Table 4.3.20-4 Estimated jurisdictional losses in 2,000 foot Levee GIS buffer areas.		
COUNTY	**NUMBER OF IMPACTED BUILDINGS**	**DOLLAR VALUE OF EXPOSURE, BUILDING AND CONTENTS (THOUSANDS $)**
Allegheny	2,102	$411,689.00
Armstrong	1,237	$272,827.00
Blair	3,486	$694,269.00
Bradford	1,352	$258,539.00
Bucks	1,636	$734,678.00
Cambria	2,775	$525,910.00
Cameron	1,273	$298,105.00
Chester	2,293	$550,676.00
Clearfield	3,282	$598,452.00
Clinton	3,867	$1,030,151.00
Delaware	3,506	$981,258.00
Elk	1,527	$275,797.00
Erie	3,174	$715,794.00
Jefferson	5,229	$1,108,980.00
Lackawanna	10,549	$2,015,249.00
Lehigh	5,686	$1,436,192.00
Luzerne	33,110	$7,277,187.00
Lycoming	16,115	$3,736,522.00
Mercer	633	$101,276.00
Montgomery	8,298	$3,065,329.00
Northampton	4,088	$935,153.00
Northumberland	7,435	$1,903,122.00
Philadelphia	1,397	$483,484.00
Somerset	5,385	$1,022,485.00
Westmoreland	3,943	$789,195.00
York	5,494	$1,122,326.00
Grand Total	***138,872***	***$32,344,645.00***

4.3.20.9. State Facility Loss Estimation

The estimated replacement cost of all State Critical Facilities located in levee vulnerability areas is $1,559,284,911.

4.3.21. Mass Food and Animal Feed Contamination

4.3.21.1. Location and Extent

Mass food or animal feed contamination hazards occur when food or food sources are contaminated with pathogenic bacteria, viruses, or parasites, as well as chemical or natural toxins. They may lead to foodborne illnesses and/or interruptions in the food supply.

Contamination may occur due to natural foodborne illnesses and chemical, biological, radiological, or nuclear exposure (c-BRNE). Most foodborne illnesses are caused by Campylobacter in poultry, E. Coli in beef, leafy greens, and raw milk, Listeria in deli meats, unpasteurized soft cheeses, and produce, Salmonella in eggs, poultry, meat, and produce, Vibrio in raw oysters, Norovirus in many foods, and Toxoplasma in meats (CDC, 2013). These events can happen at any time and in any place in Pennsylvania and are sometimes regional or even national events. At the same time, though, Pennsylvania is one of the nation's leading agricultural producers with over 7,000 dairy farms, the highest concentration of snack food production in the country, and retail food establishments from corner convenience marts to farmers' markets to large grocery store chains.

In addition, a major concern of mass food and animal feed contamination hazards is that, in general, places generally only have a three-day supply of food. The food supply chain is very vulnerable to interruption, whether or not the product comes from Pennsylvania. An interruption in the food supply would be a major vulnerability for the health and survival of Pennsylvania communities.

4.3.21.2. Range of Magnitude

Like invasive species, mass food and animal feed contamination hazards can vastly vary based on the type of contamination, the method of contamination, and the origin of contamination. Different pathogens and chemicals that can contaminate human food and animal feed have varying degrees of aggressiveness that can range from a sore stomach to serious illness, hospitalization, and even death. For example, according to the CDC's 2011 foodborne illness estimates, Norovirus is responsible for over 5 million illnesses each year but the number of deaths it causes is significantly lower (149 in 2011).

A possible worst case scenario would be if there was large-scale campylobacter or salmonella outbreak found in Pennsylvania's poultry farms. An event like this would cause human suffering but would also have a crippling effect on the state's poultry production and farm-based economy.

4.3.21.3. Past Occurrence

According to representatives from the Department of Agriculture, mass food and animal feed contamination events are difficult to capture as they occur because of the lapse in time between infection and manifestation of an illness. Usually, they are isolated events. However, in recent years, Pennsylvania has been involved in the following outbreak events:

- 2013 - Live Poultry - *Salmonella*
- 2013 – Ground Beef – *Salmonella*
- 2012 – Live Poultry – *Salmonella*
- 2012 – Dry Dog Food – *Salmonella*
- 2012 – Raw Clover Sprouts at Jimmy John's Restaurants – *E. coli*
- 2011 – Kosher Broiled Chicken Livers – *Salmonella*
- 2011 – Turkish Pine Nuts – *Salmonella*

- 2011 – Ground Turkey – *Salmonella*
- 2011 – Papaya – *Salmonella*
- 2011 – Lebanon Bologna – *E. coli*
- 2010 – Alfalfa Sprouts – *Salmonella*
- 2010 – Romaine Lettuce – *E. coli*

This is not an exhaustive list of past occurrences but illustrates that Pennsylvanians have been sickened by contaminations in other states. However, Pennsylvania has not been the origin or cause of a mass food or animal feed contamination.

4.3.21.4. Future Occurrence

The CDC estimates that one in six people gets sick from contaminated food each year, but those events are expected to be individualized and small in scope. The focus of this as a hazard is on large-scale contamination and illness. With the aggressive testing and food safety outreach the Department of Agriculture conducts, the overall probability of a mass food or animal feed contamination event is *unlikely* according to the Risk Factor Methodology (see Section 4.1).

4.3.21.5. Environmental Impacts

The major identified environmental impact of mass food and animal feed contamination is, if there were to be a mass kill of animals, how to deal with the waste disposal of what could be a significant number of animals. If this waste disposal is not planned for, rotting carcasses could cause environmental degradation in the form of, in particular, water pollution. They might also have a role in spreading infections disease. Additionally, there are primary impacts on to public health and to the agricultural economy in Pennsylvania. Should there be a mass food or animal feed contamination event, even if the event is not focused in Pennsylvania, the potential losses from fear-based cancellation of food orders could be devastating. This would also cause a surplus of animals on Pennsylvania farms that agricultural producers cannot feed but also cannot sell.

4.3.21.6. Jurisdictional Vulnerability Assessment

No communities in Pennsylvania currently profile mass food and animal feed contamination. However, communities with large populations of the elderly and the very young are more vulnerable to this kind of an event as they are usually the most susceptible to foodborne illnesses.

4.3.21.7. State Facility Vulnerability Assessment

State facilities generally are no more or less vulnerable to mass food and animal feed contamination than the general population. However, the 106 agricultural critical facilities are likely to be the most vulnerable to a food or animal feed contamination event as they are responsible for the growing, processing, and/or oversight of food production in the Commonwealth.

4.3.21.8. Jurisdictional Loss Estimation

Jurisdictional losses in a mass food or animal feed contamination event stem from lost wages and productivity, not losses to buildings or land. Losses are difficult to estimate because the

exact rates of absenteeism and cost of treating a widespread disease will depend on the virus or bacterium in question, the availability of vaccination or treatment, and the severity of symptoms. The CDC estimates that infections of *Salmonella* alone create $365 million in direct medical costs annually, some of which would certainly be experienced in Pennsylvania.

4.3.21.9. State Facility Loss Estimation

The physical plant and facilities of the Commonwealth are not likely to be damaged by a mass food or animal feed contamination event. However, high rates of absenteeism associated with a pandemic or an infectious disease will likely lead to significant economic costs in lost productivity and increased medical costs in nearly all state agencies. Additionally, the 106 agricultural critical facilities would face lost revenues depending on the type and magnitude of the contamination event.

4.3.22. Nuclear Incident

4.3.22.1. Location and Extent

Nuclear power is an important source of energy in the Commonwealth, and there are five nuclear power stations in Pennsylvania:

- Beaver Valley Power Station, Shippingport Borough, Beaver County;
- Limerick Generating Station, Limerick Township, Montgomery County;
- Peach Bottom Atomic Power Station, Peach Bottom Township, York County;
- Susquehanna Steam Electric Station, Salem Township, Luzerne County; and
- Three Mile Island Nuclear Generating Station, Londonderry Township, Dauphin County.

Most of these generating stations are concentrated in the eastern portion of the state, as seen in Figure 4.3.22-1. Four of the five nuclear power plants in the Commonwealth have two operating licensed units. Three Mile Island (TMI) has only one operating license with the second unit in a state of Post-Defueling Monitored Storage (PDMS).