd3833603.

[8] Jarding, Lilias J., 2010, pp. 10-11.

mine face. [9]

45. In addition to the dangers to which miners themselves were unnecessarily exposed, their families and homes were also contaminated and exposed. This was due to the complete lack of proper decontamination practices, so that miners and their work clothing brought home radioactive materials and particles.

46. All of these dangers and their inherent health risks were exacerbated due to the virtually complete lack of any information being shared with the miners, their families or their communities.

47. In addition to the dangers inherent in the mining operations themselves, Indigenous nations, such as the Navajo and Lakota, have suffered extensive harms from the legacies of these hundreds of now abandoned uranium mines. These harms and health risks have been caused by the tailings or wastes simply piled up during the mining operations. [10]

48. About 98 % of all the material extracted from the uranium mines has been left in place as tailings; and these remaining wastes have been about 80 to 85 % as radioactive

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[9] Brugge, Doug, Timothy Benally, Phil Harrison, and Chenoa B. Stilwell. *Memories Come to Us in the Rain and the Wind: Oral Histories and Photographs of Navajo Uranium Miners & Their Families*. Boston, MA: Navajo Uranium Miner Oral History and Photography Project, 2000. Available at https://swuraniumimpacts.org/wp-content/uploads/2016/06/Memories-Come-To-Us.pdf

[10] Moore-Nall, Anita. The Legacy of Uranium Development on or Near Indian Reservations and Health Implications Rekindling Public Awareness." *Geosciences*, vol. 5, pp. 15-29. Available at https://www.mdpi.com/2076-3263/5/1/15.

as those materials that were removed from the mining sites for further processing. [11] The radioactive contamination from these tailings has been documented to have moved easily through air and water. [12]

49. Additionally, a significant portion of the tailings from some sites on Indian country has been "re-purposed" and used in housing construction, roads and driveways; and yet, the people and the Indigenous governments were not informed of the dangers inherent in the radioactive wastes. [13]

50. Another source of danger to Indigenous nations and peoples has been created by the abandonment of numerous open pit uranium mines, as the plant litter and sediments at old open pit mines have been found to contain very high levels of radium-226, which is 2.7 million times more radioactive than the same amount of naturally

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[11] Waggitt, Peter. *A Review of Worldwide Practices for Disposal of Uranium Mill Tailings.* Australian Government Publishing Service, 1994. Available at http://www.environment.gov.au/system/files/resources/7baf0bdd-a928-4d58-a0a7-1e7e5647ca3c/files/tm48.pdf

[12] Mathes, David E. "Lessons Learned from the 20-Year Uranium Mill Tailings Remedial Action Surface Project." *WM'99 Proceedings, February 28-March 4, 1999, Tucscon, Arizona.* WM Symposia, 1999. Available at https://pdfs.semanticscholar.org/2877/a20036dc5b34e8bbd2dac01685bbfaee8ab7.pdf

[13] Cornwall, Warren. "Radioactive Remains: The Forgotten Story of the Northwest's Only Uranium Mines." *The Seattle Times*, 24 February 2008, https://www.seattletimes.com/pacific-nw-magazine/radioactive-remains-the-forgotten-story-of-the-northwests-only-uranium-mines/

Frosch, Dan. "Uranium Contamination Haunts Navajo Country." *The New York Times*, 26 July 2009. Available at https://www.nytimes.com/2009/07/27/us/27navajo.html?_r=0

occurring uranium. [14]

51. Studies in heavily mined areas have repeatedly found high levels of radiation, cave-ins, collapsed sides of open pits, erosion of spoils, lack of vegetation re-growth, open ventilation shafts, unmarked open pits and extensive disturbance of surface lands. [15]

52. The practice of *in-situ* extraction was also used extensively on Indian country, which involved the pumping of chemical solutions into ore to dissolve the uranium and other metals. [16] The chemicals and extracted metals were then pumped out for further processing. [17]

53. One of the problematic consequences of this practice of *in-situ* extraction has been documented spills and leaks. Underground leaks can be either vertical or horizontal and have been labeled "excursions" when they have migrated from the immediate mining

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[14] Dienemann, Holder, Claudia Dienemann, and E. Gert Dudel. "Distribution of Ra-226 Downstream a Uranium Mining Site." *Uranium, Mining and Hydrogeology*, edited by Broder J. Merkel and Andrea Hasche-Berger, Springer, 2008, pp. 865-872.

[15] Jarding, 2010, p. 23.

[16] "In Situ Leach Mining of Uranium." *World Nuclear Association*, October 2017. http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/mining-of-uranium/in-situ-leach-mining-of-uranium.aspx

[17] Hilleary, Cecily. "Native Americans Ask: What About Our Water Supply?" *Voice of America*, 13 February 2016, https://www.voanews.com/a/native-americans-ask-what-about-our-water-supply/3188737.html

Leddy, Liane C. *Cold War Colonialism: The Serpent River First Nation and Uranium Mining, 1953-1988*. Dissertation, Wilfred Laurier University, 2011. Available at https://central.bac-lac.gc.ca/.item?id=NR81496&op=pdf&app=Library

areas, thereby extending the areas of contamination and pollution. [18]

54. Additionally, it has been documented that complete clean-up of in-situ site has been impossible, and reclamation attempts have never returned the water to its original, unpolluted condition. [19]

55. The health impacts from historic uranium mining on Indian country have been profoundly destructive and negative; and they include various cancers, especially lung cancer [20] and fibrosis among the miners. [21] Additionally, bone cancer and impaired kidney functions have been documented in the neighboring Indigenous populations from drinking water that has been contaminated with radio nuclides. Drinking water with radionuclides is a known risk factor for bone cancer, as noted by the EPA. [22] Longer term, extremely negative health impacts, such as gene mutations and chromosome changes, have been documented in Indigenous communities where uranium has been

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[18] Staub, William P, Elwood N. Hinkle, Roy E. Williams, Frank Anastasi, James Osiensky, and Douglas Rogness. *An Analysis of Excursions at Selected in Situ Uranium Mines in Wyoming and Texas*. Washington, D.C: Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, 1986. Available at https://www.nrc.gov/docs/ML1423/ML14237A635.pdf

[19] Kelley, Dan. "As Uranium Mines Closed, State Altered Cleanup Goals." *Corpus Christi Caller-Times*, 5 November 2006.

[20] Brugge, Doug and Rob Coble. "The History of Uranium Mining and the Navajo People." *American Journal of Public Health*, vol. 92, no.2, 2002, pp. 1410–1419. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3222290/

[21] Dawson, Susan E. "Navajo Uranium Workers and the Effects of Occupational Illnesses: A Case Study." *Human Organization,* Vol. 51, No. 4, 1992, pp. 289-397.

[22] United States Environmental Protection Agency. "Cleaning Up Abandoned Uranium Mines." 3 May 2018, https://www.epa.gov/navajo-nation-uranium-cleanup/cleaning-abandoned-uranium-mines

mined. [23]

SPECIFIC INDIGENOUS NATIONS THAT HAVE BEEN NEGATIVELY IMPACTED BY URANIUM MINING, MILLING AND RELATED INDUSTRIES:

A. NAVAJO NATION:

56. The Navajo Nation has experienced the longest and most intense uranium mining, due to its location on the Colorado Plateau, which contains the richest and highest percentage of deposits of uranium in the country. Uranium mining occurred on the Navajo Nation from 1944 to 1986, with 30 million tons of uranium extracted; and there are over 500 abandoned uranium mines on the Nation. [24]

57. On July 16, 1979, the mill tailings pond at Church Rock, New Mexico breached due to a failure in the earthen containment dam at United Nuclear Corporation's uranium processing mill; and over 1,000 tons of solid radioactive waste and 93 million gallons of acidic radioactive tailings were released and flowed into the Puerco River. These released radioactive wastes traveled 80 miles downstream onto the recognized territory of the Navajo Nation. Many Navajo citizens rely on the Puerco River for

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[23] Morales, Laurel. "For The Navajo Nation, Uranium Mining's Deadly Legacy Lingers." *NPR*, 10 April 2016. Available at https://www.npr.org/sections/health-shots/2016/04/10/473547227/for-the-navajo-nation-uranium-minings-deadly-legacy-lingers (kidney disease)

Shields, Lora M., William H. Wiese, Betty J. Skipper, Bernard Charley, and L. Benally. "Navajo Birth Outcomes in the Shiprock Uranium Mining Area." *Health Physics*, vol. 63, no. 5, 1992, pp. 542-551. (gene changes and chromosomal abnormalities)

[24] United States Environmental Protection Agency. "Cleaning Up Abandoned Uranium Mines." 3 May 2018, https://www.epa.gov/navajo-nation-uranium-cleanup/cleaning-abandoned-uranium-mines

irrigation and livestock. [25]

58. According to the Nuclear Regulatory Commission, the contaminated river measured 6,000 times the allowable standard for radioactivity below the broken dam, after the breach was repaired. [26]

59. This was the largest release of radiation in United States history; and second only to Chernobyl in world history. [27]

60. In 2005, the Navajo Nation enacted a moratorium for uranium mining on currently recognized Nation lands. [28] However, development of uranium mining on immediately adjacent lands is constantly being promoted. Westwater Resources has been attempting to start uranium mining operations on federal lands near Church Rock, on the checkerboard, to the east of the Nation's territory. [29]

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[25] Jennings, Trip. "Remembering the Largest Radioactive Spill in U.S. History." *New Mexico in Depth*, 7 July 2014, http://nmindepth.com/2014/07/07/remembering-the-largest-radioactive-spill-in-u-s-history/

[26] Grinde, Donald A., and Bruce Johansen, *Ecocide of Native America: Environmental Destruction of Indian Lands and People*, Sante Fe, New Mexico: Clear Light Publishers, 1995, p. 211.

[27] Navajo Nation. *President Ben Shelly Declares 'Uranium Legacy Remembrance and Action Day'*. 15 Jul 2011, http://www.navajo-nsn.gov/News%20Releases/OPVP/Jul11/71511_PresidentBenShellyDelares%20%E2%80%98UraniumLegacyRemembrance%20andActionDay%E2%80%99.pdf

[28] Navajo Nation. *Navajo Nation President Joe Shirley, Jr. Signs Diné Natural Resources Protection Act of 2005.* 30 April 2005, https://www.nrc.gov/docs/ML0721/ML072150169.pdf

[29] Bourne, Chloe. "Environmental Jurisdiction in Indian Country: Why the EPA Should Change its Definition of Indian Agency Jurisdiction under the Safe Drinking Water Act." *Colorado Natural Resources, Energy & Environmental Law Review*, vol. 27, no. 2, 2016, pp. 294-314. Available at https://www.colorado.edu/law/sites/default/files/CNREELR-V27-I2-Bourne.pdf

B. LAKOTA NATION:

61. Despite the fact that the Black Hills, in South Dakota, are sacred to the Lakota Nation, extensive uranium mining has taken place there. This mining is widespread, despite the fact that the lands are protected by the 1868 Fort Laramie Treaty, as Lakota lands. [30]

62. Studies have shown widespread radioactive contamination of the Grand River and the Moreau River watersheds, which flow east through the Standing Rock and Cheyenne River Reservations. [31]

63. Additionally, uranium-removal facilities in Belfield and Bowman, North Dakota, where uranium-bearing lignite was burned to concentrate the uranium, have left behind dangerous radioactive wastes in massive volumes.

64. In 1995, the state of North Dakota requested that the Department of Energy revoke the designation of the sites as processing sites under the Uranium Mill Tailings Radiation Control Act because the state did not believe the low health risks the sites posed warranted the $4.4 million the state would have to pay for their cleanup. Thus, no remedial action was taken. As the Environmental Assessment of the no action alternative

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[30] Jarding, 2010, p. 50.

Grinde, Donald A., and Bruce Johansen, *Ecocide of Native America: Environmental Destruction of Indian Lands and People*. Sante Fe, New Mexico: Clear Light Publishers, 1995, p. 204.

[31] White Face, Charmaine. *Report on Water Tests for Radioactive Contamination.* Defenders of the Black Hills, March 2011. Available at http://www.defendblackhills.org/document/waterreport32011.pdf

states, taking no action means the general population continues to be exposed to radon decay products and airborne radioactive particles from the ash-contaminated soils. [32]

C. PUEBLO NATION:

65. The Laguna Pueblo Village of Paguate was the site of the Atlantic Richfield–Anaconda Minerals Company's Jackpile–Paguate Uranium mine, which was once the world's largest open-pit uranium extraction site. [33]

66. The Acoma Pueble–Mt. Taylor area is of special cultural significance, in that it is one of the four sacred mountains of the Navajo, and it is also sacred to the Laguna, Zuni and Hopi Nations. Despite this irreplaceable cultural importance, this area was subject to extensive uranium mining from the 1950s to the 1970s; and current proposals call for the uranium mining to start again there. [34]

D. WESTERN SHOSHONE NATION AND YUCCA MOUNTAIN:

67. The Yucca Mountain Nuclear Waste Repository was designated by the

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[32] United States Department of Energy. *Environmental Assessment of No Remedial Action at the Inactive Uraniferous Lignite Ashing Sites at Belfield and Bowman, North Dakota.* 1997. Available at https://www.energy.gov/sites/prod/files/EA-1206-FEA-1997_1.pdf.

[33] United States Environmental Protection Agency. *The Legacy of Abandoned Uranium Mines in the Grants Mineral Belt, New Mexico.* November 2011. Available at https://www.epa.gov/sites/production/files/2015-08/documents/uranium-mine-brochure.pdf

[34] Indigenous World Association and Laguna-Acoma Coalition for a Safe Environment. *Joint Alternative Report of Indigenous World Association and Laguna-Acoma Coalition for a Safe Environment: The Case of Mt. Taylor, A Sacred Cultural Landscape.* Submitted to the United Nations Committee on the Elimination of Racial Discrimination, 21 July 2014. Available at https://tbinternet.ohchr.org/Treaties/CERD/Shared%20Documents/USA/INT_CERD_NGO_USA_17696_E.pdf

Nuclear Waste Policy Act [35] amendments of 1987 [36] to be a deep geological repository facility for spent nuclear fuel rods from all reactors in the United States and for other, high-level nuclear wastes.

68. Yucca Mountain remains under active consideration by the Trump administration and $120 million in funding for the Yucca project is contained in the current spending plan that has been submitted to Congress, with the support of Energy Secretary Rick Perry.

69. The Western Shoshone Nation considers the Great Basin area, which includes Yucca Mountain, as sacred:

> To the Western Shoshone people Yucca Mountain is part of a seamless sacred landscape known in the Shoshone language as *Newe Sogobia*. *Newe* is what the Western Shoshone call themselves meaning, the people. *Sogibia* is the name of Mother Earth. Used together, *Newe Sogobia* is the political, social, cultural and spiritual embodiment of Western Shoshone people and land as a nation. [37]

70. The Western Shoshone Nation also maintains that Yucca Mountain is within their treaty recognized territory, pursuant to the 1863 Treaty of Ruby Valley.

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[35] 42 U.S.C. § 10101 *et seq.*.

[36] 42. U.S.C. § 10172.

[37] *A Western Shoshone Perspective on Yucca Mountain,* http://nativeamericannetroots.net/diary/779 , p. 4.

71. The Western Shoshone Nation is adamantly opposed to the creation of a nuclear dump on their sacred and treaty protected territory, because it violates the historical, cultural and spiritual connection with the lands and the area.

72. In 1994, the Western Shoshone National Council joined with their Southern Paiute neighbors to form the Nuclear Risk Management for Native Communities Project, to study the reasons for the incidence of cancer and other health consequences from the fallout from nuclear weapons testing in the 1950s at the Nevada Test Site, which is also located on Western Shoshone lands. This Project found that Western Shoshone and Southern Paiute people were exposed to radiation through unique pathways that included diet, shelter and mobility. Radiation exposure for adults is as much as 15 times greater than non-Native American communities downwind, as much as 39 times greater for children and as much as 60 times greater for in utero exposure. [38]

E. HUALAPAI AND HAVASUPAI NATIONS:

73. The Hualapai and Havasupai Nations' Reservation is in north western Arizona and these nations currently ban uranium mining on their recognized territory. However, their lands, waters and cultural connections to their original lands are threatened by uranium mines on the north and south of the Grand Canyon, on public lands. [39]

74. In 2012, the Secretary of Interior enacted a 20-year moratorium on such

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[38] *Id.*, p. 3.

[39] Sislin, Caitlin. "Toxic Legacy for Tribes." *High Country News*, 26 March 2010, https://www.hcn.org/greenjustice/blog/toxic-legacy-for-tribes.

uranium mining so close to the Grand Canyon, to allow time for proper study of the risks and impacts. However, the current administration has planned to overturn this moratorium, in the near future. [40]

F. WHITE MESA BAND OF THE UTE MOUNTAIN UTE NATION:

75. The White Mesa Uranium Mill is located about three miles from the center of the White Mesa Ute community; and the wind often blows from the mill over the community and the groundwater flows from the mine to the community. [41]

76. Additionally, this mill is where uranium from the Daneros Mine, located on Bears Ears, which are the ancestral lands of the Hopi, Ute Mountain Ute and the Navajo Nations, would be transported for processing, under current plans. [42]

G. SPOKANE NATION:

77. Uranium mining was conducted on Spokane territory from 1955 to 1981, at the Midnight Mine, which was an open-pit mine located about eight miles from nation

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[40] Walters, Joanna. "In the Grand Canyon, Uranium Mining Threatens a Tribe's Survival." *The Guardian*, 17 July 2017, https://www.theguardian.com/environment/2017/jul/17/grand-canyon-uranium-mining-havasupai-tribe-water-source.

[41] Penrod, Emma. "The Water Around a Utah Uranium Mill is Growing More Polluted. What Does It Mean for the Nearby Town?" *The Salt Lake Tribune*, 21 October 2018, https://www.sltrib.com/news/environment/2018/10/21/ute-tribal-members-living/

[42] Maffly, Brian. "Feds Approve Uranium Mine Expansions in Utah's San Juan County, One of Them Near Bears Ears." *The Salt Lake Tribune*, 28 February 2018, https://www.sltrib.com/news/environment/2018/02/28/feds-approve-uranium-mine-expansions-in-san-juan-county/

headquarters at Wellpinit, Washington. [43]

H. DENE AND CANOE LAKE CREE FIRST NATIONS:

78. The Dene reserve lands in the Athabasca Basin in northern Saskatchewan [44] are currently the world's leading source of high-grade uranium, and currently the main source of the uranium being used in the United States. [45]

HOW THE THREE AGING NUCLEAR REACTORS IN SCRIBA ARE INTERFERING WITH THE STEWARDSHIP RESPONSIBILITIES OF THE NATION LEADERS AND H.E.T.F. TO PROTECT THE NATURAL WORLD FOR FUTURE GENERATIONS:

HARMS CAUSED BY NORMAL, INCIDENT-FREE OPERATION OF THE THREE OSWEGO REACTORS:

I. WATER WITHDRAWALS, RELEASES AND CONSUMPTION:

79. Each of the three reactors at Oswego, Nine Mile Point 1 and 2 and Fitzpatrick, depends on withdrawal massive volumes of water from Lake Ontario for cooling purposes; and a large portion is not returned to the Lake, but is "consumed" by evaporation. This consumption has at least two negative impacts on the Lake Ontario and

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[43] United States Environmental Protection Agency. "Case Summary: Cleanup Agreement Reached at Former Uranium Mine on Spokane Indian Reservation." 13 April 2017, https://www.epa.gov/enforcement/case-summary-cleanup-agreement-reached-former-uranium-mine-spokane-indian-reservation

[44] Cuffe, Sandra. "Uranium's Chilling Effects." *The Media Co-Op*, 21 November 2013, http://www.mediacoop.ca/story/uraniums-chilling-effects/19083

[45] "About Uranium." *Natural Resources Canada*, 6 October 2014, https://www.nrcan.gc.ca/energy/uranium-nuclear/7695
(Canada as leading source of uranium for U.S.) "Nuclear Explained: Where Our Uranium Comes From." *United States Energy Information Administration*, 26 September 2018. https://www.eia.gov/energyexplained/index.php?page=nuclear_where

the downwind Tug Hill ecosystems: (a) the volume of water in the Lake is reduced, and (b) tritiated moisture is added to the atmosphere to be carried by the prevailing winds to the east, adding to the already record breaking snowfalls and rains in the Tug Hill Plateau.

80. The volumes of water consumed by each of the reactors has been calculated by the Union of Concerned Scientists, in the following amounts:

a. Nine Mile Point 1: intake from Lake Ontario: 5,348,000 gallons per year; consumption: 3,264,000 year;

b. Nine Mile Point 2: intake from Lake Ontario: 10,493,000 gallons per year; consumption: 5,537 000 year; and

c. Fitzpatrick: intake from Lake Ontario: 7,367,000 gallons per year; consumption: 4,496,000 year; [46]

81. Therefore the total, annual volume of water consumed by these three reactors, and not returned to Lake Ontario, is 13,297,000 gallons.

J. HARM TO LAKE ONTARIO FISH POPULATIONS: FISH ENTRAINMENT AND IMPINGEMENT:

82. The massive volumes of water taken from Lake Ontario also has negative impacts on the fish populations in the Lake, which include "entrainment"–fish small enough are pulled through the screens in the intake systems and sucked into the internal cooling pipes and systems, and "impingement"– larger fish which are unable to pass through the screens are trapped in the intakes. NYS DEC denied water use permits to

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[46] Union of Concerned Scientists. *UCS EW3 Energy-Water Database V.1.3.* 2012. www.ucsusa.org/ew3database.

Indian Point for these very same issues.

83. For Nine Mile Point 1 and 2, a 1976 study revealed that the maximum weekly entrainment for alewife was estimated at 350 million eggs and 4.9 million larvae; and that the maximum weekly entrainment for rainbow smelt was estimated at 1.5 million eggs and 205,000 larvae. [47]

84. A study from April to August of 1997 estimated that the entrainment of alewife, tessellated darter, and threespine stickleback during study period were 78.7 million, 3.6 million, and 2.4 million, respectively. [48]

85. The estimated total number of alewife, which were the most common species found during study period, impinged from 1973 to 1997 was 13,894,754; for an annual average of 578,823. The highest impingement rates were usually observed during spring when alewife and rainbow smelt move inshore to spawn. [49]

86. For Fitzpatrick, the estimated total number of alewife impinged 1976-1997 was 7,546,639. [50]

87. The Nuclear Regulatory Commission used the above cited data from the Nine

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[47] United States Nuclear Regulatory Commission. *Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 24, Regarding Nine Mile Point Nuclear Station Units 1 and 2.* 2006, pp. 4-13 to 4-17. Available at https://www.nrc.gov/docs/ML0612/ML061290310.pdf.

[48] *Id.*

[49] *Id.*

[50] United States Nuclear Regulatory Commission. *Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 231, Regarding James A. Fitzpatrick Nuclear Power Plant.* 2008, p. 4-17.

Mile Point studies on entrainment in the Supplemental Environmental Impact Study (SEIS) for the most recent license renewal, which was published in 2008. In its comments on the SEIS, the United State Fish and Wildlife Service stated: "*The Service considers the entrainment of fish to be one of the most significant adverse environmental effects of this facility.*" [51]

K. THERMAL POLLUTION:

88. Another adverse environmental impact from the use of massive volumes of water for cooling purposes is the thermal pollution that the system discharges cause in Lake Ontario, because the discharges add heat to the Lake and therefore, have a negative impact on the native, cold-water fish population. Also, the added heat is a contributing factor to the increase of harmful algae blooms.

89. The thermal pollution from these reactors is governed under the State Pollutant Discharge Elimination System (SPDES). For Nine Mile Point 1, the 2014 SPDES permit renewal sets the maximum temperature for the discharge at 115 degrees F, and the maximum increase in temperature between the intake and discharge at 35 degrees F. Further, the permitted daily maximum net rate addition of heat to the Lake was limited to 4,405 million British thermal units (MBTUs) per hour. [52]

90. For Nine Mile Point 2, the 2014 SPDES permit renewal sets the maximum

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[51] *Id*, p. A-19.

[52] United States Environmental Protection Agency. "Effluent-Charts, Nine Mile Point Nuclear LLC." *Enforcement and Compliance History Online*. echo.epa.gov/effluent-charts#NY0001015. Accessed 22 October 2018.

temperature for the discharge at 110 degrees F, and the maximum increase in temperature between the intake and discharge at 30 degrees F. Further, the permitted daily maximum net rate addition of heat to the Lake was limited to 407 million British thermal units (MBTUs) per hour. [53]

91. For Fitzpatrick, the 2008 SPDES permit renewal sets the maximum temperature for the discharge at 112 degrees F, and the maximum increase in temperature between the intake and discharge at 32.4 degrees F. Further, the permitted daily maximum net rate addition of heat to the Lake was limited to 6,000 MBTUs per hour. [54]

92. Thermal pollution and increases in lake water temperatures have negative impacts on aquatic life and ecosystems, which include negative effects on individual fish, including changes in metabolic rate, appetite and digestion, swimming rate, growth rate, susceptibility to disease and parasites. Thermal pollution also caused changes in patterns of spawning and reproduction. [55]

93. Thermal pollution also causes alteration in the food chain due to the different abilities of some species to adapt; and increased heat causes the multiplication of bacteria,

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[53] *Id.*

[54] United States Environmental Protection Agency. "Effluent Charts, James A. Fitzpatrick Nuclear Power Plant." *Enforcement and Compliance History Online*. echo.epa.gov/effluent-charts#NY0020109. Accessed 22 October 2018.

[55] Shiomoto, Gail T., and Betty H. Olson. "Thermal Pollution Impact Upon Aquatic Life." *Journal of Environmental Health*, vol. 41, no. 3, 1978, pp. 132–139.

which can result in water bird mortality. [56]

94. As noted above, an increase in water temperature creates favorable conditions for the multiplication and increases of cyanobacteria (known popularly as blue-green algae, or harmful algae blooms). [57]

THE DANGERS OF THE THREE AGING NUCLEAR POWER REACTORS IN SCRIBA, NEW YORK AND THE DIRECT HARM THAT WOULD RESULT TO THE ONONDAGA AND HAUDENOSAUNEE PEOPLE, ONONDAGA NATION LANDS AND WATERS FROM ROUTINE AND ANY ACCIDENTAL RELEASE OF RADIATION FROM THESE REACTORS:

DESIGN FLAWS IN ALL THREE REACTORS WHICH CAUSE INCREASED DANGERS:

95. All three Scriba reactors, Fitzpatrick and Nine Mile Point 1 and 2, are General Electric Boiling Water Reactors (GE BWR). This is the same design as the reactors at Fukushima Daiichi in Japan.

96. GE BWR reactors have two fundamental design flaws which increase the risks and dangers to the surrounding human populations and to the nearby air, water and land.

97. These flaws are that (a) the containment vessel is not as physically robust than

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[56] John, James E. "Thermal Pollution: A Potential Threat to Our Aquatic Environment." *Boston College Environmental Affairs Law Review*, vol. 1, no. 2, 1971. Available at https://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?article=2037&context=ealr.

[57] Clarke, H. A. "Effects of Thermal Discharges from the Nuclear Power Industry." In *Canadian Nuclear Association, Thirteenth Annual International Conference, Toronto, Canada. Volume 2: Interface between the Environment and the Nuclear Industry*. 1973, p. 15. Available at https://inis.iaea.org/collection/NCLCollectionStore/_Public/05/141/5141541.pdf.

competing designs; and (b) the spent fuel rods are stored on upper floors and not in cooling pools at ground level.

98. Shortly after the Fukushima Daiichii disaster began, the New York Times ran an article entitled: "*Experts Had Long Criticized Potential Weakness in Design of Stricken Reactor*" [58] which primarily discussed the weakness in the containment vessel and pressure relief system.

99. The article first described that problem:

> When the ability to cool a reactor is compromised, the containment vessel is the last line of defense. Typically made of steel and concrete, it is designed to prevent–for a time–melting fuel rods from spewing radiation into the environment if cooling efforts completely fail.
>
> In some reactors, known as pressurized water reactors, the system is sealed inside thick steel-and-cement tomb. Most nuclear reactors around the world are of this type.
>
> But the type of containment vessel and pressure suppression system used in the failing reactors at Japan's Fukushima Daiichi plant is **physically less robust** and it has been thought to be more

[58] NY Times, March 16, 2011, p. A14, http://nytimes.cpm/2011/03/16/world/asis/16contain.html.

susceptible to failure in an emergency than competing designs. [59] (Emphasis added.)

100. The article explains that concerns about and criticisms of this weaker containment vessel design are long standing:

> In 1972, Stephen H. Hanauer, then a safety official with the Atomic Energy Commission, recommended that the Mark 1 (the early model number of GE BWRs) system be discontinued **because it presented unacceptable safety risks**. Among the concerns cited was the smaller containment design, which was more susceptible to explosion and rupture from a buildup in hydrogen–a situation that may have unfolded at the Fukushima Daiichi reactor. Later that same year, Joseph Hendrie, who would become chairman of the Nuclear Regulatory Commission, . . . said the idea of a ban on such systems was attractive. [60] (Emphasis added.)

101. These were not the only warnings of this design by experts, in this New York Times article:

> Questions about the design escalated in the mid-1980s, when Harold Denton, an official with the Nuclear Regulatory Commission, asserted that Mark 1 reactors **had a 90 percent probability of**

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[59] *Id.*

[60] *Id.*

bursting should fuel rods overheat and melt in an accident. . .

Several utilities and plant operators also threatened to sue G.E. in the late 1980s after the disclosure of internal company documents dating back to 1975 that suggested that the containment vessel designs were either insufficiently tested or had flaws that could compromise safety. [61] (Emphasis added.)

RISKS AND CONCERNS SPECIFIC TO THE THREE AGING NUCLEAR REACTORS AT OSWEGO FROM THE ACCUMULATION AND STORAGE OF SPENT FUEL RODS:

102. From their decades of operation, the three nuclear reactors at Oswego/Scriba have accumulated nearly 10,000 spent fuel rod assemblies, which are stored onsite, on the shores of Lake Ontario; and these spent fuel rods produce an estimated radiation of 296,866,000 curies. [62]

103. By comparison, between March 11th and early April of 2011, between 10 and 17 million curies (270,000 – 360,000 TBq) [63] of radioactive iodine and cesium were released to the atmosphere from the Fukushima Dai-Ichi reactor — an average of 417,000 curies per day. [64]

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[61] *Id.*

[62] *Id.*, p. 26.

[63] Terabecquerel (TBq) is a unit of measurement of radioactivity, and one Tbq is roughly equivalent to 27 curies.

[64] *Id.*, p. 7.

104. All three of the Oswego nuclear reactors have their spent fuel pools on the upper floors of the buildings around the reactors. If a hole or crack were to form in the wall or floor of the pool, water likely would drain more quickly than a breach in a below ground-level pool. A loss of water in a cooling pool would expose the spent fuel rods and would create a high risk of a fire or explosions, with a massive release of radioactivity. [65]

105. One of the hard-learned lessons from the Fukushima disaster was that it is much more difficult to refill elevated spent fuel rod cooling pools than in-ground pools; and therefore, it was demonstrated that elevated pools inherently present significantly increased risks. [66]

106. Data from the United States website for wet pool storage data from 2011, and from the dry cask storage data website from 2014, provide a comparison of the numbers of spent fuel rods at Oswego in dry casks as opposed to the wet pool storage. ABC affiliate WZZM estimated the amounts of on-site storage at each reactor: [67]

a. Fitzpatrick had 443.7 tons in wet pools, as compared to only 284.4 tons in dry casks; and

b. Nine Mile Point 1 and 2, combined, had 1,292.5 tons in wet pools, as

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[65] Union of Concerned Scientists. *Nuclear Power Safety in New York*. 2012, n.p. Available at https://www.ucsusa.org/sites/default/files/legacy/assets/documents/nuclear_power/nuclear-power-safety-in-new-york.pdf.

[66] *Id.*

[67] "60,000 Tons of Dangerous Radioactive Waste Sits on Great Lakes Shores." ABC, WZZM, Grand Rapids, MI, 20 October 2018. Available at https://www.article/news/60000-tons-of-dangerous-radioactive-waste-sits-on-great-lakes-shores/69-606371485.

compared to only 190.4 tons in dry casks.

L. ROUTINE DISCHARGES OF RADIOACTIVE WATER AND AIR:

107. The Nuclear Regulatory Commission relies on self-reporting and computer modeling from reactor operators to track radioactive releases and projected dispersion. This results in the fact that a significant portion of the environmental monitoring data is extrapolated and virtual, but not real. [68]

108. Low-level radiation damages tissues, cells, DNA and other vital molecules in humans and all life forms; there is no safe dose. [69]

109. One of the main isotopes of concern for both water and air releases from nuclear reactors is tritium, a radioactive isotope of hydrogen, which combines with oxygen to produce tritiated water, and which is readily absorbed through skin, lungs, and GI tract. [70]

110. Tritium is impossible to remove from air or water by filters. [71]

111. Tritium is absorbed by trees and plants, including food crops; and when it is

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[68] Nuclear Information and Resource Services. *Routine Radioactive Releases from Nuclear Reactors*. N.d. Available at https://www.nirs.org/wp-content/uploads/factsheets/routineradioactivereleases.pdf.

[69] University of South Carolina. "Even Low-level Radioactivity is Damaging, Scientists Conclude." *ScienceDaily*, 13 November 2012, www.sciencedaily.com/releases/2012/11/121113134224.htm.

[70] United States Department of Energy. *Primer on Tritium Safe Handling Practices.* 1994, p. 18. Available at https://www.osti.gov/servlets/purl/10196000.

[71] Wald, Matthew L. "Has Trust Leaked Away with Tritium?" *The New York Times*, 20 April 2016. Available at https://green.blogs.nytimes.com//2010/04/20/has-trust-leaked-away-with-the-tritium/.

consumed, it can become incorporated into tissue cells, where it is extremely dangerous to human health. [72]

112. A nuclear reactor's fuel rods, pipes, tanks and valves can all leak; and as a nuclear reactor ages, so does its equipment, and leaks generally increase. The three Oswego/Scriba reactors are all old and are already operating beyond their projected life spans. Therefore, the risks of leaks is greater from these aging reactors. [73]

113. Additionally, some contaminated water is intentionally removed from the reactor vessel to reduce the amount of the radioactive and corrosive chemicals; the water is filtered and then either recycled back into the cooling system or released into the environment. [74]

114. Some radioactive fission gases from the reactor cooling water are contained in decay tanks for days before being released into the atmosphere through filtered rooftop vents; and some gases leak into the reactor buildings' interiors and are released during periodic purges. [75]

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[72] Calmon, Philippe and Jacqueline Garnier-Laplace. *Tritium and the Environment.* ISRN, 2010. Available at https://www.irsn.fr/EN/Research/publications-documentation/radionuclides-sheets/environment/Documents/Tritium_UK.pdf.

[73] Makhijani, Annie and Arjun Makhijani. "Radioactive Rivers and Rain: Routine Releases of Tritiated Water From Nuclear Power Plants." *Science for Democratic Action*, vol. 16, no. 1, 2009. Available at https://ieer.org/wp/wp-content/uploads/2012/01/SDA-16-1.pdf.

[74] *Id.*

[75] Lochbaum, *David. Routine Releases of Routine Releases of Radioactive Materials from U.S. Nuclear Plants.* Union of Concerned Scientists, 2014. Available at https://cdn.allthingsnuclear.org/wp-content/uploads/2014/10/20140818-Routine-Releases-Rev-1.pdf.

115. The gases released, in addition to tritium, include noble gases such as xenon-135 and krypton-85, which rapidly decay to dangerous daughter isotopes such as cesium-135 and strontium-90. [76]

M. THE DANGERS PRESENTED BY THE LARGE VOLUMES OF SPENT FUEL RODS and THEIR RADIOACTIVE ISOTOPES:

116. A nuclear reactor produces hundreds of radioisotopes, or radioactive substances, such as krypton-85, cesium–137, and strontium–90. Neutron bombardment of uranium can also create heavier radioisotopes, such as plutonium-239. [77]

117. Plutonium-239, which is one of the components of spent fuel, decays into various radioactive substances, such as thorium and radium. [78]

118. Radioisotopes produced in a reactor can remain extremely hazardous from a few days to many hundreds of thousands of years; and these radioisotopes remain in the fuel assemblies and as components of the resulting spent fuel. [79]

119. The plutonium-239 in spent fuel has a half-life of 24,200 years and must be

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[76] Radioactive Effluent Release Reports for all three reactors are available at https://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-specific-reports/nmp1-2.html.

[77] United States Government Accountability Office. *Spent Nuclear Fuel: Accumulating Quantities at Commercial Reactors Present Storage and Other Challenges.* GAO-12-797. Washington, DC, 2012, p. 7. http://purl.fdlp.gov/GPO/gpo33055.

[78] *Id.*, p. 12.

[79] *Id.*, p. 7.

isolated from the environment for 100,000 years for it to decay to a safe level. [80]

N. STORAGE TECHNOLOGIES FOR SPENT FUEL RODS and THE DANGERS CREATED BY THEIR ACCUMULATION AT REACTORS:

120. When spent fuel rods are removed from a reactor, they are thermally hot and intensely radioactive; and they must be immersed in deep pools of water, which cools the spent fuel and shields the environment from the isotopes in the fuel. This means that cooling water must be continuously circulated in the pools, which requires an uninterrupted source of power. [81]

121. Once placed in a holding pool, spent fuel rods continue to decay and they continue to generate enormous amounts of heat. Therefore, the water must be continually circulated and cooled. [82]

122. Spent fuel rods can be put into dry cask storage once they have aged long enough to be cooled by passive air ventilation—generally after about 5-7 years. This dry cask storage typically consists of a stainless steel canister placed inside a larger stainless steel or concrete cask. [83]

123. Because refueling requires downtime, reactor operating cycles have been

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[80] Martin, Alex. "In Search of a Nuclear Disposal Site." *The Japan Times*, 7 May 2011. Available at https://www.japantimes.co.jp/news/2011/05/07/national/in-search-of-a-nuclear-disposal-site/.

[81] *Id.*, p. 3.

[82] *Id.*, p. 12.

[83] *Id.*, p. 3.

lengthened to generate more electricity and reduce costs. [84]

124. Another method of cost savings has been the use of fuel with higher levels of uranium, which can burn longer and thereby increase the periods between shutdowns for refueling. This fuel is referred to as high-burn-up fuel, and it is hotter and more radioactive when removed from a reactor core. Therefore, the length of time that it must remain in a pool is extended. [85]

125. The higher levels of uranium in the fuel rods can cause the cladding [86] around a spent fuel rod to become brittle; it also leads to higher pressure from hydrogen and other radioactive gases inside the cladding; all this increases risk that the cladding will fail, allowing the escape of radioactive materials. [87]

126. In March 2010, Gregory Jaczko, who was then the Nuclear Regulatory Commission Chairman, told industry officials at a conference that spent fuel should be stored primarily in dry casks that meet safety and security standards for several centuries.

127. However, due to cost, operators keep rods in pools until the pools are at full capacity, meaning that only about 25% of domestic spent fuel is stored in dry casks. Keeping the rods in the cooling pools is less expensive that moving them into dry cask

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[84] Alvarez, Robert. *Spent Nuclear Fuel Pools in the U.S: Reducing the Deadly Risks of Storage*. Washington, D.C: Institute for Policy Studies, 2011, p. 16. Available at https://ips-dc.org/wp-content/uploads/2011/05/spent_nuclear_fuel_pools_in_the_US-final.pdf.

[85] Government Accountability Office, *Id.*, p. 13.

[86] Cladding is the outer layer of the fuel rods, situated between the coolant and the nuclear fuel.

[87] Institute for Policy Studies, *Id.*, p. 2.

storage. [88]

128. In the original designs for spent fuel storage pools, the spent rods were packed at relatively low densities, which allowed for better cooling water circulation and more effective cooling. However, operators have replaced these low-density racks with higher-density racks to delay transfer to dry casks for as long as possible. [89]

129. As a result of this "re-packing" or increased density of storage, spent fuel rods are being stored at an average density of four times higher than originally intended; and this increased density creates increased safety risks, given the need to constantly cool the spent fuel rods. [90]

130. The higher density of storage of spent fuel rods causes degradation in the neutron-absorbing materials that are required to prevent a self-sustaining chain reaction from starting; and it creates an added stress on the cooling systems. [91]

131. The higher storage density also strains storage pool cooling and cleaning systems, with spare pumps and heat exchangers operating for periods far longer than originally intended. [92]

132. Spent fuel rod storage pools have at least two potential hazards. If a leak

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[88] *Id.*

[89] Government Accountability Office, *Id.*,p. 13.

[90] Alvarez, *Id.*, p. 6.

[91] *Id.*, p. 16.

[92] *Id.*

develops it could drain enough water to expose the fuel, or the water circulation system used for cooling could fail, which would cause the hot fuel rods to boil off the water in which they are stored. If the fuel rods were exposed to air and steam, the zirconium cladding would catch fire, at about 800 degrees Celsius. [93]

133. According to the Government Accountability Office, the worst-case scenario for spent fuel at reactor sites is the possibility of a self-sustaining fire in a spent fuel pool, which could spread to all assemblies in the pool and could release massive amounts of radioactivity. [94]

134. According to a 1997 report for the Nuclear Regulatory Commission done by the Brookhaven National Laboratory, a severe pool fire could render about 188 square miles around the nuclear reactor uninhabitable, cause as many as 28,000 cancer fatalities and result in $59 billion in damages. [95]

135. Further, spent fuel pools are not under the same type of containment that the reactor vessels are. This less safe containment makes a release of radioactive material into the atmosphere much more likely in the case of an accident or fire. [96]

136. In addition to the risks created by the over-packing of too many spent fuel rods in the aging cooling pools, much concern has been expressed about the risks of

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[93] Alvarez, *Id.*, p. 18.

[94] Government Accountability Office, *Id.*, p. 28.

[95] Alvarez, *Id.*, p. 18.

[96] Alvarez, *Id.*, p. 16.

terrorism, which are increased by the scattered and often remote reactor locations:

> The probability of terrorist attacks on spent fuel storage cannot be assessed quantitatively or comparatively. Spent fuel storage facilities cannot be dismissed as targets for such attacks because it is not possible to predict the behavior and motivations of terrorists, and because of the attractiveness of spent fuel as a terrorist target given the well known public dread of radiation. [97]

137. In addition to potential terrorist acts, there are several events could cause a loss of pool water, including leakage, evaporation, siphoning, pumping, aircraft impact, earthquake, the accidental or deliberate drop of a fuel transport cask, reactor failure, or an explosion inside or outside the pool building. [98]

138. Since 1981, there have been at least 66 incidents at United States nuclear reactors in which there was a significant loss of spent fuel cooling water. One of the major threats from the Fukushima reactor disaster was the loss of cooling water surrounding the spent fuel rods, which were stored in cooling pools on upper floors. [99]

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[97] National Research Council. *Safety and Security of Commercial Spent Nuclear Fuel Storage: Public Report.* Washington, DC: The National Academies Press, 2006, p. 6. https://doi.org/10.17226/11263.

[98] Alvarez, *Id.*, pp. 18-19.

[99] *Id.*, p. 2.

THE DANGERS TO THE ONONDAGA NATION, ITS WATERS AND ITS PEOPLE FROM THE CURRENT TRANSPORT OF NUCLEAR WASTES DOWN INTERSTATE ROUTE 81, DIRECTLY THROUGH THE NATION'S CURRENTLY RECOGNIZED TERRITORY:

139. The Onondaga Nation's currently recognized territory [a/k/a: "reservation"] contains about 7,500 acres and is located just to the south of the City of Syracuse. Interstate Route 81 cuts directly through this territory for approximately four (4) miles.

140. About a year and a half ago, the United States Department of Energy quietly started allowing shipments of highly radioactive nuclear waste to travel from Ontario, Canada, across the Thousand Islands Bridge, down Route 81, through Onondaga Nation territory, and eventually to a processing plant in South Carolina.

141. These shipments illustrate a forgotten problem that has been created and continues to be created by the nuclear industry: the dangers inherent in nuclear wastes and how to store, transport and process them.

142. These shipments were confirmed in a May 19, 2017 article in the *Syracuse Post Standard*, entitled: "Did feds begin secret shipments of nuclear waste on I-81 in Upstate NY?" [100]

143. This article goes on to state that up to 150 shipments have been approved by the Department of Energy; and that they will either be sent down Route 81, or on an alternative route, from the Chalk River Laboratories in Ontario, across the Peace Bridge,

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100 Https://www.syracuse.com/politics/index.ssf/2017/05/did_feds_begin_secret_shipments_of_nuclear_waste_on_I-81_in_upstate_ny.html.

through Buffalo, and then through Seneca Nation territory. Further the article continues:

> No federal agency announced the start of the shipments last month. The only confirmation came from an inspection report posted last week to the website of the Defense Nuclear Facilities Safety Board.
>
> The board is an independent federal organization that advises the president about public health and safety issues at Department of Energy defense nuclear facilities.
>
> An April 21[, 2017] inspector report posted to the board's website on May 12 from the Savannah River Site noted that "personnel started processing the first shipment of liquid Highly Enriched Uranium (HEU) this week."
>
> During the process, the inspector wrote, workers found an "unexpected hotspot" on the side of the lead-lined container or "pig" holding the nuclear material. [101]

144. In 2012 and 2014, leaders of the Onondaga Nation met with Department of Energy officials at the Nation Longhouse, when the Nation was informed of the plans for such shipments of highly radioactive liquid wastes down Route 81. At these meetings, the Nation leaders were firm and clear that they opposed any such shipments through their sovereign territory. The Nation considers this transport, through their recognized

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[101] *Id.*

territory in defiance of their authority and will, as a treaty violation, in violation of the 1794 Treaty of Canandaigua. Federal officials ignored the Nation's position. [102]

145. The substance that is being transported is uranyl nitrate, rather than the more common, solid uranium compounds. Uranyl nitrate is produced by dissolving yellow-cake or spent fuel rods in nitric acid; and it is an interim compound in nuclear reprocessing. Uranyl nitrate presents a "severe fire and explosion risk when heated or subjected to shock in conjunction with oxidizable substances." It is not flammable itself but creates "toxic oxides of nitrogen in fires and intensifies the fires." [103]

146. Uranyl nitrate is considered fatal if swallowed or inhaled, toxic through contact, and toxic to aquatic life due to solubility. According to the Center for Disease Control, "the toxicity of soluble uranium compounds are at least of an order of magnitude higher than for insoluble uranium compounds." [104]

147. The driving conditions on Route 81 can be particularly hazardous in the winter months, due to massive amounts of snow, ice, freezing rains and sleet, and winds. The Nation's territory receives a significant amount of snow from the Lake Ontario lake effect and the average annual snow fall is about 130 inches. [105]

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[102] This information is from my personal knowledge, learned during my participation in these meetings.

[103] Https://science.ernegy.gov/~/media/nbl/pdf/price-lists/SDS/SDS-Uranyl_Nitrate_Solution.pdf.

[104] Https://www.atsdr.cdc,gov/ToxProfiles/tp150-c2.pdf.

[105] I live about 15 miles south of Syracuse, in Tully, New York; and I drive to and from my office in Syracuse, along Route 81, through the Nation territory, at least once a day. There

148. Transportation of high-level nuclear material by truck in icy and winter conditions is reckless and dangerous. A January 2016 accident in Saskatchewan, under similarly snowy, icy, windy conditions to Syracuse and Onondaga territory, spilled uranium concentrate across the snow. [106]

149. The Onondaga Nation, over the past decade, has re-established and enhanced its volunteer fire and rescue department, with millions of dollars of solely Nation funds. The Nation fire department is a member of the mutual assistance agreement with the other volunteer departments in Onondaga County; and as a result of the commitments in this agreement, at least 60 % of the calls that are responded to by the Nation fire department are outside the Nation's currently recognized territory, and a large number are in response to accidents along Route 81, on or near the Nation territory.

150. Consequently, if one of these trucks carrying high-level nuclear wastes has an accident on Route 81 on or near the Nation's territory, the Nation fire department personnel will be the first responders to arrive at the scene; and they will be exposed to the radiation dangers from such an accident.

151. Additionally, at least two feeder creeks and streams flow in a westerly direction, under Route 81, until they merge with Onondaga Creek on the Nation's territory. One of these creeks. Hemlock Creek, is used by the Nation's children for

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are days when weather conditions along Route 81 are too severe for this commute.

[106] Https://www.cbc.ca/news/canada/saskatchwan/uranium-spill-cleaned-up-highway-4-1-3401625.

swimming and by Nation citizens for fishing and gathering of medicinal plants.

152. A review of the history of nuclear waste transportation un the United States reveals that there have been 72 documented accidents in the period up to 2002. Four of these accidents included "radioactive material contamination beyond the transportation vehicle." [107]

153. There is currently no approved repository for nuclear wastes; and even if there were, transporting nuclear wastes dramatically increases a host of risks to the Haudenosaunee nations. Therefore, nuclear waste that continues to be created in New York state will remain in the state for the foreseeable future, thereby increasing environmental and economic costs.

CONCLUSION:

WHEREFORE, I respectfully request that the Court grant this Motion to allow the Onondaga Nation, the Haudenosaunee Environmental Task Force and the American Indian Law Alliance to appear herein, as *Amici Curiae*; and that the Nation's, H,E,T,F,'s and A.I.L.A.'S *Amici* Affirmation and Memorandum of Law be accepted by this Count; and for such other and further relief as to the Court may seem just and proper.

Dated: December 13, 2018
Syracuse, New York

Joseph J. Heath, Esq.

[107] Https://www.nuclearactive.org/graphix/transport_accidents.pdf.

Exhibit “A”

Detail of Approximate Area of Onondaga Nation Aboriginal Territory

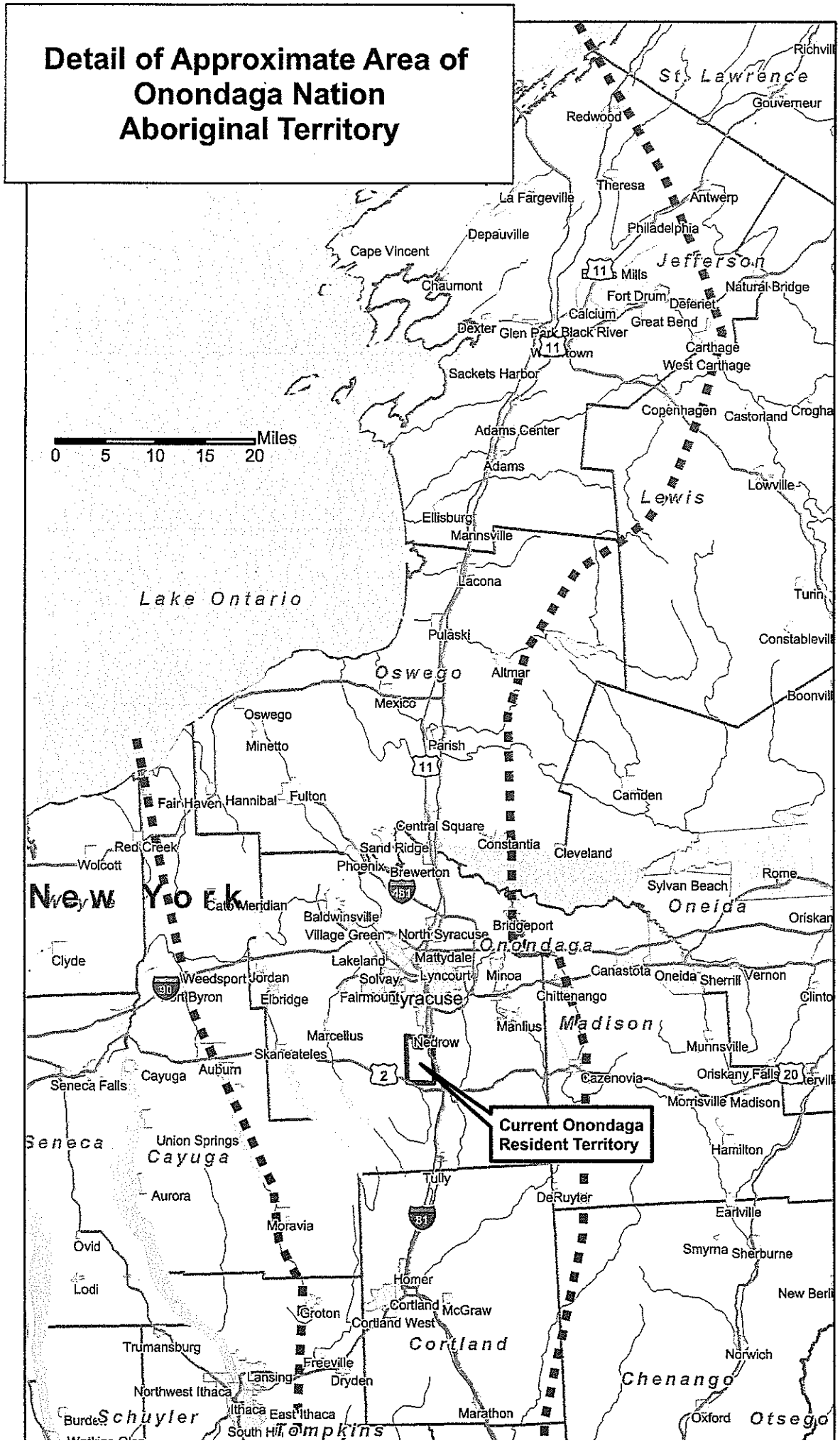
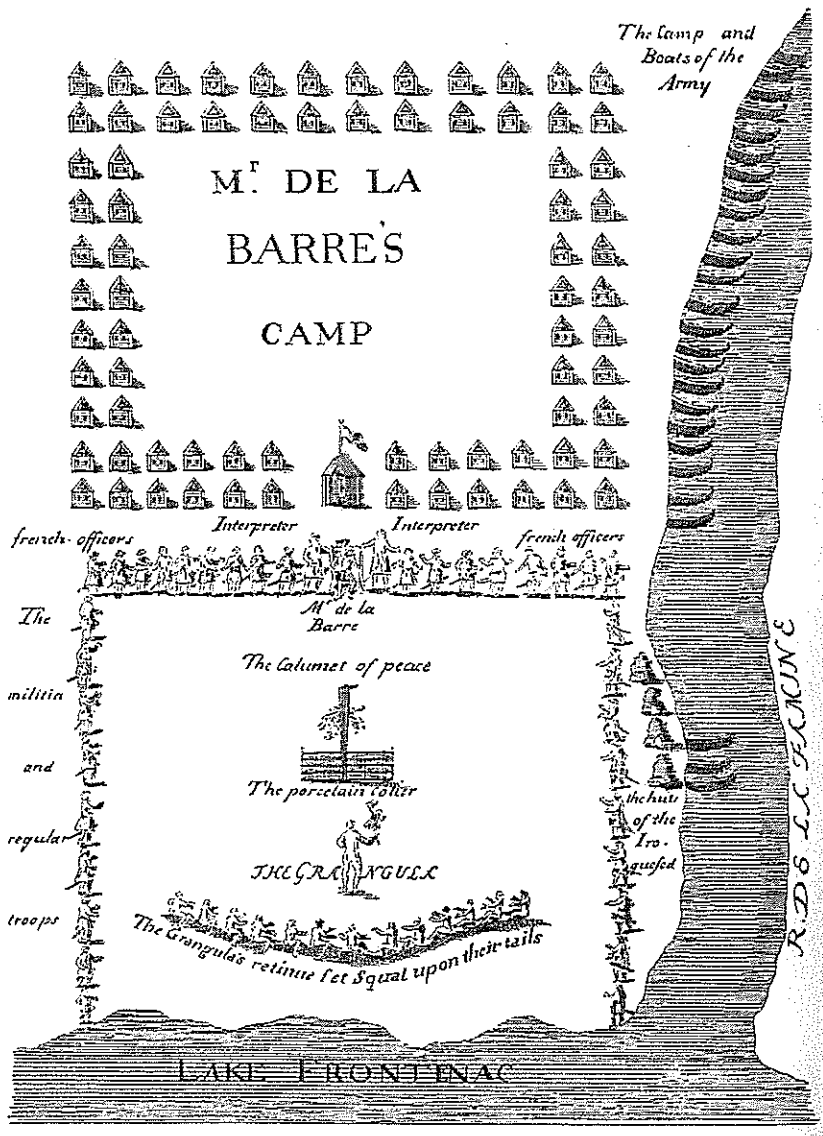


Exhibit “B”

Plate 28


The camp and Boats of the Army
M.r DE LA BARRE'S CAMP
Interpreter
Interpreter
french officers
french officers
The militia and regular troops
M.r de la Barre
The Calumet of peace
The porcelain collier
THE GRANGULA
The Granguls retinue set Squat upon their tails
the huts of the Iro-quese
RIVIERE DE SEKAUNE
LAKE FRONTENAC