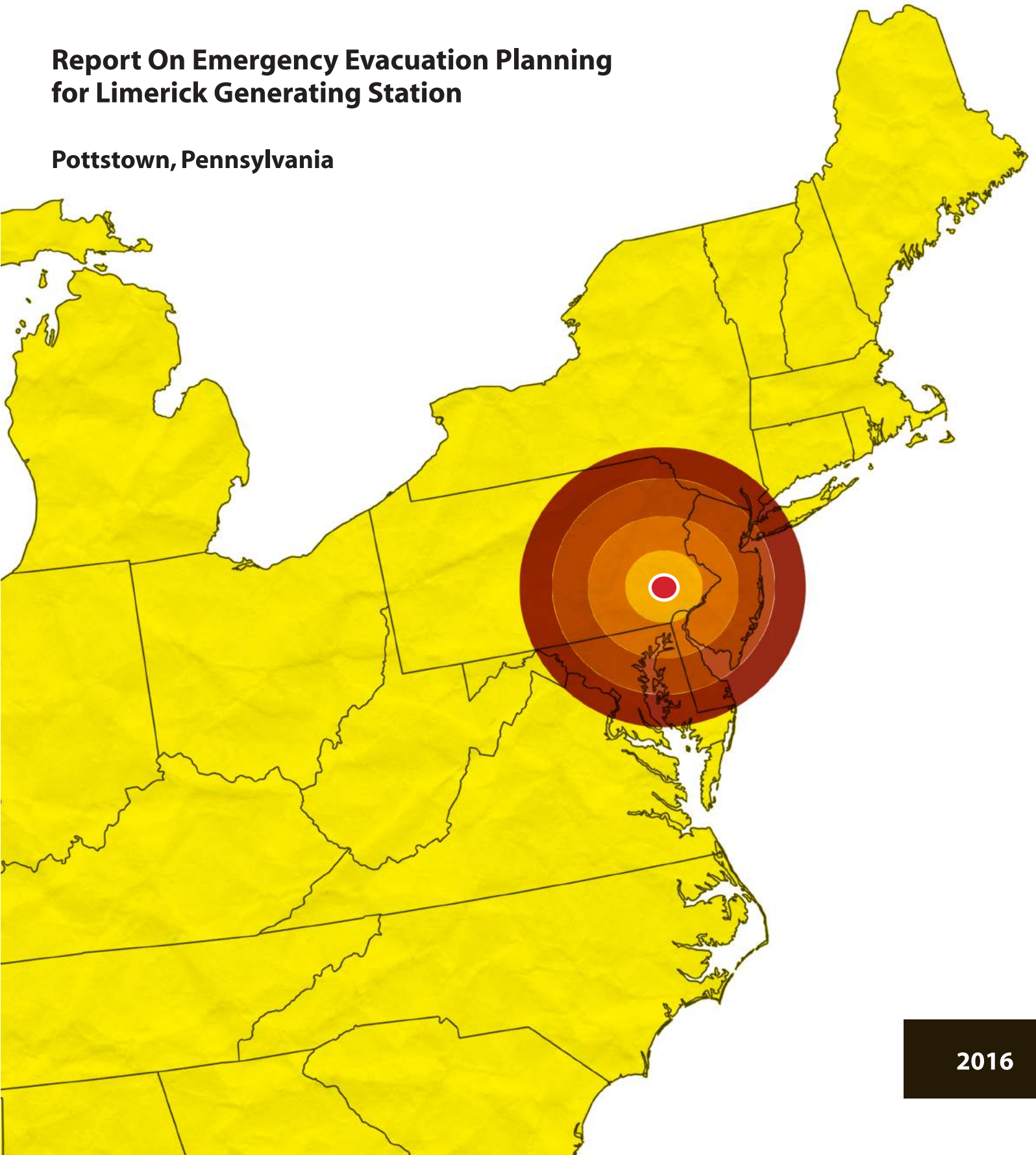


# Disaster Accountability Project



## Report On Emergency Evacuation Planning for Limerick Generating Station

Pottstown, Pennsylvania



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## **About Disaster Accountability Project**

Disaster Accountability Project (DAP) saves lives and reduces suffering after disasters by maximizing the impact of preparedness, response, and relief through citizen oversight and engagement, policy research and advocacy, and public education.

DAP is the leading nonprofit organization providing long-term independent oversight of disaster management systems.

DAP engages a dedicated community to

- advance policy research and advocacy,
- promote transparency, and
- encourage the public to participate in oversight and lead discussions about disaster preparedness and relief.

Dedicated citizen oversight is necessary to ensure that preparedness, relief, and recovery are effective; communities are sufficiently engaged and more resilient; and best practices and lessons learned are implemented so that mistakes are not repeated.

Prior to the creation of DAP, there was no organization providing independent oversight of the agencies and organizations responsible for these critical life-saving responsibilities.

Additional information concerning DAP's ongoing disaster accountability efforts can be found at the organization's website: <http://www.disasteraccountability.org/>.

## **Acknowledgements**

Many thanks to Alison Shih, Jana Wilson, Roxanne Lin, Lisa Charles, Veronica Bailey, Russell Rollow, Nicholas Boland - Cairney, Arsalan Kashfi, Karishma Dudani, Chinasa Udeinya, Nicole Corteling, Esther Choi, Bryan Carey, Mark Williams, Erika Lancaster, Jehu Johnson, and many other DAP volunteers and interns for their varied efforts in producing this report.

*The following report is part of a DAP initiative to investigate emergency planning and public awareness in the areas surrounding nuclear power plants operating in the United States.*

## The U.S. Government Accountability Office's Report Recommending Improved Emergency Preparedness Surrounding Nuclear Power Stations

In March 2013, the U.S. Government Accountability Office (GAO) released a report entitled *EMERGENCY PREPAREDNESS: NRC Needs to Better Understand Likely Public Response to Radiological Incidents at Nuclear Power Plants*.<sup>1</sup> GAO prepared its report in response to the nuclear emergency that resulted from the March 2011 earthquake and tsunami that severely damaged the Fukushima Dai-ichi nuclear power plant in Japan, and led to the largest release of radiation since the 1986 Chernobyl nuclear plant disaster.<sup>2</sup> As a consequence of radiation release, Japanese authorities evacuated nearly 150,000 people located within 19 miles of the stricken plant.<sup>3</sup>

At the same time, the United States Nuclear Regulatory Commission (NRC) recommended that U.S. citizens in Japan evacuate the area if they were located within 50 miles of the Fukushima Dai-ichi plant.<sup>4</sup> The NRC recommendation stated that “[u]nder **the guidelines for public safety that would be used in the United States under similar circumstances, the NRC believes it is appropriate for U.S. residents within 50 miles of the Fukushima reactors to evacuate.**”<sup>5</sup> The NRC recommendation was also broadcasted to U.S. citizens in Japan via a travel warning on the U.S. Embassy website in Japan.<sup>6</sup> The NRC recommendation to evacuate a 50-mile zone exceeded the 10-mile emergency planning zone that is the current standard for nuclear plant emergency planning in the United States.

In the United States, the Federal Emergency Management Agency (FEMA) is responsible for overseeing preparedness by state and local authorities situated near nuclear plants.<sup>7</sup> NRC regulations have established 10-mile emergency planning zones around domestic nuclear power plants.<sup>8</sup> Local and state authorities within the 10-mile zone must develop protective action plans for responding to a radiological incident that include evacuations and sheltering in place.<sup>9</sup> Local and state authorities also must provide information on radiation and protective actions to residents of the 10-mile zone on an annual basis.<sup>10</sup>

Subsequent to the Fukushima Dai-ichi disaster, the NRC has considered the adequacy of the 10-mile emergency planning zone size and has determined that no expansion is necessary.<sup>11</sup> The NRC concluded that a 1979 policy statement provides basis for the 10-mile emergency planning zone, including an

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<sup>1</sup> United States Government Accountability Office. *Emergency Preparedness: NRC Needs to Better Understand Likely Public Response to Radiological Incidents at Nuclear Power Plants*. Washington, D.C.: Government Accountability Office, March 2013, GAO-13-243 (available at <http://www.gao.gov/products/GAO-13-243>).

<sup>2</sup> *Id.* at 1.

<sup>3</sup> *Id.*

<sup>4</sup> See *NRC Provides Protective Action Recommendations Based on U.S. Guidelines*, No. 11-050, March 16, 2011 (available at <http://www.nrc.gov/reading-rm/doc-collections/news/2011/11-050.pdf>).

<sup>5</sup> *Id.* (emphasis added).

<sup>6</sup> See U.S. Department of State Travel Warning, March 17, 2011, <http://japan.usembassy.gov/e/acs/tacs-travel20110317.html>.

<sup>7</sup> United States Government Accountability Office, *supra* note 1. See also <http://www.fema.gov/radiological-emergency-preparedness-program>.

<sup>8</sup> See 10 CFR 50.47(c)(2).

<sup>9</sup> United States Government Accountability Office, *supra* note 1, at 5.

<sup>10</sup> See 10 CFR 50 Appendix E Section IV.D.2.

<sup>11</sup> See *Program Plan for Basis of Emergency Planning Zone Size*, July 13, 2012 (ADAMS Accession No. ML12208A210).

assumption that the planning conducted for 10 miles provides a substantial basis for expansion of the emergency planning zone should it ever be necessary.<sup>12</sup> In 2014, the NRC reiterated its position when it denied a petition for rulemaking filed by the Nuclear Information and Resource Service and its co-petitioners in an effort to modify the NRC's emergency planning rules.<sup>13</sup> NRC's denial of the petition cited a lack of information available to government decision makers at the time of the 2011 Japanese incident and downplayed NRC's 50-mile evacuation recommendation, characterizing it as a "travel advisory."<sup>14</sup>

In support of maintaining the current 10-mile planning zone standard, NRC states that the information available to it during an incident on U.S. soil would be improved due to the presence of on-site NRC inspectors and direct communication lines from U.S. plants.<sup>15</sup> Further, the NRC emphasized that "[s]tate and local authorities have a **robust capacity** to effectively evacuate the public in response to life-threatening emergencies."<sup>16</sup> DAP questions the veracity of NRC's assertions regarding preparedness adequacy and effectiveness, especially given the current lack of planning outside the 10-mile zone.

GAO's report concludes that because residents beyond the 10-mile planning zone do not receive the safety and planning information that residents within the 10-mile zone do and, due to their lack of knowledge, may choose to evacuate even though they may be outside of the hazard area. Such "shadow evacuations" have the potential to delay evacuation of people most immediately in danger of exposure to radiological materials and are incorporated into evacuation time estimates.<sup>17</sup> The GAO Report states:

[C]ommunities outside the 10-mile zone generally do not receive the same level of information as those within the 10-mile zone and therefore may not be as knowledgeable about appropriate conduct during a radiological emergency as those inside the zone and may not respond in a similar manner. If the public outside the zone evacuates unnecessarily at a greater rate than expected, these shadow evacuations would put additional traffic on roadways, possibly delaying the evacuation of the public inside the emergency planning zone and potentially increasing the risk to public health and safety. However, because neither NRC nor FEMA have examined public awareness outside of the 10-mile emergency planning zone, they do not know how the public outside this zone will respond. Specifically, they do not know if a 20-percent estimate of shadow evacuations is reasonable. Therefore, licensee evacuation time estimates may not accurately consider the impact of shadow evacuations. **Without estimates of evacuation times based on more solid understanding of public awareness, licensees and NRC and FEMA cannot be confident about the reliability of their estimates. If shadow evacuations are not correctly estimated, planning for a radiological**

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<sup>12</sup> *Id.*; see also 44 FR 61123, Oct. 23, 1979.

<sup>13</sup> See Petition for Rulemaking; denial, 79 FR 19501 (Apr. 9, 2014).

<sup>14</sup> See *id.* at 19506-07.

<sup>15</sup> *Id.*

<sup>16</sup> *Id.* at 19505 (emphasis added).

<sup>17</sup> See NRC, *Criteria for Development of Evacuation Time Estimate Studies*, NUREG/CR-7002 (Albuquerque, New Mexico: Nov. 2011) at viii (available at <http://pbadupws.nrc.gov/docs/ML1130/ML113010515.pdf>).

**emergency may not sufficiently consider the impact on the public outside the emergency planning zone.**<sup>18</sup>

In light of the GAO's findings and conclusions, DAP surveyed current local emergency preparedness efforts and the level of information provided to the public regarding radiological emergencies within a 50-mile radius of Limerick Generating Station (hereinafter "Limerick"), a nuclear power station located near Pottstown, PA, approximately 28 miles northwest of Philadelphia, the 8th largest metropolitan area in the United States.<sup>19</sup>

## **Limerick Generating Station and the Population within 50 Miles**

Limerick is located on the Schuylkill River in Limerick Township, Montgomery County, northwest of Philadelphia, PA. The facility has two General Electric boiling water reactor units, each producing over 1,200 megawatts. The plant is owned and operated by Exelon Corp. (hereinafter "Exelon"). In 2014, the NRC extended the Limerick licenses to operate until 2044 and 2049, respectively. Every nuclear power plant operator is responsible for maintaining Evacuation Time Estimate (ETE) reports for NRC inspection and filing any updated reports with the NRC.<sup>20</sup>

Exelon's ETE report filed with the NRC contemplates shadow evacuations from within the 10-mile emergency planning zone as well as in a shadow region that is defined as the area between the 10-mile emergency planning zone border to a radius of approximately 15 miles from Limerick.<sup>21</sup>

The Exelon report estimates that 279,016 people live within the shadow zone and assumes that 20% of those people would evacuate in a radiological emergency.<sup>22</sup> Any expansion of the shadow region to a 50-mile radius would significantly increase the population implicated in shadow evacuations. According to the Natural Resources Defense Council's 50-mile Potential Contamination Zone, the 2010 population total was 8,127,000 people.<sup>23</sup>

Figures 1 and 2 show the stark geographic variation between the established 10-mile emergency planning zone for Limerick and a larger 50-mile geographic radius which corresponds to the recommended NRC evacuation area for the Fukushima Dai-ichi plant in 2011.<sup>24</sup>

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<sup>18</sup> *Id.* at 26 (emphasis added).

<sup>19</sup> DAP determined Philadelphia's rank from a list of the 100 most populous cities in the U.S. See <http://www.city-data.com/top1.html>.

<sup>20</sup> See 10 CFR 50 Appendix E Section IV.5.

<sup>21</sup> See <http://pbadupws.nrc.gov/docs/ML1404/ML14043A202.pdf>.

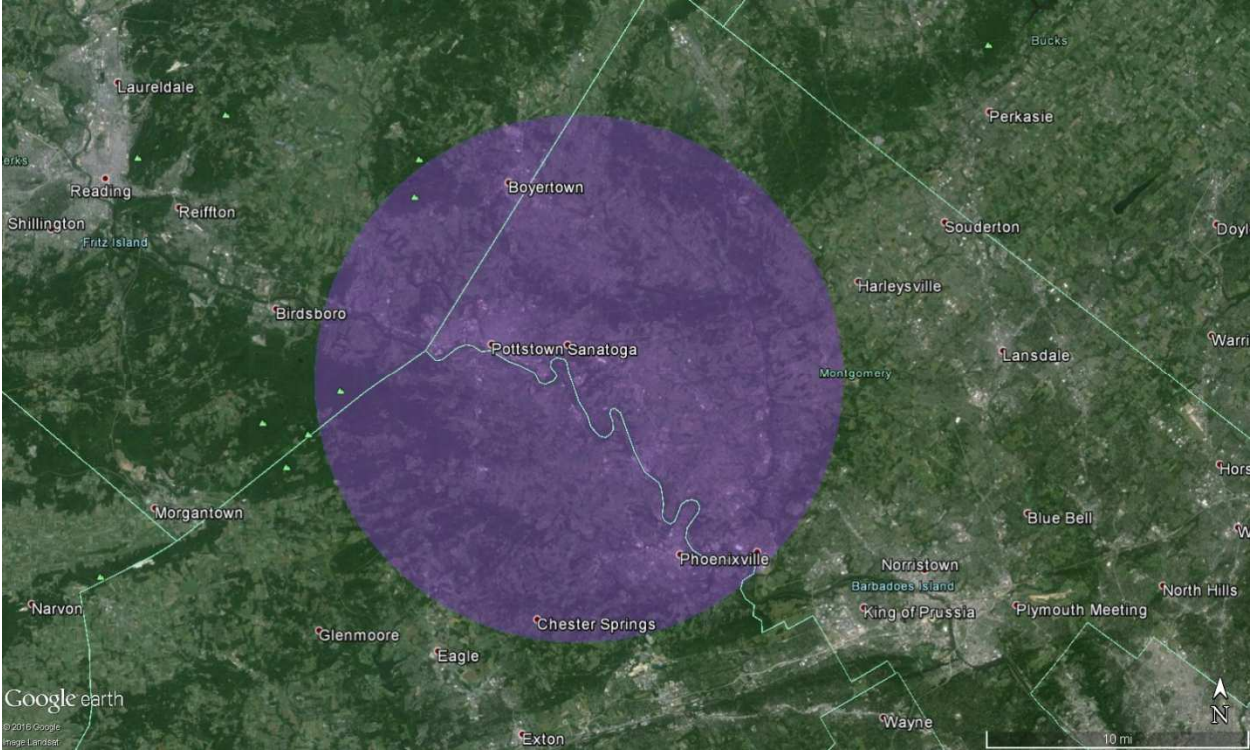
<sup>22</sup> *Id.*

<sup>23</sup> See Natural Resources Defense Council at <http://www.nrdc.org/nuclear/fallout/>.

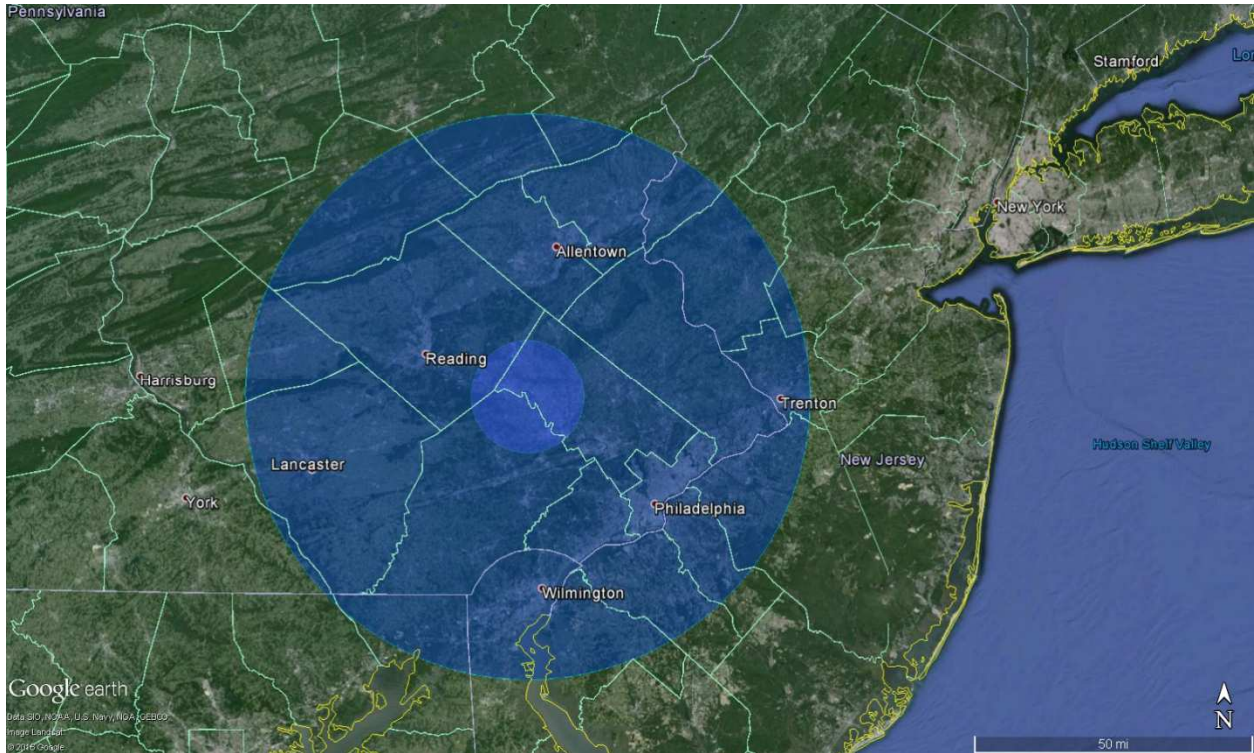
<sup>24</sup> The NRC also designates a 50-mile ingestion exposure pathway emergency planning zone from nuclear plants in its regulations. See 10 CFR 50.47(c)(2). The 50-mile emergency planning zone, however, is designated for the protection of food sources from radioactive fallout and the planning for the ingestion pathway does not contemplate evacuation or sheltering of the public beyond the 10-mile emergency planning zone. See United States Government Accountability Office, *supra* note 1, at 6. DAP chose to survey the local jurisdictions in the geographic area within 50 miles of Limerick based on the real-world evacuation recommendation made by the U.S. government for Fukushima Dai-ichi emergency and not based on the current 50-mile ingestion exposure pathway standard.



**Fig. 1 - 10-mile radius from Limerick Generating Station - Emergency Planning Zone (shaded area)**



**Fig. 2 - 50-mile radius from Limerick Generating Station (shaded area).**



The 10-mile emergency planning zone encompasses portions of Montgomery County, Berks County and Chester County. The 50-mile radius is wholly within Pennsylvania and includes the cities of Philadelphia and Reading. Further, according to the Natural Resources Defense Council's 10-mile Evacuation Zone, the 2010 population total was 293,000 people and for the 50-mile Potential Contamination Zone, the 2010 population total was 8,127,000 people.<sup>25</sup>

<sup>25</sup> See Natural Resources Defense Council at <http://www.nrdc.org/nuclear/fallout/>.



## **DAP Survey of Jurisdictions within 50 miles of Limerick Generating Station**

Between October 2015 and December 2015, DAP sent 18 information requests to local jurisdictions<sup>26</sup> within the 50-mile radius of Limerick seeking the following four categories of documents and information:

1. Educational materials or plans provided to residents up to 50 miles away from Limerick regarding how to respond to a radiological incident at that plant;
2. All-hazard emergency plans and/or evacuation plans, including any materials regarding procedures to provide real-time information or instructions to residents during an emergency;
3. Emergency plans specific to radiological incidents at Limerick; and
4. All studies conducted on the likely rate of “shadow evacuations” related to Limerick, which are defined by the GAO as “residents who evacuate during an emergency despite being told by authorities that evacuation is not necessary.”

Table 1 details the responses from each jurisdiction. Appendix A lists the documents received from each jurisdiction.

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<sup>26</sup> DAP canvassed the entire geographic area within a 50-mile radius around Limerick by contacting every county government and major city within the region. Contact DAP if information is needed regarding the jurisdictional office or agency responding to DAP’s information requests.

**Table 1. Responses to DAP’s Document Requests**

**Key**

E - Jurisdiction stated that documents responsive to the request are exempt from disclosure

N - Jurisdiction stated that no documents exist or are in its possession

NR - Jurisdiction did not provide documents or written responses to the request

O - Jurisdiction did not provide responsive documents for another specified reason

P - Jurisdiction provided documents

State	Jurisdiction	Distance from Limerick (miles) <sup>27</sup>	Population <sup>28</sup>	Req. 1	Req. 2	Req. 3	Req. 4
PA	Montgomery County	0	808,946	P	P	E <sup>29</sup>	E
PA	Chester County	<1	506,190	P	P	P	P
PA	Berks County	5	412,948	P	P	E <sup>30</sup>	N
PA	Bucks County	13	626,377	N	P	P	N
PA	Lehigh County	14	354,746	NR	NR	P	NR
PA	Lancaster County	16	526,436	N	P	N <sup>31</sup>	N
PA	City of Philadelphia	20	1,560,297	O <sup>32</sup>	O <sup>33</sup>	N <sup>34</sup>	P
PA	City of Allentown	22	119,104	N <sup>35</sup>	N	N	N

<sup>27</sup> DAP used a web-based tool to find these distances. See <http://www.daftlogic.com/projects-google-maps-distance-calculator.htm>.

<sup>28</sup> Most recent estimate by U.S. Census Bureau as of June 2014. See <http://quickfacts.census.gov/qfd/states/12/12011.html>.

<sup>29</sup> “Any additional information would be considered safe guarded information.”

<sup>30</sup> The All Hazard EOP mentions Limerick, but a radiological plan specific to Limerick was not shared.

<sup>31</sup> “Lancaster County is outside of the Emergency Planning Zone (EPZ) of Limerick Nuclear Power Plant and would not have the information you are requesting.”

<sup>32</sup> DAP was instructed to visit the [www.phila.gov/ready](http://www.phila.gov/ready) website. DAP found “evacuation routes” but could not find a Limerick specific plan. Nor was there any indication that this information was distributed to all residents.

<sup>33</sup> DAP was instructed to visit the [www.phila.gov/ready](http://www.phila.gov/ready) website. Evacuation routes were available, but neither of the plans requested were provided or on the website.

<sup>34</sup> “[Office of Emergency Management] does not possess records responsive to this portion of [DAP’s] request.”

<sup>35</sup> “We are advised that the City has no records that are responsive to your request. We are informed that all records related to the Limerick evacuation plans are kept with the Lehigh County Emergency Management Agency.”

PA	Northampton County	25	299,371	N	P	N <sup>36</sup>	N
DE	New Castle County	26	546,140	NR	NR	NR	NR
PA	Lebanon County	30	135,406	N	P	N <sup>37</sup>	N
DE	City of Wilmington	31	71,817	NR	NR	NR	NR
PA	Schuylkill County	33	147,372	N	P	N <sup>38</sup>	N
PA	Carbon County	36	65,016	N	E	N <sup>39</sup>	N
MD	Cecil County	36	101,684	N <sup>40</sup>	P	N	N
PA	City of Lancaster	37	59,302	N	N	N	N
NJ	City of Trenton	41	84,034	N	P	N	N
PA	York County	48	437,411	N	NR	N <sup>41</sup>	N

### Summary of Responses: Overall

- 16 out of 18 (89%) of the jurisdictions provided responses to the information requests.
- 2 out of 18 (11%) of the jurisdictions (New Castle County and City of Wilmington) did not respond at all.

<sup>36</sup> "After consulting with Emergency Management Services, I am advised that their office is not and would not be the custodian of such records. That office indicates it does not possess copies of the records, and that the most likely party to have such records would be Montgomery County or some other agency over-seeing the Limerick Generating Station, although other RTKL [Right to Know Law] exceptions may apply to some of the records you requested. Nonetheless, Northampton County must DENY the request pursuant to RTKL Section 705, since the County has no such records to produce."

<sup>37</sup> "It is my understanding from the EMA Director, that Lebanon County is not located within said radius of Limerick Generating Station. In addition, it is also understood that contact may be made to Montgomery County or directly to Limerick Nuclear Power Plant in order for individuals to obtain 'documents and information' pursuant to Right to Know requests of this nature."

<sup>38</sup> "The current planning, at LGS and other sites, identifies a ten mile, 360 degree Emergency Planning Zone around the nuclear plant, which may involve the evacuation of persons residing within that area. No section of Schuylkill County is within ten miles of any nuclear power plant; therefore, we have no record or information responsive to your request."

<sup>39</sup> "We are not a part of the Limerick Nuclear Plant Planning & Response process and Carbon County does not have any specific Emergency Evacuation Plans for incidents pertaining to that facility. Carbon County is not included in their Emergency Planning Meetings, Trainings, or Exercises."

<sup>40</sup> "Please note that Cecil County, Maryland generally, and DES specifically, are not the custodian of the records that you request. Accordingly, DES has no documents to provide you in response to the Request. It is DES's belief that LGS (Limerick Generating Station) is likely the custodian of the records that you seek; as such, DES recommends that you contact LGS directly."

<sup>41</sup> "York County is on the fringe of the 50 miles. I've attached a map. In the event of an incident where radiation may cause contamination of crops, livestock, etc. in the plume ingestion pathway, Bureau of Radiation Protection, EPA, Department of Agriculture, and other agencies would work with those producers for testing, monitoring, and possible disposal of the good. We don't have a plan because we would assist and support the agencies with any unmet needs they might have."

- 3 out of 3 jurisdictions within 10 miles of Limerick and 0 out of 15 jurisdictions between 10-50 miles of Limerick reported providing educational materials or plans to residents regarding how to respond to a radiological incident at that plant.
- 10 out of 18 (56%) of the jurisdictions provided all-hazard emergency plans and/or evacuation plans.
- 3 out of 18 (17%) of the jurisdictions provided emergency plans specific to radiological incidents at Limerick.
- Only 2 jurisdictions (Chester County and City of Philadelphia) furnished a shadow evacuation plan or study.

**Summary of Responses: Within the 10-mile zone**

- 1 jurisdiction (Chester County) within 10 miles of the plant provided emergency plans specific to radiological incidents at Limerick .

**Summary of Responses: Outside the 10-mile zone**

- 2 out of the 15 jurisdictions outside the 10-mile zone shared emergency plans specific to radiological incidents at Limerick.

**Jurisdictions Located within 10 Miles: One Provided a Shadow Evacuation Plan**

Of the three jurisdictions in Pennsylvania (Montgomery County, Chester County, and Berks County) that constitute the 10-mile emergency planning zone, only Chester County provided documents for all four of DAP’s information requests.

Request 1: All three jurisdictions (Montgomery, Chester, and Berks counties) provided educational materials and/or plans as mandated by the NRC in the Code of Federal Regulations.

Request 2: All three jurisdictions (Montgomery County, Chester County, and Berks County) provided their all-hazard emergency plans and/or evacuation plans.

Request 3: Only one jurisdiction (Chester County) provided emergency plans specific to incidents at Limerick.

Request 4: Only one jurisdiction within the 10-mile emergency zone (Chester County) provided any documents on shadow evacuations. Montgomery County claimed an exemption and Berks County did not share the document requested.

**Jurisdictions Located Between the 10-Mile and 50-Mile Radius: One Provided a Shadow Evacuation Plan**

Of the fifteen jurisdictions within the 10-mile to 50-mile geographic area surrounding Limerick (Bucks County, PA; Lehigh County, PA; Lancaster County, PA; City of Philadelphia, PA; City of Allentown, PA; Northampton County, PA; New Castle County, PA; Lebanon County, PA; City of Wilmington, DE; Schuylkill County, PA; Carbon County, PA; Cecil County, MD; City of Lancaster, PA; City of Trenton, NJ; and York County, PA) thirteen provided some type of response.

Request 1: None of the jurisdictions beyond the 10-mile emergency planning zone indicated that it provided its residents with educational materials and/or plans regarding how to respond to a radiological incident at Limerick. Eleven jurisdictions stated that no such documents exist or are in its

possession, one did not provide the documents for another specified reason, and three failed to respond to the request entirely.

Request 2: Seven out of fifteen jurisdictions located between 10 to 50 miles from Limerick furnished plans (Bucks County, Lancaster County, Northampton County, Lebanon County, Schuylkill County, Cecil County, and Trenton, NJ).

Eight jurisdictions failed to share all-hazard emergency plans. The City of Philadelphia directed DAP to a website that did not contain the requested information. Lehigh County, New Castle County, City of Wilmington, and York County did not respond to the requests at all. Carbon County claimed an exemption. The remaining two jurisdictions failed to respond at all.

Request 3: Two jurisdictions between the 10-mile and 50-mile emergency planning zone submitted responsive radiological information. The other thirteen responses fell into one of the following two categories: jurisdictions claiming that no information exists or is in its possession (Lancaster County, City of Philadelphia, City of Allentown, Northampton County, Lebanon County, Schuylkill County, Carbon County, Cecil County, Lancaster, City of Trenton, York County), or counties that failed to respond to the request (New Castle County and City of Wilmington).

Request 4: None of the jurisdictions between 10 and 50 miles from Limerick provided any documents on shadow evacuations, the majority either claiming that no such documents exist or are in its possession, or not responding to the request at all.

As the GAO pointed out in its previously referenced report:

Without estimates of evacuation times based on more solid understanding of public awareness, licensees and NRC and FEMA cannot be confident about the reliability of their estimates. If shadow evacuations are not correctly estimated, planning for a radiological emergency may not sufficiently consider the impact of the public outside the emergency planning zone.<sup>42</sup>

Consequently, real gaps in emergency planning may occur without valid shadow evacuation estimates.<sup>43</sup>

## **Conclusion: Public Education and Shadow Evacuation Planning are Inadequate within the 50-mile radius of Limerick Generating Station**

**Pennsylvania, Delaware, Maryland, and New Jersey should not wait for the federal government to act. The states, counties, and cities within 50 miles of Limerick can and should voluntarily plan for emergencies beyond what is mandated by the federal government.**

DAP agrees with the GAO Report's conclusion that further study is required to understand the level of public knowledge and the likely public reaction to a nuclear plant emergency, especially beyond the current 10-mile emergency planning zone.

The NRC only mandates an emergency planning zone of 10-miles for the areas surrounding Limerick. In contrast, the NRC's public guidance for the actual major nuclear plant disaster at the Fukushima Dai-ichi

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<sup>42</sup> See NRC, *Criteria for Development of Evacuation Time Estimate Studies*, NUREG/CR-7002 (Albuquerque, New Mexico: November 2011) at 26 (available at <http://pbadupws.nrc.gov/docs/ML1130/ML113010515.pdf>).

<sup>43</sup> *Id.*



nuclear power plant recommended that U.S. citizens evacuate if they were located within 50 miles of the damaged Japanese nuclear plant. The NRC and FEMA have not satisfactorily reconciled this disparity between current planning and real-world guidance.<sup>44</sup>

Days after the Fukushima Dai-ichi incident when Americans were encouraged to evacuate 50 miles away from the troubled plant, the Director of Emergency Planning at Entergy Energy (owner of Indian Point Energy Center) expressed that neither the company nor the NRC had sufficient information to draw up plans to evacuate New York City<sup>45</sup> (located 38 miles from the Indian Point Energy Center) which has a population of 8,336,697 people.<sup>46</sup>

**Shadow evacuations from populated areas beyond the current 10-mile emergency planning zones could result from a public informed and influenced by readily-available guidance even if local authorities instruct certain members of the public that no evacuation is necessary from their location.**

Members of an uninformed public, who have not received the annual emergency preparedness information, likely will turn to other convenient sources of information in order to respond to an actual emergency. A search of the internet easily turns up several recommendations and suggestions for evacuation to points more than 50 miles away from a stricken nuclear plant, including the NRC's own press release about Fukushima Dai-ichi. In addition, other credible organizations such as Physicians for Social Responsibility and the Smithsonian Institution have websites discussing 50-mile evacuations.<sup>47</sup> Also, reliable, well-known media sources reiterate the NRC's 2011 Fukushima Dai-ichi evacuation recommendation and display maps showing the 50-mile radius for every U.S. nuclear plant.<sup>48</sup> This readily available, web-based information is a likely source to which the public will turn for guidance, especially in a moment of crisis and in the absence of other information from state and local governments.

**State and local authorities should not wait for the imposition of federal regulatory mandates in order to implement this planning into state and local preparedness efforts.**

In light of its findings, DAP believes that planning and dissemination of information to increase public awareness of the potential for radiological emergencies beyond the current 10-mile emergency planning zones is warranted. At a minimum, emergency planning authorities from jurisdictions beyond the 10-mile mandatory planning zones should provide better emergency response guidance to the public,

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<sup>44</sup> NRC recently stated that it "plans long-term action involving [emergency planning zones]" that will rely on a forthcoming Probabilistic Risk Assessment, the United Nations Scientific Committee on the Effects of Atomic Radiation's forthcoming report assessing radiation doses and associated effects on health and the environment, and from Fukushima Prefecture's Health Management Survey and that it will commence rulemaking efforts to make changes if those research efforts warrant changes. See Petition for Rulemaking; denial, 79 FR 19501, 19504 (Apr. 9, 2014).

<sup>45</sup> See "Operators of Indian Point Say Changes are Likely" at [http://www.nytimes.com/2011/03/22/nyregion/22indian.html?\\_r=0](http://www.nytimes.com/2011/03/22/nyregion/22indian.html?_r=0).

<sup>46</sup> Most recent estimate by U.S. Census Bureau as of June 2014. See <http://quickfacts.census.gov>.

<sup>47</sup> See <http://www.psr.org/resources/evacuation-zone-nuclear-reactors.html> and <http://www.smithsonianmag.com/science-nature/do-you-live-within-50-miles-nuclear-power-plant-180950072/?no-ist>.

<sup>48</sup> See <http://www.wsj.com/articles/SB10001424052748703362904576219031025249872>.

conduct shadow evacuation studies, and plan accordingly, even if the federal government does not require it.

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Upon request, DAP will provide copies of correspondence with local governments in response to its information requests. A high-level index of the documents received from the survey effort is attached to this report in Appendix A.

## Appendix A

### Index of Documents Received From Local Emergency Planning Authorities within 50 Miles of Limerick Generating Station

State	Local Jurisdiction	Documents
Delaware	City of Wilmington	<input type="checkbox"/> None
	New Castle County	<input type="checkbox"/> None
Maryland	Cecil County	<input type="checkbox"/> Emergency Operations Plan (January 2015).
New Jersey	City of Trenton	<input type="checkbox"/> Communication from Qareeb A. Bashir, Director of Fire & Emergency Services and OEM Coordinator (October 2015); <input type="checkbox"/> Emergency Operations Plan (August 2011).
Pennsylvania	Berks County	<input type="checkbox"/> Emergency Operations Plan: Basic Plan (June 2015) <input type="checkbox"/> Berks Alert Pamphlet (undated). <input type="checkbox"/> Emergency Planning for the Limerick Area - Exelon Generation (2015-2016);
	Bucks County	<input type="checkbox"/> Communication from Karen L. Fanelli, Open Records Officer (October 2015); <input type="checkbox"/> Emergency Operations Plan Volume I: Basic Plan (August 2013); <input type="checkbox"/> Emergency Operations Plan Volume II: Emergency Support Function Annexes (August 2013); <input type="checkbox"/> Emergency Operations Plan Annex E: Fixed Nuclear Facility Incident Support Plan for Incidents at the Limerick Generating Station (undated).
	Carbon County	<input type="checkbox"/> None
	Chester County	<input type="checkbox"/> Chester County Emergency Operations Plan, Section 1 - Basic Plan (2014); <ul style="list-style-type: none"> <li><input type="checkbox"/> Joint Information System Annex;</li> <li><input type="checkbox"/> Disaster Preparedness and Awareness Strategy Annex;</li> </ul>

	<input type="checkbox"/> Emergency Planning for the Limerick Area - Exelon Generation (2015-2016); <input type="checkbox"/> PIO/Public Relations DES Policy; <input type="checkbox"/> Chester County Radiological Emergency Response Annex For Incidents At A Nuclear Power Plant (November 2013); <input type="checkbox"/> Development of Evacuation Time Estimates, Limerick Generating Station, KLD Engineering (2014).
City of Allentown	<input type="checkbox"/> None
City of Lancaster	<input type="checkbox"/> None
City of Philadelphia	<input type="checkbox"/> Communication from Jeffrey Cohen, Assistant City Solicitor (November 2015); <input type="checkbox"/> Southeastern Pennsylvania Regional Task Force Evacuation Behavioral Analysis Survey and Planning Recommendations (2010).
Lancaster County	<input type="checkbox"/> Communication from Tammy L. Bender, Open Records Officer (November 2015); <input type="checkbox"/> Emergency Operations Plan Section I: Basic Plan (April 2010).
Lebanon County	<input type="checkbox"/> Emergency Operations Plan Volume I: Basic Plan (January 2013).
Lehigh County	<input type="checkbox"/> Fixed Nuclear Facility Support Plan for Incidents at the Limerick Generating Station (2015).
Montgomery County	<input type="checkbox"/> Emergency Planning for the Limerick Area (2015); <input type="checkbox"/> Emergency Operations Plan (March 2015).
Northampton County	<input type="checkbox"/> Emergency Operations Plan Volume I: Basic Plan (January 2014).
Schuylkill County	<input type="checkbox"/> Emergency Operations Plan Volume I: Basic Plan (March 2011).
York County	<input type="checkbox"/> Communication from Mike Fetrow, Director of Young County Office of Emergency Management (October 2015).

## **Appendix B: Disaster Accountability Project History and Projects**

### **2007**

- DAP incorporated and filed for tax-exempt status.
- Compiled hundreds of post-Katrina policy recommendations in what later became a “Disaster Policy Wiki” to track the implementation status of “lessons learned.”

### **2008**

- Successfully campaigned to compel FEMA to comply with federal law and elevate the position of FEMA Disability Coordinator.
- DAP's hotline served as a real-time listening device during Hurricane Ike and assisted numerous callers and countless others by directing details of gaps in critical services to responsible government agencies and nonprofit organizations.

### **2009**

- Investigated and authored a report on the accessibility and modernity of emergency plans in twenty-two hurricane-vulnerable Louisiana parishes; this report prompted many parishes to update and improve public access to their emergency plans.

### **2010**

- DAP's reports after the 2010 Haiti earthquake improved the transparency of over 1.2 billion U.S. Dollars (USD) and offered a first comprehensive look at how organizations were operating in Haiti at six months and one year after the earthquake.

### **2011**

- DAP's report released in Port au Prince, Haiti on the first anniversary of the Haiti earthquake generated global media coverage.
- DAP returned to Haiti to conduct site visits of disaster relief centers in coordination with Haiti Aid Watchdog, a Haitian civil society organization.

### **2012**

- DAP collected data from organizations immediately following the response to Superstorm Sandy in an effort to hold organizations accountable for the donations they raised.

### **2013**

- DAP's successful complaint to the New York Attorney General after Superstorm Sandy compelled the American Red Cross to release 4 million USD to families that lost homes and were impacted by gross mismanagement of an American Red Cross recovery program.

In addition to the complaint, DAP engaged a bipartisan group of members of Congress, attracted media attention in the Wall Street Journal, USA Today, Al Jazeera America, among others, and directly engaged the donors behind nearly 100 million USD in American Red Cross donations.



## **2014**

- DAP completed two investigations on the state-level standards of care for public health emergencies in Florida and Louisiana resulting in a commitment by Louisiana public health officials to make specific improvements to state public health emergency planning.
- DAP continued advocacy to improve accountability of major disaster relief organizations following Superstorm Sandy and expanded its oversight to include organizations operating after other disasters, such as the Joplin, Missouri tornado, West, Texas explosion, and Colorado floods.
- DAP partnered with the Center for High Impact Philanthropy to conduct an independent review to identify possible philanthropic and ‘impact investment’ solutions to address New Jersey’s housing crisis following Superstorm Sandy for The Jon Bon Jovi Soul Foundation.

## **2015**

- DAP released five reports detailing a lack of emergency and evacuation planning within 50 miles of five U.S. nuclear power plants in New York, New Jersey, Virginia, Florida, and Illinois, including cities and counties in Connecticut, Pennsylvania, Delaware, Maryland, North Carolina, and Indiana.
- DAP’s work was cited numerous times in a GAO report on American Red Cross transparency and oversight, resulting in the introduction of the “American Red Cross Sunshine Act,” federal legislation to improve oversight of the organization.
- DAP released a major report one month after the Nepal earthquake assessing consistency and transparency of organizations’ online solicitations and surveyed nearly 100 organizations to assess the extent of their current activities and plans for future involvement in Nepal.