CLEAN WATER FUND

Coal Ash

Florida's Toxic Trash Exposed

September 12, 2012

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Executive Summary

Coal fired power plants produce almost half of the electricity used in the United States. While Americans enjoy reliable, affordable electricity, electricity generated from these facilities comes with an artificially low price tag. The true cost to the public and industry is hidden in the massive amounts of stockpiled waste – coal ash – polluting the air we breathe, the water we drink, and land we use. The public is left to foot the bill with health and environmental impacts that will affect the economic livelihood of generations to come as a result of exposure to this toxic byproduct of burning coal. Communities living near coal ash disposal sites are not adequately protected under current state standards, forcing the need for federal regulation of coal ash.

Coal ash residuals include fly ash — the fine, powdery particles that float up the smoke stack and are captured by pollution control devices — and bottom ash — the coarse, heavier materials that fall to the bottom of the furnace. The U.S. Environmental Protection Agency (EPA) estimates that 140 million tons of coal ash is produced annually, making it the second largest waste stream in the United States. It is has never been subject to federal regulations and state laws governing coal ash disposal are weak or non-existent. Coal ash contains heavy metals that are hazardous to humans and the environment, yet household garbage is more heavily regulated than coal ash.

In 2008, a disastrous coal ash spill in Tennessee heightened public awareness of coal ash disposal hazards and led the EPA to propose the first-ever federal protections in 2010. The ongoing rulemaking process has been under constant attack from the U.S. Congress.

Florida's coal-fired power plants produce 8.2 billion pounds of toxic coal ash each year. Florida is particularly vulnerable to contamination from coal ash due to the high water table and the porous soil and underlying bedrock, yet Florida's coal ash disposal regulations are among the weakest in the nation. Inadequate state oversight has resulted in threats to public health that could be avoided with strong enforceable state and federal protections.

In Florida:

- **8.2 billion pounds of coal ash** are generated annually from **15 coal plants**.
- **37%** of Florida's reported coal ash landfills are **unlined, 80% lack a leachate collection system, and even more are unmonitored and uncovered**. As the federal and state governments do not require even the most elementary protective standards, **utilities remain in full compliance without a single facility known to have <u>all</u> of the possible protections in place.**
- **7 plants** have already contaminated Florida's ground and surface water with **arsenic, mercury, chromium, sulfates,** and other toxic chemicals from coal ash disposal sites.

The current programs fail to protect public health and the environment from contamination at coal ash disposal sites. Threats to Florida's water resources are particularly troubling, given the dependence of the state's economy on aquatic based tourism, hunting, and fishing. This failure to protect public health undermines statewide efforts to protect our already threatened wildlife and ecosystems. It is time to take steps to prevent further pollution from this toxic waste. Clean Water Fund recommends:

- The EPA should be allowed to move forward immediately to classify and regulate coal ash as a "special waste" under Subtitle C of the Resource Conservation and Recovery Act (RCRA).This would include minimum federal requirements to ensure that all states provide basic protections to communities from coal ash disposal. There must be timely facility inspection and federal enforceability.

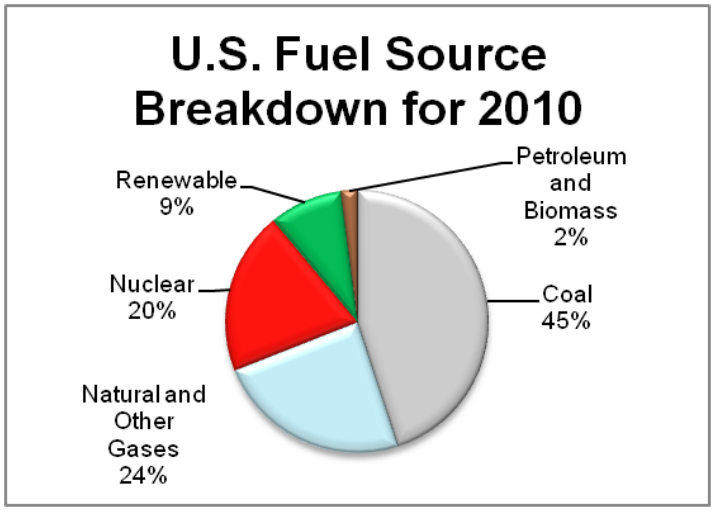
- Florida policymakers and implementing departments must be leaders on coal ash management, being mindful to balance protecting public health, Florida's unique and fragile natural resources, and future economic livelihood against profits for electric utilities. Florida should establish a transparent policy with consistent standard to require the most up-to-date protective technologies applicable to all coal ash disposal sites and make this policy transparent.

- The public has the right to know about the presence of substances that could adversely impact their quality of life, health, and future within their community. This means coal fired power plants should be held accountable for providing the public with user-friendly, timely information as to how much coal ash is stored or disposed of at their neighboring facility, descriptions of disposal practices, and groundwater monitoring results. Facilities should also provide an opportunity for dialogue with residents and businesses within the impacted community. The utility companies should adopt a "good neighbor pledge" that is designed around a pollution prevention focus that protects public health and environment.

I. Electricity Production

The most common method of electricity generation in the U.S. is to burn fuel to produce steam, which then spins a large turbine to create contained energy. Pie Chart 1 below provides a breakdown of the most common fuel sources of electricity production in the U.S., with coal by far the most prevalently used [1].

Coal is readily available throughout much of the U.S. and is relatively inexpensive to burn. However, this reliance on energy from coal comes with a cost to human health and the environment. Coal-fired power plants emit toxic particles that are harmful to humans and natural ecosystems. Since the passage of the federal Clean Air Act in 1970, the amount of pollutants emitted by these facilities has gradually decreased.



Pie Chart 1 *Electricity in the U.S. is generated from five main sources* [1]

Though many older coal plants have been retrofitted to reduce harmful emissions, and all new plants must be constructed using the best available technology to capture air-borne pollutants, no federal standards exist for the storage, disposal, and safety of the coal ash that is captured.

Coal ash is the byproduct that remains after coal is burned and can contain dangerous toxic elements and compounds such as arsenic, mercury, and chromium among others. Coal ash and other wastes produced from burning coal are not classified as hazardous materials, even though they contain constituents that the EPA has determined to be hazardous to human health. As air pollution controls improve, more waste is captured and the concentration of toxic substances in coal ash increases.

II. What is Coal Ash?

Coal combustion wastes (CCW), coal combustion residuals (CCR), and coal combustion products (CCP) commonly called coal ash, are the inorganic wastes leftover after coal is burned to produce electricity. Coal ash is the second largest waste stream in the U.S. second only to municipal solid waste. The EPA estimates that 140 million tons of coal ash is generated annually [2]. Coal ash is composed of several types of materials including fly ash, bottom ash, boiler slag, and flue gas desulfurization (FGD) materials.

These coal residuals are generated during different stages of the energy production cycle. **Fly ash** is made up of the fine particles that float up the top of the smoke stack and are captured by air pollution control devices. **Bottom ash** consists of larger particles that stick to the side or fall to the bottom of the furnace. **Boiler slag** is the hard, shiny material that forms when the hot bottom ash comes into contact with quenching water. **Flue gas desulfurization (FGD)** is a chemical process used to remove sulfur dioxide from air emissions. FGD materials may be a wet sludge or a dry powder, depending on the type of FGD process used [3].

Coal ash contains a variety of concentrated heavy metals, including many that are known to be carcinogenic and neurotoxic. While the characteristics of coal ash vary depending on where the coal is mined, it typically contains arsenic, cadmium, hexavalent chromium, lead, mercury and selenium.

Mixing Coal Ash: A Toxic Recipe

Coal ash is managed in a few different ways. The majority of coal ash is disposed of in landfills or surface impoundment ponds or in mines as minefill. Some coal ash is also sold for “beneficial reuse” in cement, dry wall and other building materials. The toxicity of coal ash is dependent on waste management practices. Negative impacts are often escalated by mixing coal ash with different types of waste.

Safety standards for the management of coal ash are much weaker than the protective standards for other recognized hazardous wastes. Coal ash may be stored uncovered, unlined, and unmonitored in surface impoundment ponds or in landfills. The most common treatment of coal ash slurry is the use of settling ponds to separate solid waste from liquid. Solid particles sink to the bottom of the ponds, while the liquid remains at the top to be siphoned off when acceptably cleared and eventually released to surrounding waters [4].

Occasionally, chemicals are added to settling ponds to adjust the pH level to limit the toxicity of the waste. Settling ponds eliminate some of the dissolved solids from the water, but do nothing to remove dissolved metals. A dissolved solid might be a piece of ash mixed with water, which over time, may settle on the bottom of the pond. Dissolved metals, however, do not sink in this slurry, and can even evaporate into the air [4].

Coal ash is often mixed with other wastes from different parts of the energy production cycle. According to EPA, power plants may maintain a coal pile with enough supply for up to 40 days of energy production. Runoff from this coal pile is often mixed with coal ash in a settling pond as part of standard management. Coal pile runoff is generally acidic and affects the toxicity of chemicals in coal ash because many heavy metals, such as mercury, become more mobile at pH levels above or below neutral [4].

FGD wastewater contains high amounts of dissolved metals that easily evaporate. This substance is often mixed with other coal combustion wastes. The addition of this highly toxic material reduces the efficiency of any wastewater purification technique,

Photo *Coal Pile at Indiantown Cogeneration Plant*
Photo Credit: Angelique Giraud February 2012

especially with settling ponds [4].

During the air purification at power plants, water is used with other chemicals to remove ammonia, carbon dioxide, and hydrogen sulfide. The resulting wastewater is called sour water, a mixture of metal compounds not produced elsewhere in the plant. Sometimes this sour water is contained separately and made into a cement-like salt cake. This waste is not recycled because it is too toxic to be reused safely. Overall, the large amount of waste products created by coal-fired power plants contains numerous combinations of known and unknown hazardous chemicals [4].

III. Implications for Public Health and the Environment

There is documented evidence that current methods of coal ash management pose a threat to human health and the environment. Since 2000, EPA has identified numerous cases across the country where toxic substances have leaked from coal ash ponds and landfills and contaminated ground or surface waters [2, 4, 5]. EPA studies have also shown that the leachate and runoff from coal ash disposal facilities contain high levels of heavy metals and other toxic chemicals.

When coal ash comes into contact with water the toxic metals can leach or dissolve, contaminating nearby ground and surface waters. Almost 200 cases of water contamination from coal ash have been documented by EPA and environmental organizations. Unfortunately, since most disposal sites are not monitored, the actual number of contamination incidents could be much higher [6]. Unlined wet storage ponds have the highest potential to contaminate nearby ground or surface waters, but unstable coal ash dams also pose a hazard.

Coal Ash Spills, Seeps, and Leaks

The most infamous incident of coal ash contamination is the 2008 disaster at Tennessee Valley Authority's Kingston Fossil Plant in Harriman, TN. Three days before Christmas, a coal ash dam broke, spewing 1.1 billion gallons of coal ash into the nearby Clinch and Emory rivers, destroying three homes and damaging dozens of others. For the next year and a half, water and sediment samples were collected from the Emory River. While surface water tested safe based on drinking water criteria, sediment from 10 centimeters to 1 meter deep was found to contain arsenic levels to be 200 times higher than the EPA's safe drinking water standard [7]. Although the EPA initially estimated a mere six months to clean up the Kingston spill; three years later there are

still over 200 million pounds of coal ash that have yet to be removed [8]. Current cleanup efforts include large shipments of coal ash to Alabama and Georgia [9]. This was the largest environmental disaster of its kind in the U.S.

The Kingston disaster was not an isolated incident; since 2002, millions of gallons of toxic coal slurry have been released into surface and drinking water sources in Georgia, Pennsylvania, Indiana, Wisconsin, North Carolina and Alabama. Dramatic events like the Kingston disaster earn national media attention but, across the country, toxic metals such as arsenic, lead and mercury are silently seeping from unlined and unmonitored coal ash ponds into drinking water supplies and streams.

The EPA has identified primary pathways of human and environmental exposure to the toxic constituents in coal ash [2]. The most common pathway is through contamination of ground or surface water. This is particularly problematic when coal ash is disposed in a pond or landfill without a proper liner. When this waste comes into contact with water, toxic metal and chemicals can leach and migrate off-site, contaminating ground or surface water in the surrounding community. Liquid waste can also be discharged directly into surface waters, whether accidently (or intentionally under the provisions of a National Pollution Discharge Elimination System (NPDES) wastewater permit. Fine particles in dry ash can also become airborne and cause fugitive dust emissions, which are harmful to humans and other organisms.

Occupational Exposure

Photo *Coal ash pile used for road build-up*
Photo courtesy of Steve Johnson

Little research has been done on the safety of working with or near coal ash. Those working at coal fired plants, using coal ash for reuse, or working near disposal sites may be at a high risk of direct exposure to the toxic substances in coal ash. Much like disposal requirements, which differ drastically from plant to plant, regulations for proper and safe reuse of coal ash vary widely. [10].

Coal ash is often used in building materials and mixed in cement. While there are some techniques for proper handling of coal ash construction materials, they are rarely enforced. It is not uncommon for workers to be unaware they are handling potentially toxic materials and, therefore, do not take the necessary precautions to avoid inhalation or ingestion of coal ash [11].

Another form of coal ash reuse is sand blasting ships for repainting. Unfortunately, this practice produces tiny, toxic particles that can be inhaled, leading to a number of respiratory diseases. While companies claim their workers are protected with air-fed respirators, there have been cases of individuals contracting diseases caused by inhaling specific toxics in coal ash, like beryllium, just from dust on clothes and hair [11].

Coal Ash Ponds Risk to Wildlife - Two Heads Aren't Always Better than One

The ecological impacts of coal ash contaminations are the "canary in a coal mine" for human health impacts. A vast amount of scientific research has been conducted on the effects caused by contamination of heavy metals on human and aquatic life [4]. Mercury, arsenic, selenium, cadmium, chromium, and vanadium are most often associated with coal ash contamination (*for the full list see Appendix A*). These heavy metals are particularly dangerous due to their ability to bio-accumulate in living organisms and persist in ecosystems for generations after their initial release. Effects of coal ash pollution range from fish kills to sub-lethal effects that produce mutations for generations – for example, brown trout exposed to selenium have been found to develop severe deformities, such as growing two heads [12].

Some coal ash disposal facility sites are an "attractive nuisance" for animals. Surface impoundments and landfills offer a degraded and dangerous habitat for fauna. Bird species that have been recorded foraging and hunting in coal ash disposal facilities show high levels of toxic heavy metals in their tissues as well as that of their young [13].

Risk of ingesting toxics from coal ash is high even without direct exposure to contaminated water. If the inorganic mercury found in coal ash enters the food chain it can be converted to organic methylmercury and pass from mother to fetus for generations [14]. The persistent nature of mercury has resulted in decade-long fish consumption advisories [4].

IV. Regulating Coal Ash Disposal

Though the EPA has long recognized the potential environmental and human health hazards from coal ash, there have never been federal regulations to ensure its safe disposal. In the absence of any federal standards, coal ash regulation is handled differently on a state-by-state and site-by-site basis.

Each state decides whether or not to regulate coal ash disposal and what standards to apply. It is not uncommon to have large quantities of waste transported to another site or state that has more lenient regulations [9]. This poses diverse risks, both in transportation and at the receiving sites that are burdened with additional waste to manage.

Photo *Coal ash landfill at Stanton Energy Center*
Photo Credit: Angelique Giraud February 2012

Coal Ash Waste Disposal Needs Strong, Consistent Federal Regulation

Many coal ash disposal facilities lack basic safeguards such as liners or groundwater monitoring to adequately protect local water supplies and natural habitats.
The concerns of the EPA and the public over the significant risk of contamination at these disposal sites have brought the efficacy of state coal ash regulations into question.

After the EPA determined that state regulations for coal ash disposal were insufficient to protect human health and the environment, the Agency proposed federal regulations for coal ash disposal in June 2010. The EPA recommended two alternative proposals, and sought public comment on both. The EPA received 450,000 comments from citizens, state agencies and departments, environmental organizations, and the electric utility industries [16].

The first and most protective standards proposed by the EPA would reclassify coal ash as a "special waste" and regulate it in a manner similar to hazardous waste under Subtitle C of the Resource Conservation and Recovery Act (RCRA). This designation would require all new coal ash disposal facilities to have liners, caps, daily covers, ground water monitoring, and other common sense pollution safeguards. This classification would also allow for proper identification of violations and enforcement of remediation with full federal authority.

The second proposal would establish federal standards for coal ash management and disposal under the solid waste program of RCRA Subtitle D. While EPA would encourage states to adopt these minimum federal standards, the states would not be required to do so and, moreover, EPA would have no authority to implement or enforce them. Instead, EPA would have to rely on states or citizen suits to enforce these minimum standards. Because states have not shown an interest in setting or enforcing protective standards for coal ash disposal, this proposal would leave the burden of protecting the health and safety of our water resources to the public.

More than two years have passed and a federal coal ash disposal rule is not yet finalized. This delay is due in part to counter efforts by Congress to remove EPA's authority from ever regulating coal ash. Our politicians are shielding utilities and absolving themselves from the responsibility of protecting public health and our water quality.

Regulating Coal Ash Wastewater

Many power plants dump their coal ash into ponds, where typically the only treatment is for pH and settling (using gravity to allow some of the solids settle out to the bottom of the pond). Many of these ponds then discharge coal ash wastewater directly into rivers and lakes [4]. Those discharges are monitored by the National Pollution Discharge Elimination System (NPDES) permit program, federally required under the Clean Water Act, of which some states are given complete permitting and enforcement control. Additionally, the EPA has yet to require a limit for the toxic metals released in coal ash wastewater [17].

The federal Clean Water Act requires the EPA to regularly assess federal effluent guidelines to determine whether updates are needed, yet there have been no changes to effluent guidelines since 1982[1]. EPA conducted a multi-year study of power generating facilities that discharge wastewater into surface waters and concluded that stricter effluent guidelines are needed to address the toxics in coal ash. In the spring of 2012, the EPA announced plans to propose a new rule for effluent guidelines for power plants. The proposed rule is expected in December 2012 with a final rule by April 2014 [4].

State Authority and Control

The problem with allowing the authority of coal ash regulation to remain in state control is a lack of minimally-acceptable and consistent standards along with the absence of meaningful enforcement. As a result, risky coal ash disposal methods continue to be used, without monitoring, without minimum safeguards, and without accountability. Even when violations are recorded, enforcement has repeatedly failed, likely due to the lack of any individual, agency, or department claiming full responsibility for regulation [10].

Some states are beginning to require more protective safeguards be put in place for new disposal facilities, but older plants are "grandfathered in" and will not have to install contamination prevention safeguards [10]. Coal ash may be stored in dry landfills or wet surface impoundment ponds with no requirement for pollution protections. In the past, neither type of disposal facility required liners, daily covers, ground water monitoring, runoff and leachate controls, or financial assurances to the community in the event of contamination.

This is also true of closed disposal facilities, which are not necessarily required to have caps that prevent runoff or conduct ground water monitoring to check for contamination, but may continue to operate indefinitely without adopting modern safeguards [4,18].

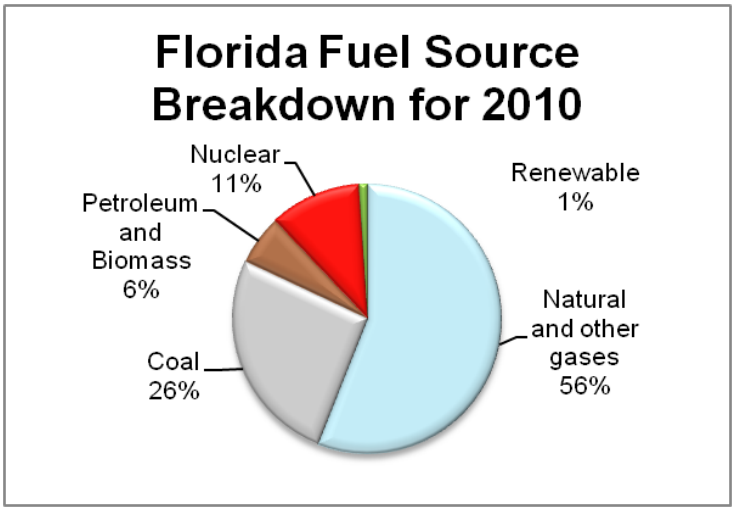
Without the proper laws and funding in place to mandate enforcement for public health and environmental protection, industrial polluters have no reason to invest in resources that prevent contamination.

V. Florida's Electric Industry and Economy

In 2010:

- Florida's electric industry was **third in the nation for total electricity production and revenue, earning over $24.4 billion** [1, 19].
- Florida was thirteenth in the nation for producing the most electricity from coal [1].
- Florida has **15 active coal power plants** producing more than **8.2 billion pounds of coal ash** each year [1, 20].

Pie Chart 2 details the fuel sources used in Florida, with coal making up more than one quarter of all fuel sources used for electricity production in the state. Florida's dependence on energy from coal and economic dependence on clean and abundant water should put Florida at the top of the list for concern about proper coal ash disposal.



Pie Chart 2 *Florida Electricity Fuel Source Breakdown for 2010*

<u>Power Plants and Coal Ash</u>

The Power Plant Siting Act (PPSA) is how Florida licenses large power plants. The Act's intent is to streamline permitting and avoid facilities needing to obtain individual permits from numerous state and local entities. [21] This certification does not include licenses required by the federal government.

While the certification process includes input from numerous local and state agencies, the Director of the Florida Department of Environmental Protection (FDEP) has decision-making authority except in cases where the application is contested. In that case, the final decision-making authority lies with the Power Plant and Transmission Line Siting Board (Board), comprised of the Florida Governor and three members of the Governor's Cabinet [21].

The Board has broad discretion that includes accepting, revising, or ignoring any agency recommendation. The PPSA is riddled with ambiguities and leaves room for interpretation as to what is a reasonable balance between the need for the facility and

the impacts upon air and water quality, fish and wildlife, and other natural resources of the state.

On-site coal ash landfills may be permitted under the PPSA certification process in lieu of obtaining solid waste permits. Nine out of Florida's fifteen coal plants are permitted under the PPSA with the remaining six plants permitted by applicable licensing agencies. The Florida Department of Environmental Protection (DEP) is designated as the lead agency t to administer and regulate the storage and disposal of coal ash. Since coal ash is considered non-hazardous solid waste, it is covered under the Solid Waste Management Act [22].

Solid waste disposal regulations have been amended so frequently that facilities are grandfathered in based on the year of their original permits, thus there are no consistent standards [22]. Complicating this further is the fact that each facility is evaluated on a site-by-site basis [10]. This patchwork of grandfathered facilities and case-by-case decisions raises questions of whether facilities are adopting the most protective standards for coal ash disposal. For example, regulations do not prohibit the bottom of a pond or landfill from being in constant contact with groundwater, which is the case for most facilities in Florida, if safeguards are not in place to protect the environment. Unfortunately, there is no uniform list of safeguards for this case and requirements are determined on a site-by-site basis.

Florida also does not have a history of weighing in on the side of protecting public health and the environment. This was evident in the August 2006 report prepared by the U.S. Department of Energy (DOE) and the EPA. From 1988 to 2004,Florida's landfill regulations for liners and leachate collection systems were relaxed. This was the case for only one other state [10].

Florida is Uniquely Vulnerable to Coal Ash Risk

The lack of stringent coal ash regulations in Florida is of particular concern due to the state's economic dependence on its aquatic ecosystems. Florida is one of the top travel destinations in the world, with the tourism industry contributing $62.7 billion annually to the state's economy [23].

Increasing toxics in Florida's water negatively affect human health and degrade the natural environment – Florida's economic livelihood. The result could be a decrease in the number of visitors and consequently the amount of tourism dollars spent in the state.

Florida is particularly susceptible to serious ground water contamination caused by coal ash because of its high water table, the porous nature and density of the soil, and the underlying bedrock [24]. Surface water filters down through the ground to replenish the limestone aquifers, which provide the drinking water for millions of Floridians. Deposits of toxic waste are difficult to contain in any earthen structure in constant contact with water.

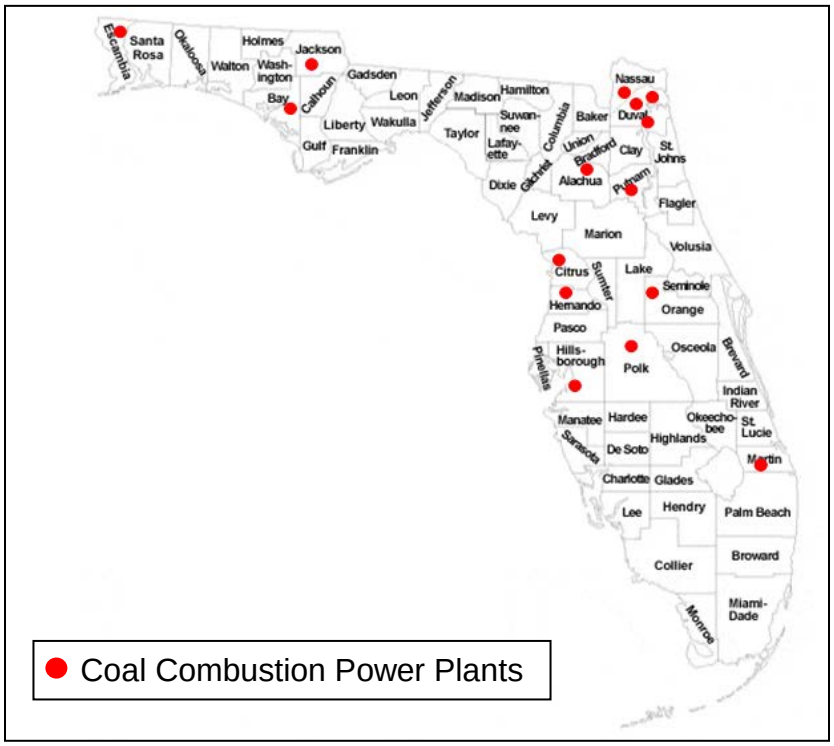
The toxicity issues discussed in Section III of this report are most applicable to still or slow moving water systems, such as wetlands, which make up a majority of Florida's aquatic ecosystems. In these lentic ecosystems, such as wetlands, toxics are unable to move freely throughout the entire system, which limits the dilution, and thus pollution accumulates in high concentrations. In addition to issues of toxic contamination, nutrient pollution – such as overloads of nitrogen and phosphorous – is of particular concern in Florida.

Florida's native flora and fauna are specifically adapted to the nutrient-poor wetland ecosystem. Excess nutrients have been documented to negatively alter native diversity. Invasive species have a competitive advantage in nutrient-rich environments and, in some cases, completely overtake these altered ecosystems. This creates huge monocultures, impacting habitat and water flow patterns throughout entire wetland area. All of this has the potential to impact the tourism economy surrounding Florida's native ecosystems and wildlife.

A 2009 EPA report found that nutrient pollution caused by coal ash disposal is a serious concern for nutrient-poor ecosystems. While concentrations of nutrients in coal ash are low, the volume of coal ash is huge. Overall, nutrients from burning coal such as phosphorus and sulfates are produced in significant amounts [4].

Florida's Coal Fired Power Plants

The map below shows the location of coal power plants that produce coal ash.



~~***Map** of Florida Counties and Coal Combustion Power Plants. Source: FDEP, Florida Geological Survey, and [1].*~~

The total amount of coal ash produced is reported by each plant to the federal Energy Information Administration (EIA). These reports contain the total amount and type of byproduct sold, stored, or disposed of and the type of facility [1, 25]. Toxic waste managed by each utility is reported in the EPA's Toxic Release Inventory (TRI). This database allows users to search records of toxic waste generation, disposal, releases, reuse, and transfers from different facilities. Table 1, below, lists the amount of coal ash byproduct and toxic waste released by each plant. Data for the total amount of ash byproduct produced at Gulf Power Company's Scholz Plant is not publicly available [18]. Lack of enforceable federal standards allows this information to remain undisclosed.

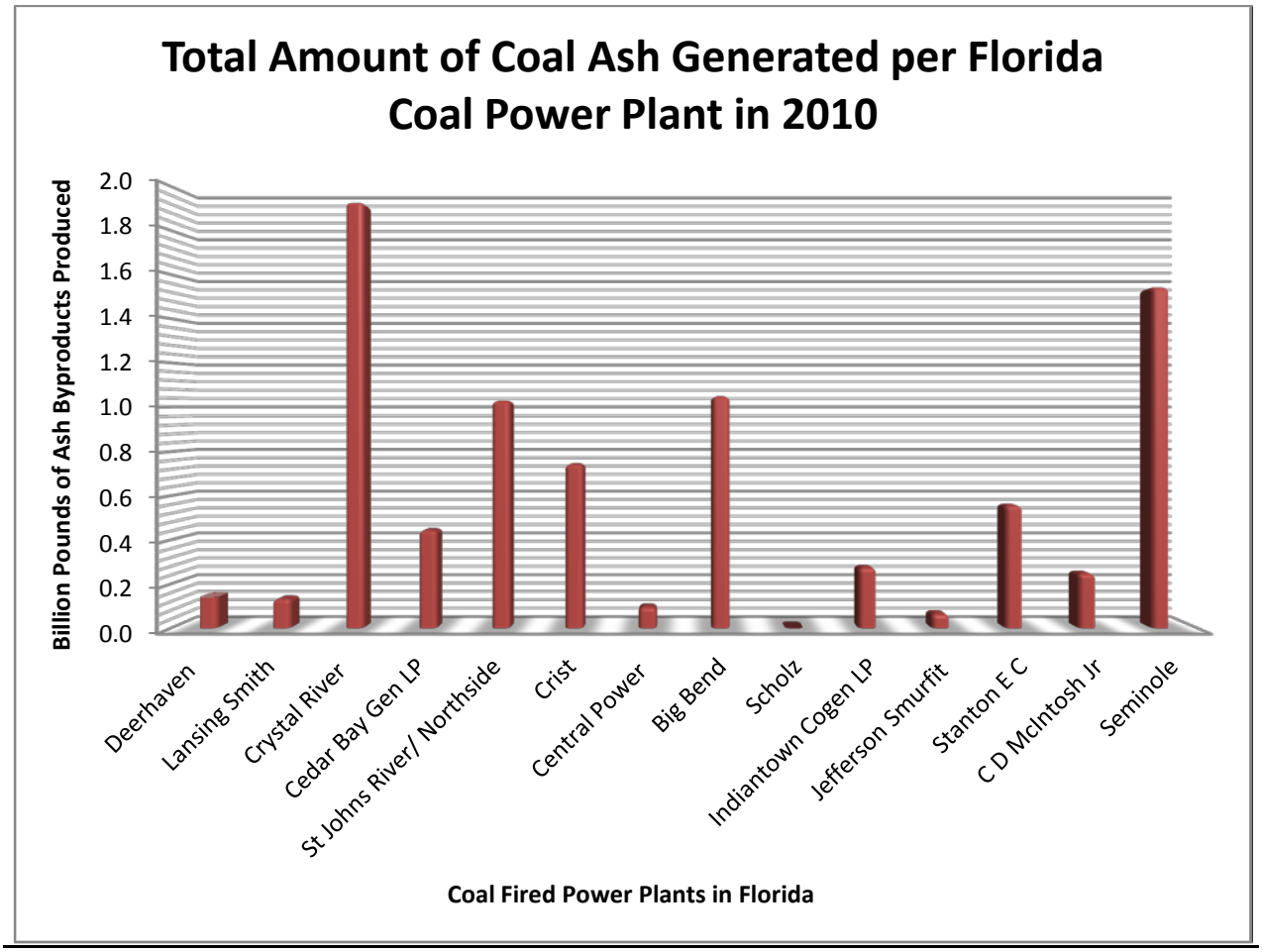
Coal Ash and Toxic Releases from Coal Fired Power Plants in Florida in 2010					
	City, County	**Plant Name**	**Utility Name**	**Total Toxic Wastes Generated in 2010 (lbs)**	**Total Coal Ash Generated in 2010 (lbs)**
1	**Gainesville, Alachua**	Deerhaven Generating Station	Gainesville Regional Utilities	409,200	138,600,000
2	**South Port, Bay**	Lansing Smith	Gulf Power Co	851,600	132,000,000
3	**Crystal River, Citrus**	Crystal River	Progress Energy Florida Inc	17,065,029	1,934,000,000
4	**Jacksonville, Duval**	Cedar Bay Generating Company LP	Cedar Bay Operating Services LLC	1,253,159	444,000,000
5	**Jacksonville, Duval**	St Johns River Power Park	JEA	12,295,428	1,030,000,000
6	**Jacksonville, Duval**	Northside Generating Station	JEA	Reported in St Johns River Power Park	28,600,000
7	**Pensacola, Escambia**	Crist	Gulf Power Co	9,667,411	744,400,000
8	**Brooksville, Hernando**	Central Power & Lime/ CEMEX Constr Materials FL LLC	Central Power & Lime Inc	29,972	94,800,000
9	**Apollo Beach, Hillsborough**	Big Bend	Tampa Electric Co	9,735,720	1,050,000,000
10	**Sneads, Jackson**	Scholz	Gulf Power Co	112,044	Data Unavailable
11	**Indiantown, Martin**	Indiantown Cogeneration LP	US Operating Services Company	208,305	274,000,000
12	**Fernandina Beach, Nassau**	Jefferson Smurfit Fernandina Beach/ Smurfit-Stone Container Enterprises Inc	Jefferson Smurfit Corp	17,434,794	64,000,000
13	**Orlando, Orange**	Stanton Energy Center	Orlando Utilities Comm	6,716,616	557,200,000
14	**Lakeland, Polk**	C D McIntosh Jr	City of Lakeland	2,502,222	247,000,000
15	**Palatka, Putnam**	Seminole	Seminole Electric Cooperative Inc	9,914,399	1,547,800,000
			Total in Florida	**88,195,899**	**8,286,400,000**

Table 1 *Coal Combustion Wastes and Toxics Produced per Plant in Florida. The total amount of coal ash byproduct produced is either disposed of in a landfill or surface impoundment or sold for beneficial reuse [25]. Total toxic wastes are calculated from toxics released to the land, water, and air. The toxic releases to land are disposed of as part of the coal ash waste [26].*

Jacksonville Electric Authority's St. Johns River Power Park and Northside Generating Station are located in the same vicinity and report toxic waste releases together.

Graph 1, below, shows the total amount of coal ash produced in 2010 per plant in Florida. The Crystal River plant in Citrus County produces the most fly ash byproduct in the state and is ranked tenth nationally, with more than half of that ash sold for beneficial reuse. The ultimate destination and safety of recycled coal ash is unknown. Without comprehensive regulation there is no reason for industries to record the exact use or test the long term integrity of coal ash.

Over half of Florida's coal ash generated in 2010 was produced by just four plants. Crystal River, St. Johns River, Big Bend, and Seminole each produced over 1 billion pounds of coal ash.



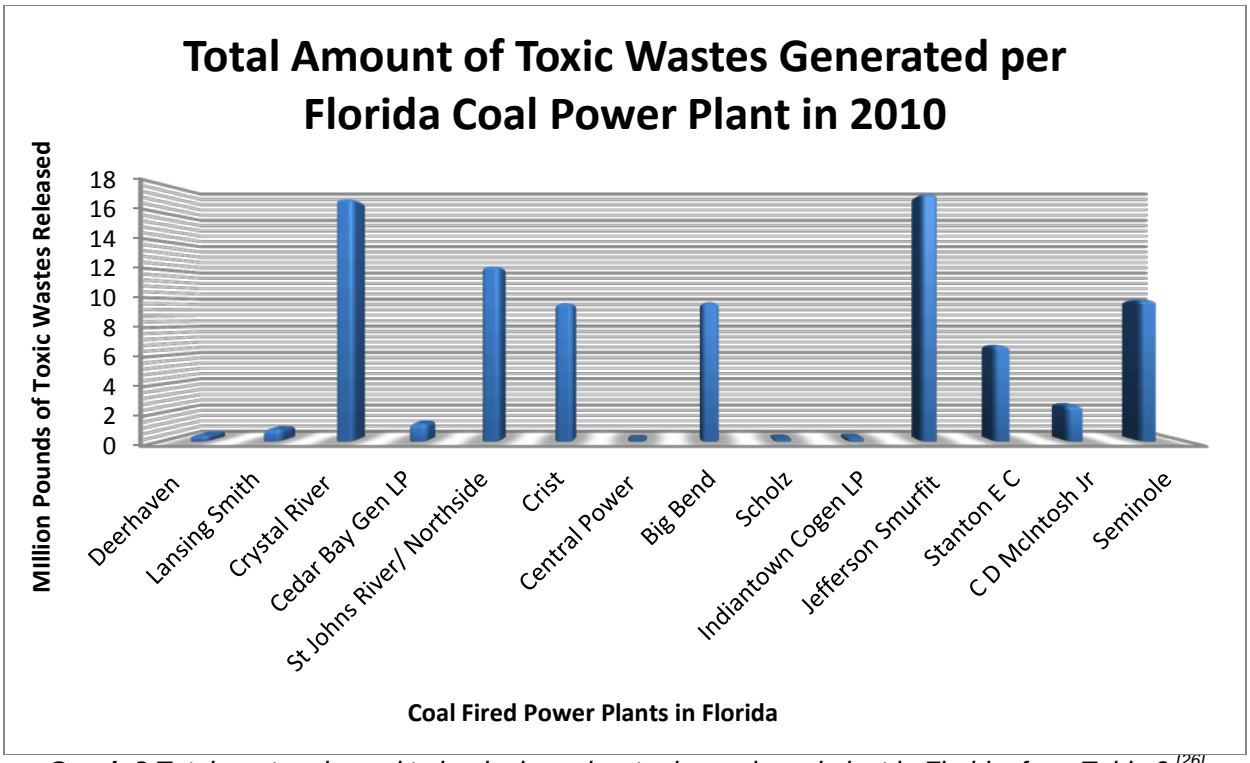
Graph 1 *Total amount of ash byproduct per coal power plant in Florida from Graph 2. Totals are best estimates reported by power plants* [25].

How Many Toxics Does it Take to Make a Hazardous Waste?

As detailed in the 2009 EPA report, coal ash is not always separated or treated to reduce toxicity. It is assumed that the amount of toxics reportedly released to land are physically present in the coal ash.

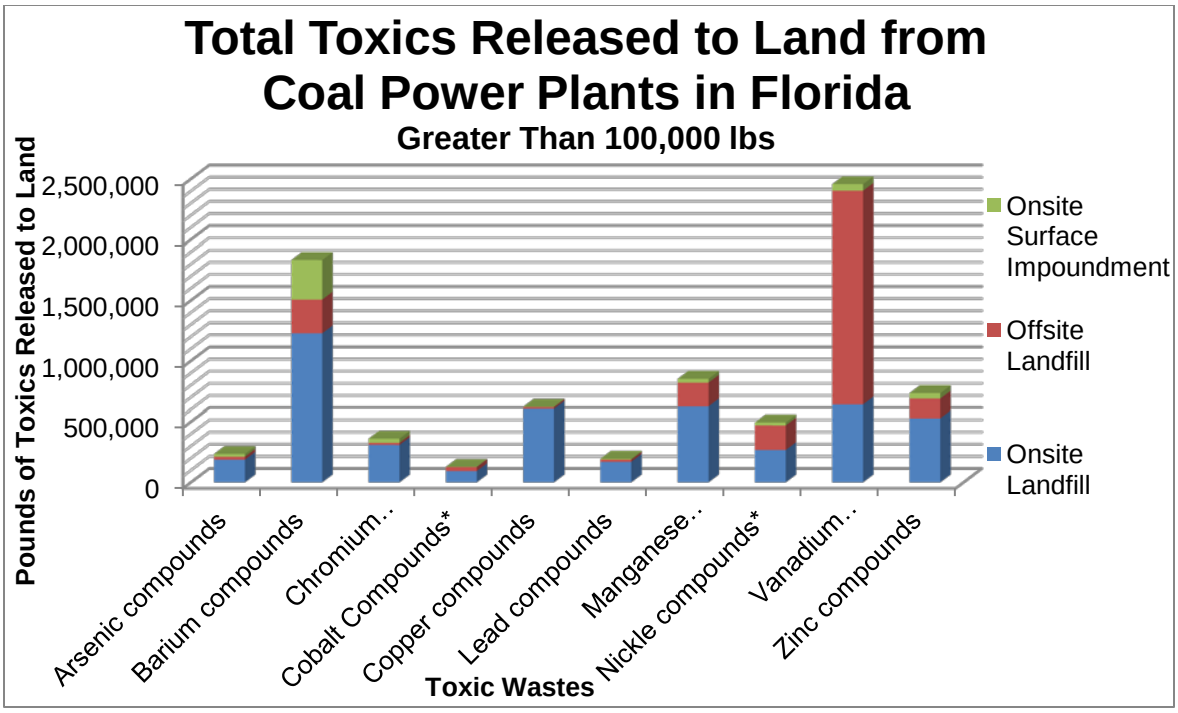
Most of these toxics are documented as being released into surface water, non-hazardous waste landfills, and surface impoundments both on and off-site. None of these toxic disposal facilities are hazardous waste sites as described in Subtitle C of RCRA, although they do accept toxic substances.

The data for toxic waste generated is calculated from the amount and type of coal burned rather than an exact quantity measured (the TRI report also includes air emissions, which are not detailed in this report). Graph 2 shows the TRI data from Table 1. Crystal River Plant in Citrus County and Jefferson Smurfit Fernandina Beach in Nassau County each generated over **17 million pounds of toxics**, and St. Johns River Power Park, Big Bend, Crist, Seminole, and Stanton Energy Center each produced more than **6 million pounds of toxic waste in 2010.**

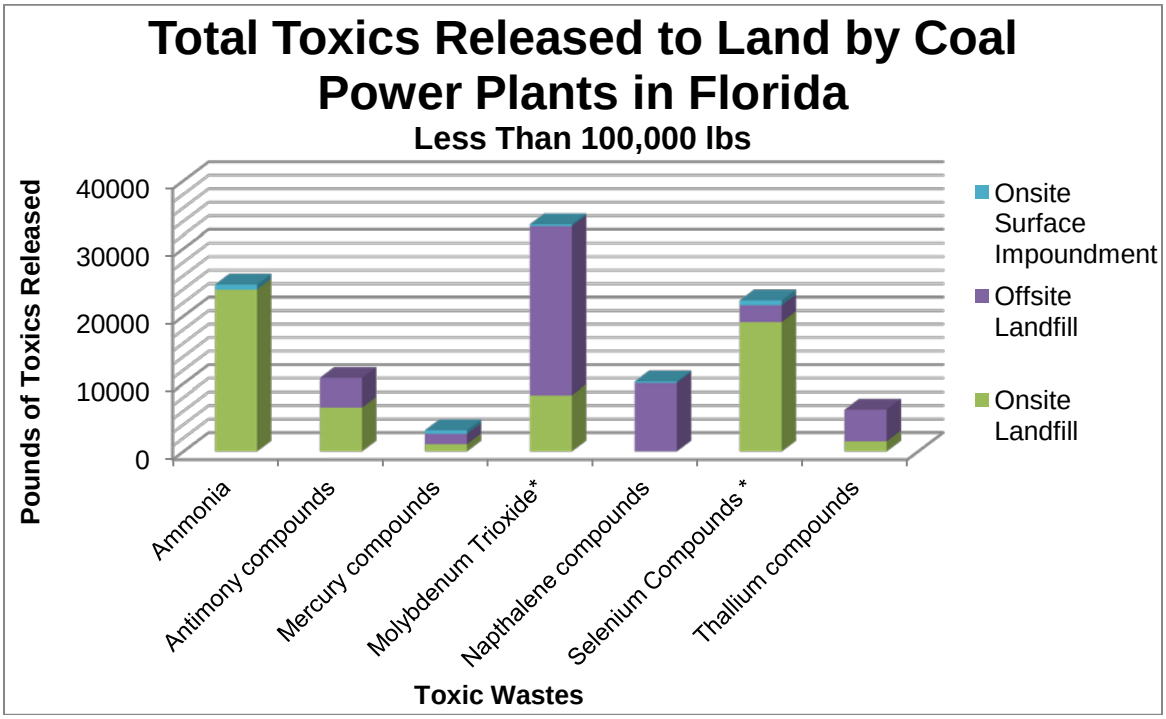


Graph 2 *Total waste released to land, air, and water by each coal plant in Florida, from Table 2* [26].

The TRI database details the quantity of toxic substances released to the air, land, and water by each facility. Graphs 3 and 4 below show the quantity of toxics stored at on-site landfills and surface impoundments and at offsite landfills, which were split into two groups. Those being released in amounts greater than 100,000 pounds are in Graph 3, while the rest are in Graph 4.

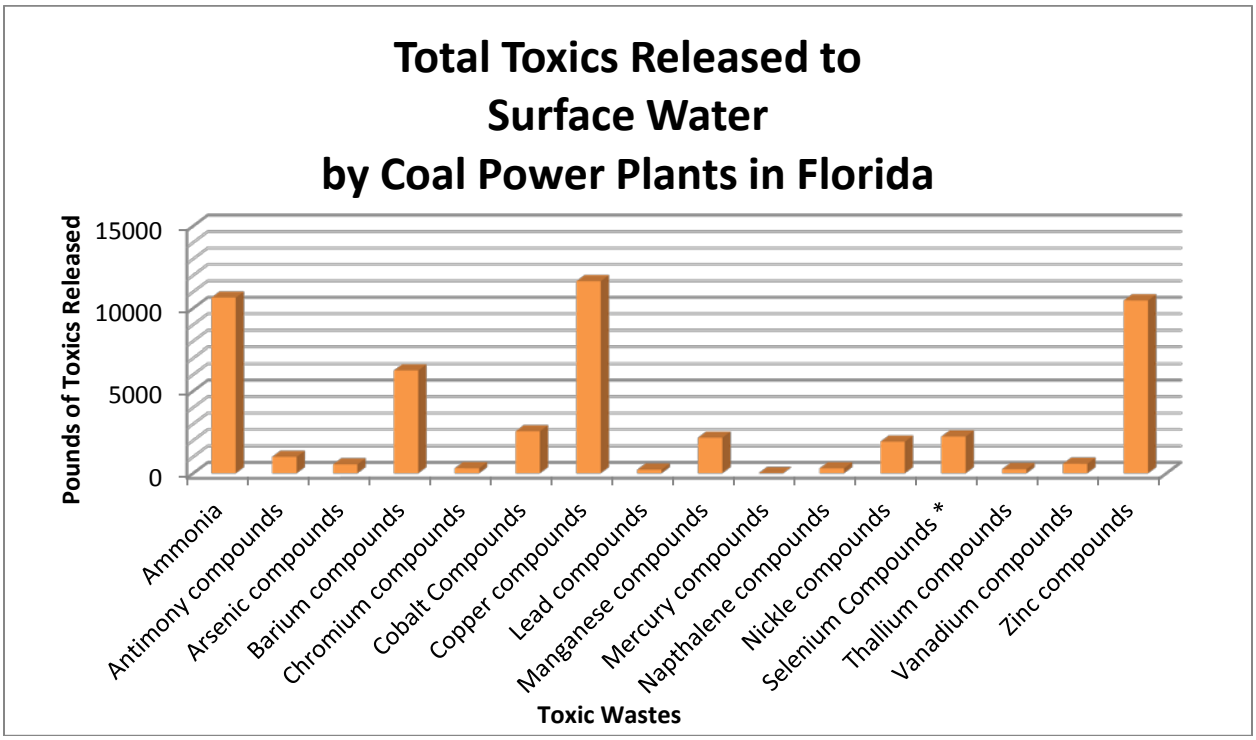


Graph 3 *Coal power plants estimate the total amount of toxics contained in waste disposed of in or released to surface impoundments and landfills on and off site* [26]*. Included compounds disposed of in volumes greater than 100,000 pounds*. All data from 2010 unless unavailable *Noted in Appendix C



Graph 4 *Coal power plants estimate the total amount of toxics contained in waste disposed of in or released to surface impoundments and landfills on and off site* [26]*. Included compounds disposed of in volumes less than 100,000 pounds. All data from 2010 unless unavailable *Noted in Appendix C*

Coal fired power plants also dispose of toxics directly into surrounding surface water. Graph 5 shows the total amount of toxics released to local surface waters. Over 6,000 pounds of each of the following compounds ammonia, barium, copper, and zinc are released directly to surface waters, all of which can pose health risks at high concentrations.



Graph 5 *Coal power plants estimate the total amount of toxics released to surface water* [26]*.*
*All data from 2010 unless unavailable *Noted in Appendix C*

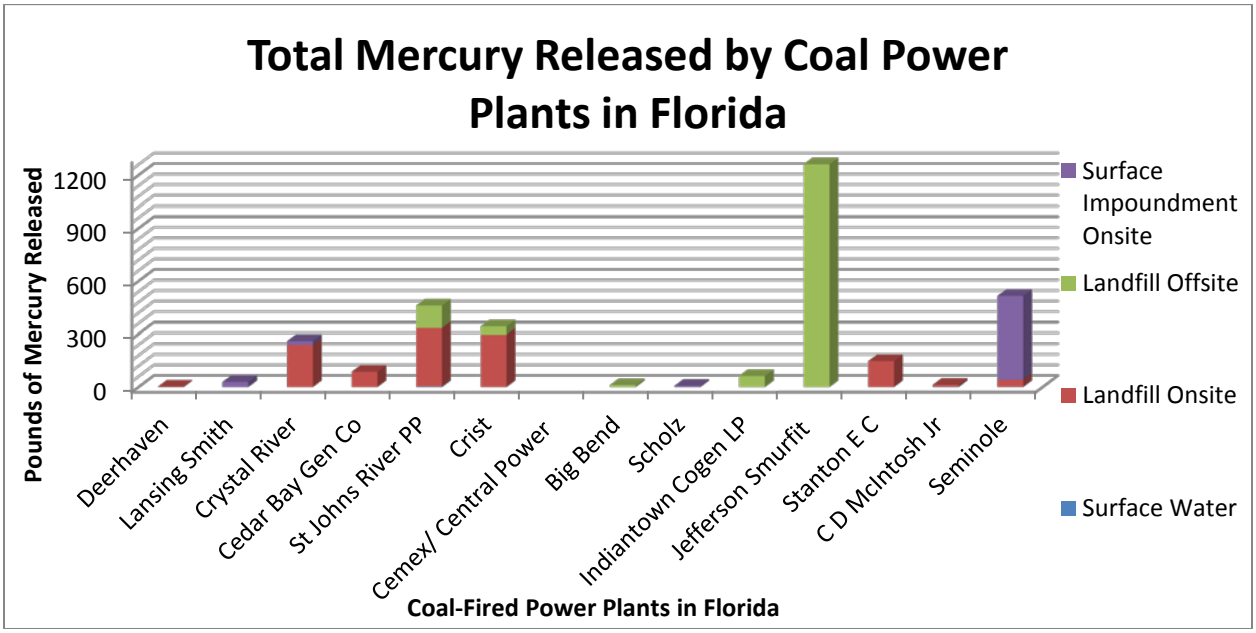
Examination of each chemical compound contained in coal ash reveals it's truly toxic nature. Some metals are only toxic in high concentrations, while others pose a threat in even the smallest amount. For example, just one spoonful of mercury can contaminate a lake the size of two football fields [27]. As mercury is of particular concern due to its extreme toxicity, Graph 6 specifically shows the amount of mercury released by each plant to surface waters, impoundments, or landfills.

Mercury contamination in Florida is especially concerning for two important reasons. Wetlands make up a majority of Florida's natural habitats and provide an ideal environment for methylmercury production because of their anaerobic soils. This persistent form of mercury in our waters has resulted in numerous fish consumption advisories and is especially concerning as Floridians eat twice the amount of seafood as the average American [4, 15].

Note that CEMEX Constr Materials/Central Power and Lime only reports mercury released as air emissions. Jefferson Smurfit in Nassau County released the most mercury, placing over 1,200 pounds of mercury into non-hazardous waste landfills,

which is over one third of the total 3,197 pounds of mercury released by all coal power plants in Florida in just one year.

Coal fired power plants produce a massive waste stream and report these known toxics as having been released to the environment. Florida's soil is like a sponge sitting on porous bedrock, which is the underlying aquifer and drinking water source. Toxics can easily sink down into Floridians' precious water supply, which is already facing depletion and contamination from salt water intrusion.



Graph 6 *Coal plants in Florida estimate the total amount of mercury released to land and water 2010* [26].

Coal Ash Disposal Facilities

Because of lax regulation in federal law, electric utilities are allowed to carelessly dispose billions of pounds of toxic coal ash into Florida's land and water annually. With the lack of enforceable standards for coal ash, the results shown in Table 2 are not surprising, detailing the expected, but commonly absent environmental protections for any disposal facility, let alone those with 70 million pounds of toxic substances.

Waste produced by coal fired power plants is stored or disposed of in on- or off-site landfills, surface impoundments, slurry ponds, sludge ponds, wastewater treatment ponds, storage areas, and many more which are referred to as either landfills for dry disposal facilities or ponds for wet disposal facilities.

Table 2 provides information regarding the types of waste ponds and landfills at each power plant. The EPA sent utilities a survey about the plant's coal ash disposal systems. The Environmental Integrity Project requested the survey responses under the Freedom of Information Act. Initially, many utilities attempted to conceal this data from the public, claiming it was "confidential business information." The EPA rejected many

of these claims, and released information on waste disposal at coal power plants across the U.S. This document is vital; without these data sets, one would need to search through permits, agreements, enforcement letters, certifications and other miscellaneous documents for individual power plants to discover where and how coal ash is disposed [28].

Each utility self-reported the number of ponds and landfills, the type of waste held, and whether there are liners and leachate collection systems in place. Twenty-eight of the fifty-seven coal ash ponds reported below primarily hold coal ash, while the remaining twenty-nine ponds receive waste water that has come in contact with coal ash. As discussed in section III of this report, coal ash wastewater may contain high concentrations of dissolved heavy metals.

Table 2 is a summary of the data of this report. For a full description of ponds at each plant and the specific wastes held, see Appendix D. The total ponds include the fifty-seven coal ash ponds as well as all other reported ponds. The methods used by industries to designate coal ash ponds are ambiguous. Many of the ponds at several plants report receiving vague wastes such as general runoff, floor drain wastewater, or other. The chemical composition of this waste is not clear. Based on the available information it is not possible to assume whether this water does or does not come in contact with coal ash. Central Power and Lime in Hernando County reported a pond receiving landfill runoff, while not reporting a single landfill. Big Bend in Hillsborough County reports a long-term bottom ash pond and two slag settling basins, but does not report them receiving any coal ash.

Not all of Florida's plants reported data to the EPA. No information was reported by the Jefferson Smurfit plant in Nassau County.

- Of fourteen plants that did report this information, there are at least **seventy-four coal ash disposal facilities** (seventeen landfills and fifty-seven ponds).
- Only forty-seven ponds or landfills are lined, therefore **at least 37% of known coal ash disposal facilities in Florida lack even minimum environmental safeguards.**
- **Only 20% of coal ash facilities maintain a leachate collection system.**
- **Not a single facility has utilized all possible pollution protections** [18, 28] .

The first seven plants listed on table 2 are damage cases. The landfills and ponds at this group of plants have locally contaminated ground water with coal ash. Protective materials such as composite liners and covers are necessary to limit the leaching of toxics to neighboring communities [5, 29, 30, 31].

Table 2 shows the lack of uniformity by utilities in applying protective equipment to prevent pollution.

- CD McIntosh Jr., a power plant located in Polk County, is one example where high levels of arsenic and chromium have been recorded in the ground and surface water adjacent to disposal facilities without leachate collection systems.

With proper regulation and enforcement, the government could require that all utilities take adequate measures to protect human health and the environment from coal ash by ensuring that the best available technology is used to avoid toxic contamination.

	Coal Ash Disposal Facilities in Florida										
	Plant Name	Coal Ash Land -fills	With Liner	With Leachate Collection	Coal Ash Ponds	With Liner	With Leachate Collection	Total Ponds	With Liner	With Leachate Collection	Ground/ Surface Water Contaminants
Damage Cases	Lansing Smith	1	1	0	2	1	0	4	3	0	Cd, Cr, F, Cl, Mn, Fe, sulfates
	St Johns River PP	3	0	0	3	2	0	10	6	0	Al, As, Be, Cl, sulfates
	Crist	2	2	1	13	8	0	14	8	0	As, Al. Cd, Cl, Cr, Cu, Fe, Hg, K, Mg, Mn, Na, Ni, Se, Tl Zn, TDS, TSS pH, specific conductivity
	Big Bend	2*	1*	2*	12*	11*	1*	16	11	1	Al, As, B, Cl, F, Fe, Mn, Mo, Na, Tl, TDS, gross alpha, and sulfate
	C D McIntosh Jr	2	2	0	1	1	0	1	1	0	As, Ca, Cl, Cr, Fe Mn, Ni, Na, TDS, sulfates, pH
	Seminole	2	2	2	6	6	6	12	7	6	Cl, Fe, B, Al, As, Pb, Na, TDS, sulfates
	Stanton EC	1	0	0	0	0	0	5	4	0	Al, Be, Ca, Cl, Fe, Mg, Mn, Na, V, sulfates, TDS, gross alpha, radium-226, pH
	Deer-haven	1	1	1	2	2	0	4	4	0	
	Crystal River	2	1	1	4	1	0	14	4	0	
	Scholz	0	0	0	3	0	1	3	3	1	
	Cedar Bay	0	0	0	1	1	0	1	1	0	
	Indian-town	0	0	0	3**	3**	0	3	3	0	
	Cemex/ Central Power	0	0	0	0	0	0	2	1	0	
	Northside	1	1	1	7	1	0	12	6	4	
	TOTAL	17	11	8	57	36	7	101	62	12	

**Off-site- Slag landfill with liner and leachate collection & Cooling reservoir pond with ash pile runoff at Plant Polk [18].*
***Off-site- 2 Ash Ponds at Martin Power Plant with liners [32].*

***Table 2** Coal Ash ponds and landfills received solid and liquid coal ash waste [5, 18, 28, 29, 30, 31].*

Communities near Coal Plants

Living near coal power plants poses certain public health risks. “Cheap energy” becomes much more expensive when the costs include the true impact on public health to the surrounding community, including hospitalization and treatment of impacted residents as a result of toxic exposure. Historically, communities with large minority and low income populations have disproportionally suffered environmental pollution.

Table 3 details the community demographics within a three mile radius of selected coal plants in comparison to that county’s total population demographics. Five plants in Florida are located in communities where the percentage of minorities and/or people living below the poverty level is above the county average. Within a three mile radius of Indiantown Cogeneration plant in Martin County, almost three-quarters of the population are minorities and one-third live below the poverty level [33].

Population Demographics for County and 3 miles Radius of Florida Coal Power Plants in 2010						
County	**Plant Name**	**Population within 3 mile Radius of Plant**	**Percent Below Poverty 3 mile Radius of Plant**	**County Percent Below Poverty**	**Percent Minority 3 mile Radius Plant**	**County Percent Minority**
Hernando	Central Power	5,469	17.1% (935)	11.8%	12.2% (667)	15.4%
Jackson	Scholz	2,010	17.3% (347)	19.7%	41.6% (836)	30.9%
Martin	**Indiantown Cogen**	**1,121**	**31.2% (349)**	**10.0%**	**74.0% (829)**	**17.6%**
Nassau	Jefferson Smurfit	8,154	10.4% (848)	9.3%	24.1% (1,965)	9.6%
Polk	C D McIntosh Jr	31,585	21.3% (6,727)	15.2%	37.8% (11,939)	32.5%

Table 3 *Environmental Justice Site Demographics [33].*

VI. Where Does FDEP Stand?

After the EPA proposed to federally regulate coal ash, FDEP submitted comments on this issue. FDEP cites specific reasons for their fundamental objection to classifying coal ash as a hazardous waste under RCRA subtitle C.

FDEP claims that it is unaware of any data that would support hazardous designation of coal ash. Yet, water monitoring reports detail specific toxic contaminants leaching into local ground and surface water near coal ash disposal sites in Florida [34]. FDEP claims later in its comment letter that in four of these damage cases, the only contaminants recorded were found in their “zone of discharge,” immediately around the disposal site [35]. This is problematic because, in the zone of discharge, primary and secondary groundwater standards do not apply, yet it is the only place that ground water monitoring is required for newer sites, unless directed for corrective action by FDEP [22].

FDEP is supportive of beneficial reuse of coal ash and worries that hazardous designation of coal ash could stigmatize the byproduct enough to completely kill the

entire industry. **FDEP later states that the new mercury emission standards for coal power plants will significantly increase the concentration of mercury in coal ash. Reuse of this "mercury enriched" coal ash in wallboard, cement and concrete will greatly increase the chance that mercury will be released to the environment. FDEP states that this process would negate the efforts of capturing mercury at the power plant and specifically "recommends EPA consider the ultimate fate of this mercury and promote ways to minimize its release when CCR's are beneficially used [35]."**

To address concerns over the safety of recycling coal ash, utilities and coal ash recycling companies should partner with local, state, and federal governments and universities to conduct thorough research to investigate whether or not there are safe and beneficial ways to reuse coal ash. The safety of any product exposed to the public or environment should be monitored, and the public should be informed about the use of any product containing coal ash.

Under the "special waste" option of the EPA's 2010 proposed coal ash rule, coal power plants would be required to keep track of wastes from the point of generation to ultimate disposal. FDEP states that it is not aware of any hazards associated with transportation of coal ash [35]. The 2009 EPA report, *Steam Electric Power Generating Point Source Category: Final Detailed Study Report,* section II discusses one of the major problems with coal ash disposal, and that is management. The EPA found that it is difficult to qualitatively assess the toxicity of coal ash when different types of wastes are combined [4]. The purpose of this waste manifest requirement is to prevent hazardous conditions that result from mixing toxic substances.

Florida faces a challenge associated with treating and disposing of coal ash as a hazardous waste. FDEP cites the prohibition of hazardous waste landfills in Florida as a major deterrent to reclassifying coal ash. One concern raised by both FDEP and the industry is that beneficial reuse of coal ash will decline and hazardous waste landfills will quickly fill. If this happens, states like Florida will either have to treat coal ash, pay to ship the waste out of state to hazardous waste facilities, or change their law to allow hazardous waste landfills. There are modern technologies that treat coal ash to greatly increase its safety and prevent toxic substances from being released. While these control methods are more expensive than doing nothing, they are less costly than the Kingston TVA spill cleanup [35].

<u>Make Polluters Pay to Protect Public Health</u>

The reason to classify coal ash as a "special waste" and regulate it in a similar manner as hazardous waste is to protect public health, water quality, and natural resources. Unfortunately, the health and safety of our communities is often pitted against profits for utilities. Shortsighted industry supporters claim that implementing new disposal regulations would drive up the price of electricity and will therefore be an increased cost to taxpayers and detrimentally impact the economy.

It is time for change and a new perspective. A long-term plan for a strong economy requires a healthy public. While costs may increase initially for the utility, eventually these new disposal methods will become part of standard procedure with the costs already factored in.

Research has shown that coal ash contains dangerous concentrations of toxic substances. Under the guise of "safe as sand," coal ash disposal is free from constraints of hazardous substances. This regulatory leeway for industries is jeopardizing our natural resources with toxic wastes.

State regulatory officials need to make safety their priority with stringent standards across the board, leaving out the exceptions for polluters. Rather than wait for contamination and force the public to pay with their health, the FDEP and the EPA need to proactively force polluters to pay upfront with protective measures.

Florida's natural ecosystems are in a perilous condition deteriorating with each passing year as pollutants build up in the air, water, soil, and in the tissues of humans, plants, and wildlife. Clean water, free of toxic and nutrient pollution, will give Florida's economy and environment the chance of true revival. As coal ash disposal is currently regulated now, every disposal facility in Florida holds toxic waste that threatens the health and safety of nearby communities and natural resources. The EPA's proposed rule would create fair and protective regulations that force facilities to properly treat their coal ash.

VII. Where Do We Go From Here?

For too long, the government has turned a blind eye to the fact that current methods of treatment, disposal, and use of coal ash as a "special waste" do not protect public health, water and air quality, or the natural environment. **By alleviating industries of the responsibility of properly handling toxic coal ash, the government is passing those costs onto the public and taxpayers in the form of increased health care costs, pollution clean-up costs, and Florida's future economic livelihood.** The current system benefits only the utilities and business sector, while Florida's families are left at a significant economic and political disadvantage.

In order to prevent uncontrolled contamination, coal ash must be treated in a manner similar to hazardous waste. This regulation does not change the fact that coal ash has always contained dangerous toxics, but adjusts the treatment of coal ash from being wrongly viewed as a benign substance, to acceptance that it is extremely toxic and requires cautious handling. This reclassification will also put much needed checks and balances in place for proper treatment, disposal, and storage of coal ash.

Clean Water Fund recommends:

- The EPA should be allowed to move forward immediately to classify and regulate coal ash as a “special waste” under Subtitle C of the Resource Conservation and Recovery Act (RCRA).This would include minimum federal requirements to ensure that all states provide basic protections to communities from coal ash disposal. There must be timely facility inspection and federal enforceability.

- Florida policymakers and implementing departments must be leaders on coal ash management, being mindful to balance protecting public health, Florida’s unique and fragile natural resources, and future economic livelihood against profits for electric utilities. Florida should establish a consistent standard to require the most up-to-date protective technologies applicable to all coal ash disposal sites and make this policy transparent.

- The public has the right to know about the presence of substances that could adversely impact their quality of life and future within their community. This means coal fired power plants should be held accountable for providing the public with user-friendly, timely information as to how much coal ash is stored or disposed of at their neighboring facility, descriptions of disposal practices, and groundwater monitoring results. Facilities should also provide an opportunity for dialogue with residents and businesses within the impacted community. The utility companies should adopt a “good neighbor pledge” that is designed around a pollution prevention focus that protects public health and environment.

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Appendix A: Coal Combustion Waste Water Pollutants

Coal Combustion Waste Water Pollutants Concerns as Described by EPA	
Compound	**Potential Environmental Concern**
Arsenic (AS)	Frequently observed in high concentrations in coal combustion wastewater; causes poisoning of the liver in fish and developmental abnormalities; is associated with an increased risk of cancer in humans in the liver and bladder.
BOD (Bio-chemical Oxygen Demand)	Can cause fish kills because of a lack of available oxygen; increases the toxicity of other pollutants, such as mercury. Has been associated with FGD wastewaters that use organic acids for enhanced SO2 removal in the scrubber.
Boron (B)	Frequently observed in high concentrations in coal combustion wastewater; leachate into groundwater has exceeded state drinking water standards; human exposure to high concentrations can cause nausea, vomiting, and diarrhea. Can be toxic to vegetation.
Cadmium (Cd)	Elevated levels are characteristic of coal combustion wastewater-impacted systems; organisms with elevated levels have exhibited tissue damage and organ abnormalities.
Chlorides (Cl)	Sometimes observed at high concentrations in coal combustion wastewater (dependent on FGD system practices); elevated levels observed in fish with liver and blood abnormalities.
Chromium (Cr)	Elevated levels have been observed in groundwater receiving coal combustion wastewater leachate; invertebrates with elevated levels require more energy to support their metabolism and therefore exhibit diminished growth.
Copper (Cu)	Coal combustion wastewater can contain high levels; invertebrates with elevated levels require more energy to support their metabolism and therefore exhibit diminished growth.
Iron (Fe)	Leachate from impoundments has caused elevated concentrations in nearby surface water; biota with elevated levels have exhibited sublethal effects including metabolic changes and abnormalities of the liver and kidneys.
Lead (Pb)	Concentrations in coal combustion wastewater are elevated initially, but lead settles out quickly; leachate has caused groundwater to exceed state drinking water standards. Human exposure to high concentrations of lead in drinking water can cause serious damage to the brain, kidneys, nervous system, and red blood cells.
Manganese (Mn)	Coal combustion wastewater leachate has caused elevated concentrations in nearby groundwater and surface water; biota with elevated levels have exhibited sublethal effects including metabolic changes and abnormalities of the liver and kidneys.
Mercury (Hg)	Biota with elevated levels have exhibited sublethal effects including metabolic changes and abnormalities of the liver and kidneys; can convert into methylmercury, increasing the potential for bioaccumulation; human exposure at

	levels above the MCL for relatively short periods of time can result in kidney damage.
Molybdenum Trioxide* (MoO_3)	Probable routes of human exposure are inhalation, ingestion, and dermal contact. Short-term exposure causes irritation of the eyes, nose, throat, and skin. Inhalation exposure may cause lung disease. Dusts are more toxic than fumes. Animal studies have demonstrated exposure to high levels may result in anorexia and weight loss, listlessness and muscular incoordination, coughing, hair loss, diarrhea, cancer and liver and kidney damage.
Nitrogen (N)	Frequently observed at elevated levels in coal combustion wastewater; may cause eutrophication of aquatic environments.
pH	Acidic conditions are often observed in coal combustion wastewater; acidic conditions may cause other coal combustion wastewater constituents to dissolve, increasing the fate and transport potential of pollutants and increasing the potential for bioaccumulation in aquatic organisms.
Phosphorus (P)	Frequently observed at elevated levels in coal combustion wastewater; may cause eutrophication of aquatic environments.
Selenium (Se)	Frequently observed at high concentrations in coal combustion wastewater; readily bioaccumulates; elevated concentrations have caused fish kills and numerous sublethal effects (e.g., increased metabolic rates, decreased growth rates, reproductive failure) to aquatic and terrestrial organisms. Short term exposure at levels above the MCL can cause hair and fingernail changes; damage to the peripheral nervous system; fatigue and irritability in humans. Long term exposure can result in damage to the kidney, liver, and nervous and circulatory systems.
Total dissolved solids	High levels are frequently observed in coal combustion wastewater; elevated levels can be a stress on aquatic organisms with potential toxic effects; elevated levels can have impacts on agriculture & wetlands.
Zinc (Zn)	Frequently observed at elevated concentrations in coal combustion wastewater; biota with elevated levels have exhibited sublethal effects such as requiring more energy to support their metabolism and therefore exhibiting diminished growth, and abnormalities of the liver and kidneys.
Vanadium (V)	Inhalation causes airway irritation, lung lesions, alveolar/bronchiolar hyperplasia, inflammation, and fibrosis. Ingestion causes gastrointestinal irritation and developmental delays. (Taken from CDC ToxProfiles)

Appendix B: Commonly Used Acronyms

CCP	Coal Combustion Products
CCR	Coal Combustion Residuals
CCW	Coal Combustion Waste
EIA	Energy Information Administration
EPA	Environmental Protection Agency
FBC	Fluidized Bed Combustion
FDEP	Florida Department of Environmental Protection
FGD	Flue Gas Desulfurization
FFC	Fossil Fuel Combustion
FOIA	Freedom Of Information Act
NPDES	National Pollutant Discharge Elimination System
RCRA	Resource Conservation and Recovery Act
TRI	Toxic Release Inventory
TVA	Tennessee Valley Authority

Appendix C: Graph References

Graph 3
*13,000lbs Cobalt for 2009 from Plant Crist; 13,787lbs Manganese for 2009 and 11,885lbs Vanadium for 2005 from Indiantown Cogeneration LP; 25,068lbs Nickle for 2002 from CD McIntosh Jr; 35,998lbs and for 2002 from Stanton Energy Center

Graph 4
*5,800lbs Selenium for 2007 from St. John's River Power Park; 2,500lbs and 278lbs Molybdenum Trioxide for 2001 from Crystal River and 2003 from Big Bend

Graph 5
*2,200lbs Selenium for 2007 from St. John's River Power Park

Appendix D: Coal Ash Ponds and Landfills in Florida

Self Reported by Utilities to EPA

Released through Freedom of Information Act request by Environmental Integrity Project

Coal Ash Landfills and Ponds in Florida for 2012									
Plant Name	**Pond ID**	**Designation**	**Solid Waste (Primary Coal Ash)**	**Solid Waste (Primary Coal Ash and Other)**	**Wastewater (Non-Primary Coal Ash)**	**Liner**	**Leachate Collection**	**Primary Coal Ash**	**Non-Primary Coal Ash**
Big Bend	LAND FILL-1	FGD Storage Area	**FGD Calcium Sulfate (Gypsum), FGD Calcium Sulfite - Not Pozzolanic**	Calcium carbonate	N/A	No	Yes	**Yes**	
Big Bend	RET-SPD-1	**North Slag Settling Basins**		Data Missing	Data Missing	No	No		
Big Bend	RET-SPD-2	**South Slag Settling Basins**		Data Missing	Data Missing	No	No		
Big Bend	RET-SPD-3	Disposal Area 2		Data Missing	Data Missing	No	No		
Big Bend	SPD-1	Coal Pile Runoff Pond		Coal	Coal pile runoff, General runoff, Combustion turbine cleaning (compressor portion of the turbine) water	No	No		
Big Bend	SPD-2	FGD Emergency Overflow Pond	**Calcium Sulfate (Gypsum), Calcium Sulfite - Not Pozzolanic**		**FGD slurry blowdown**,	Yes	Yes	**Yes**	

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
Big Bend	SPD-3	North Recycle Pond			Air heater cleaning water, Boiler fireside cleaning water, Boiler tube cleaning water, **Combined ASH sluice,** Cooling tower blowdown, Yard drain wastewater, Reverse Osmosis (RO) Reject Water, General Runoff, Stormwater	Yes	No		**Yes**
Big Bend	SPD-4	South Recycle Pond			Air heater cleaning water, Boiler fireside cleaning water, Boiler tube cleaning water, **Combined ASH sluice,** Cooling tower blowdown, Yard drain wastewater, RO Reject Water, General Runoff, Stormwater	Yes	No		**Yes**
Big Bend	SPD-5	Solid Seperation Unit Settling Pond	**Bottom ASH, Fly ASH, Calcium Sulfate (Gypsum), Calcium Sulfite - Not Pozzolanic, FGD Pozzolanic Material**		Boiler fireside cleaning water, Air heater cleaning water, Boiler tube cleaning water, **Combined ASH sluice,** Cooling tower blowdown, Yard drain wastewater, RO Reject Water, General Runoff, Stormwater	Yes	No	**Yes**	
Big Bend	SPD-6	North Bottom Ash Pond	**Bottom ASH**		**Bottom ASH sluice**	Yes	No	**Yes**	
Big Bend	SPD-7	South Bottom Ash Pond	**Bottom ASH**		**Bottom ASH sluice**	Yes	No	**Yes**	
Big Bend	SPD-8	Bottom Ash Suction Pond	**Bottom ASH**		**Bottom ASH sluice**	Yes	No	**Yes**	
Big Bend	SPD-9	North Fly Ash/Economizer Ash Pond	**Fly ASH**	**Economizer ASH, Mill Rejects**	**Fly ASH sluice,** Mill reject sluice**, Economizer ASH Sluice**	Yes	No	**Yes**	

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
Big Bend	SPD-10	South Fly Ash/Economizer Ash Pond	**Fly ASH**	**Economizer ASH,** Mill Rejects	Economizer ASH Sluice	Yes	No	**Yes**	
Big Bend	SPD-11	Fly Ash/Economizer Ash Suction Pond		**Economizer ASH,** Mill Rejects	**Fly ASH sluice, Mill reject sluice, Economizer ASH Sluice**	Yes	No	**Yes**	
Big Bend	SPD-12	Long-Term Fly Ash Pond			**Fly ASH sluice, Gypsum pile runoff, Combined ash sluice, Tertiary Treated Reclaim Water**	Yes	No		**Yes**
Big Bend	SPD-13	**Long-Term Bottom Ash Pond**			Stormwater	No	No Answer		
Big Bend/ Polk	Landfill-1	**Off-site Landfill**/ Slag Pile		**Slag**		Yes	Yes	**Yes**	
Big Bend/ Polk	SPD-3	**Off-site Pond**/ Cooling Reservoir			**Ash pile runoff,** Boiler blowdown, Combustion turbine cleaning (compressor portion of the turbine water), Floordrain wastewater, filter backwash, general runoff, leachate, Closed-Cycle cooling water, RO reject water	No	No		**Yes**
C D McIntosh Jr	LAND FILL-1	Landfill (active)	**Bottom ASH, Fly ASH, FGD Calcium Sulfate (Gypsum), FGD Pozzolanic Material**	Plant sump solids		Yes	No	**Yes**	
C D McIntosh Jr	RET-LAND FILL-1	Northeast Landfill	**FGD Pozzolanic Material**			Yes	No	**Yes**	

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
C D McIntosh Jr	SPD-1	Process Water Ponds			Air heater cleaning water, Boiler blowdown, **Bottom ash sluice**, Boiler fireside cleaning water, Boiler tube cleaning water, Coal pile runoff, Ion exchange wastewater, Floor drains from power island area, General runoff- landfill area	Yes	No		**Yes**
Cedar Bay Generating Co. LP	SPD-1	D-002			General runoff, Coal pile runoff, Limestone pile runoff, **Periodic stormwater runoff from temporary ash storage**	Yes	No		**Yes**
Central Power & Lime	SPD-1	Pond 5			**Landfill runoff - uncapped landfill**	No	No Answer		
Central Power & Lime	SPD-2	Coal Pile Runoff Pond		Data Missing	Closed cycle condenser cooling water, Other	Yes	No		
Crist	LAND FILL-1	Ash Landfill	**Boiler SLAG, Bottom ASH, Fly ASH**	Mill Rejects		Yes	Yes	**Yes**	
Crist	LAND FILL-A	Gypsum Area 2	**FGD Calcium Sulfate (Gypsum)**	Limestone		Yes	No	**Yes**	
Crist	RET-SPD-1	Governor's Island Ash Pond	**Boiler slag, bottom, fly**	Mill rejects	**Combined ash sluice**	No	No	**Yes**	
Crist	SPD-1	Ash Pond	**Boiler slag, bottom, fly**	Mill rejects	YDWW, **bottom ash sluice**, cooling tower blowdown, ion exchange WW, **SPD-2 effluent, unit 6 economizer ash**	No	No	**Yes**	
Crist	SPD-2	Oil Skimmer Pond			Coal pile runoff, floor drian WW, YDWW, boiler blowdown, SPD-3 effluent, **fly ash silo sump**	No	No		**Yes**

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
Crist	SPD-3	Treated Metal Cleaning Pond			Metal cleaning wastes	No	No		
Crist	SPD-4	Ash Landfill Pond	**Boiler slag, bottom, fly**		**Landfill runoff- capped and uncapped landfill, leachate**	No	No	**Yes**	
Crist	SPD-5	Interim Landfill Pond	**Boiler slag, bottom, fly**		**Landfill runoff- capped and uncapped landfill**	No	No	**Yes**	
Crist	SPD-6	Gypsum Area 1 Cell 2	**Gypsum**		**gypsum pile runoff, limestone pile runoff, FGD slurry blowdown, gypsum washawater**	Yes	No	**Yes**	
Crist	SPD-7	Gypsum Area1 Sedimentation Pond	**Gypsum**		**SPD-6 effluent**	Yes	No	**Yes**	
Crist	SPD-8	Gypsum Area1 Return Water Pond	**Gypsum**		**SPD-7 effluent**	Yes	No	**Yes**	
Crist	SPD-A	Gypsum Cell 1	**Gypsum**		**Gypsum pile runoff, limestone pile runoff, FGD slurry blowdown, gypsum washawater**	Yes	No	**Yes**	
Crist	SPD-B	Gypsum Area 2 Cell 3	**Gypsum**		**Gypsum pile runoff, limestone pile runoff, FGD slurry blowdown, gypsum washawater**	Yes	No	**Yes**	
Crist	SPD-C	Gypsum Area 2 Cell 4	**Gypsum**		**Gypsum pile runoff, limestone pile runoff, FGD slurry blowdown, gypsum washawater**	Yes	No	**Yes**	
Crist	SPD-D	Gypsum Area 2 Return Water cells 3 & 4	**Gypsum**		SPD-C effluent	Yes	No	**Yes**	
Crist	SPD-E	Gypsum Area 2	**Gypsum**		SPD-D effluent	Yes	No	**Yes**	

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
Crystal River	LAND FILL-1	Landfill-1	**Bottom ASH, Fly ASH**	Cooling tower sludge, IWW pond dredge material		No	No	**Yes**	
Crystal River	LAND FILL-A	Landfill-2	**Bottom ASH, Fly ASH, FGD Calcium Sulfate (Gypsum)**	unknown at this time		Yes	Yes	**Yes**	
Crystal River	SPD-1	CRS IWW-1			Air heater cleaning water, boiler blowdown, Floor drain WW, flter backwash, RO reject water, Treated Domestic WW, BFCW,BTCW, GR, IXW, YARDW, Neutralization Tank WW	No	No		
Crystal River	SPD-2	CRS IWW-2			Air heater cleaining water, boiler blowdown, floor drain WW, filter backwash, RO reject water, BFCW, BTCW, GR IXW, YARDW	No	No		
Crystal River	SPD-3	CRS IWW -3			Air heater cleaining water, boiler blowdown, floor drain WW, filter backwash, RO reject water, BFCW, BTCW, GR, IXW, YARDW, **FGD slurry blowdown**	No	No		**Yes**
Crystal River	SPD-4	CRS IWW South Pond Exp. Area			Air heater cleaining water, boiler blowdown, floor drain WW, filter backwash, RO reject water, BFCW, BTCW, GR , IXW, YARDW,	No	No		
Crystal River	SPD-5	CRS South Coal Yard Runoff Pond			GR, coal pile runoff, other	No	No		

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
Crystal River	SPD-6	CRN IWW Percolation Pond			Air heater cleaining water, boiler blowdown, floor drain WW, filter backwash, boiler fireside cleaningwater, BTCW, GR, IXW, treated coal pile runoff	No	No		
Crystal River	SPD-7	CRN Domestic WWTP Percolation Pond			Treated domestic wastewater	No	No		
Crystal River	SPD-8	CRN Ash Runoff System			GR, **ash pile runoff,** limestone pile runoff	No	No		**Yes**
Crystal River	SPD-9	CRN Coal Pile Runoff Ditch			Coal pile runoff, GR, **treated bottom ash sluice** recycle water overflow	No	No		**Yes**
Crystal River	SPD-10	CRN Runoff Collection System			GR, discharde from internal NPDES outfalls	No	No		
Crystal River	SPD-11	CRN Coal Pile Collection Pond 1			Coal pile runoff	Yes	No		
Crystal River	SPD-12	CRN Coal Pile Collection Pond 2			Coal pile runoff	Yes	No		
Crystal River	SPD-13	CRN Coal Pile Settling Pond 1&2			Coal pile runoff, GR, coal handling equipment runoff, limestone storage area runoff	Yes	No		
Crystal River	SPD-14	CRN FGD Large & Small BD Treatment Pond			**FGD slurry blowdown**	Yes	No		**Yes**
Deerhaven Generating Station	LAND FILL-1	Fly Ash Landfill	**Bottom ASH, Fly ASH, Solids From Dry FGD**	Mill Rejects and pulverized coal.		Yes	Yes	**Yes**	

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
Deerhaven Generating Station	LAND FILL-2	Secure Landfill		Spray dryer brine concentrate products		Yes	Yes		
Deerhaven Generating Station	SPD-1		**Bottom ASH**		Air heater cleaning water, Boiler blowdown, Cooling tower blowdown, Yard drain wastewater, Filter Backwash, Landfill runoff - uncapped landfill, Demineralizer Regeneration Waste	Yes	No	**Yes**	
Deerhaven Generating Station	SPD-2			Cold Lime Softening Sludge	Cold Lime Sludge Supernatant, Other	Yes	No		
Deerhaven Generating Station	SPD-3				**ASH pile runoff,** Coal pile runoff	Yes	No		**Yes**
Deerhaven Generating Station	SPD-4				Landfill runoff- uncapped landfill	Yes	No		
Indiantown	SPD-1	WASTE WATER POND			Air heater cleaning water, Blowdown from brine concentrators, Coal pile runoff, Filter Backwash, Floor drain wastewater	Yes	No		
Indiantown	SPD-2	COAL PILE RUN OFF POND			Coal pile runoff	Yes	No		
Indiantown	SPD-3	STORM WATER BASIN #1			Cooling tower drift, runoff from parking lot	Yes	No		
Indiantown / Martin	SPD-9	**Off-site Pond**/ East Stormwater Basin	**Bottom ASH, Fly ASH**		Air heating cleaning water, Boiler fireside cleaning water, **Combined Ash Sluice,** Boiler tube cleaning water	Yes	No	**Yes**	

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
Indiantown / Martin	SPD-10	**Off-site Pond**/ East Solids Settling Basin	**Bottom ash, Fly ash**		Air heating cleaning water, Boiler fireside cleaning water, **Combined Ash Sluice,** Boiler tube cleaning water	Yes	No	**Yes**	
Lansing Smith	LAND FILL-1	Ash Landfill	**Boiler SLAG, Bottom ASH, Fly ASH**	Vegetative Debris from Intake screens, Non-hazardous cooling tower sludge, Mill rejects		Yes	No	**Yes**	
Lansing Smith	SPD-1		**Boiler SLAG, Bottom ASH, Fly ASH**	Mill Rejects, Non-Hazardous Cooling Tower Sludge,	Air heater cleaning water, **Fly ASH sluice**, Yard drain wastewater, Floor drain wastewater, Coal pile runoff, Filter Backwash, Mill rejects/**bottom ASH sluice**, Domestic WWTP Eflfluent, Treated Metal Cleaning Waste Pond effluent, Demineralizer Neutralization Basin Effluent	No	No	**Yes**	
Lansing Smith	SPD-2				Boiler tube cleaning water	Yes	No		
Lansing Smith	SPD-3				Demineralizer Wastewater	Yes	No		
Lansing Smith	SPD-4		**Boiler SLAG, Bottom ASH, Fly ASH**	Mill Rejects	Landfill runoff- capped landfill, landfill runoff- uncapped landfill	Yes	No	**Yes**	
Northside Generating Station	RET-SPD-1	Waste chem pond				No	No		
North-side Gen Station	LAND FILL-1	Outdoor pile 1	**Bottom ASH, Fly ASH**	Presed basin solids WWT-1	**Sluice water for ASH**	Yes	Yes	**Yes**	

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
Northside Generating Station	SPD-2	BSA 2			Leachate, Landfill runoff - uncapped landfill	Yes	Yes		
Northside Generating Station	SPD-3	BSA 3			Leachate, Landfill runoff - uncapped landfill	Yes	Yes		
Northside Generating Station	SPD-4	BSA 4			Leachate, Landfill runoff - uncapped landfill	Yes	Yes		
Northside Generating Station	SPD-5	CWTS Surge Basin North			Air heater cleaning water, **ASH pile runoff**, Boiler blowdown, Boiler fireside cleaning water, **FGD slurry blowdown**, Flood drain wastewater, Ion Exchange wastewater, Boiler Tube cleaning rinse water, Leachate	Yes	No		**Yes**
Northside Generating Station	SPD-6	CWTS Surge Basin South			Air heater cleaning water, **ASH pile runoff**, Boiler blowdown, Boiler fireside cleaning water, **FGD slurry blowdown**, Flood drain wastewater, Ion Exchange wastewater, Boiler Tube cleaning rinse water, Leachate	Yes	No		**Yes**
Northside Generating Station	SPD-7	CWTS Setlling Basin North			Air heater cleaning water, **ASH pile runoff**, Boiler blowdown, Boiler fireside cleaning water, **FGD slurry blowdown**, Flood drain wastewater, Ion Exchange wastewater, Boiler Tube cleaning rinse water, Leachate	No	No		**Yes**
Northside Generating Station	SPD-8	Active/Inactive/ Open Pond/Impound ment Units			Air heater cleaning water, **ASH pile runoff**, Boiler blowdown, Boiler fireside cleaning water, **FGD slurry blowdown**, Flood drain wastewater, Ion Exchange wastewater, Boiler Tube cleaning rinse water, Leachate	No	No		**Yes**

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
Northside Generating Station	SPD-9	CWTS Perc Pond			Other, treated process waste water from **SPD 7&8**	No	No		**Yes**
Northside Generating Station	SPD-10	CWTS Drying Basin North		**Lime sludge from SPD 7 & 8**		No	No		**Yes**
Northside Generating Station	SPD-11	CWTS Drying Basin South		**Lime sludge from SPD 7 & 8**		No	No		**Yes**
Scholz	SPD-1	Upper Pond	**Boiler SLAG, Bottom ASH, Fly ASH**	Mill Rejects	General runoff, Landfill runoff - capped landfill	No	Yes	**Yes**	
Scholz	SPD-2	Middle Pond	**Boiler SLAG, Bottom ASH, Fly ASH**	Mill Rejects, Carry over solids from SPD-1	**Bottom ASH sluice,** Yard drain wastewater, **Fly ASH sluice,** Air heater cleaning water, Boiler blowdown, Coal pile runoff, Yard drain wastewater, Treated domestic water, Toe drain water/leachate	No	No	**Yes**	
Scholz	SPD-3	Lower Pond	**Boiler SLAG, Bottom ASH, Fly ASH**	Mill Rejects, Carry over solids from SPD-2	Wastewater from SPD-1	No	No	**Yes**	
Seminole	LAND FILL-1	FGD Landfill	**Boiler slag, Bottom ASH, Fly ASH, FGD Calcium Sulfate (Gypsum), FGD Calcium Sulfite - Not Pozzolanic, FGD Pozzolanic Material**	Plant Sumps solids, Cooling tower basin sludge, Wastewater Equalization Basin sludge		Yes	Yes	**Yes**	

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
Seminole	LAND FILL-A	Increment 2	**Boiler slag, Bottom ASH, Fly ASH, FGD Calcium Sulfate (Gypsum), FGD Calcium Sulfite - Not Pozzolanic, FGD Pozzolanic Material**	Plant sumps solids, Cooling tower basin sludge, Wastewater Equalization Basin sludge		Yes	Yes	**Yes**	
Seminole	RET-SPD-1	Pond 4				No Answer	No Answer		
Seminole	RET-SPD-2	Pond 5				No Answer	No Answer		
Seminole	RET-SPD-3	Pond 6				No Answer	No Answer		
Seminole	SPD-1	Pond 1			**ASH pile rumpff, FGD scrubber purge**, Floor drain wastewater, General runoff, **Gypsum pile runoff, Gypsum wash water**, landfill runoff uncapped landfill, landfill leachate, Condensate Polisher Regeneration ; Mist Eliminator wash Water; Service Water; Pump Seal Water	Yes	Yes		**Yes**
Seminole	SPD-2	Pond 2			**ASH pile rumpff, FGD scrubber purge**, Floor drain wastewater, General runoff, **Gypsum pile runoff, Gypsum wash water**, landfill runoff uncapped landfill, landfill leachate, Condensate Polisher Regeneration ; Mist Eliminator wash Water; Service Water; Pump Seal Water	Yes	Yes		**Yes**

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
Seminole	SPD-3	Pond 3			**ASH pile runoff, FGD scrubber purge**, Floor drain wastewater, General runoff, **Gypsum pile runoff, Gypsum wash water**, landfill runoff uncapped landfill, landfill leachate, Condensate Polisher Regeneration ; Mist Eliminator wash Water; Service Water; Pump Seal Water	Yes	Yes		**Yes**
Seminole	SPD-4	Pond 7			**ASH pile runoff, FGD scrubber purge**, Floor drain wastewater, General runoff, **Gypsum pile runoff, Gypsum wash water**, landfill runoff uncapped landfill, landfill leachate, Condensate Polisher Regeneration ; Mist Eliminator wash Water; Service Water; Pump Seal Water	Yes	Yes		**Yes**
Seminole	SPD-5	Pond 8			**ASH pile runoff, FGD scrubber purge**, Floor drain wastewater, General runoff, **Gypsum pile runoff, Gypsum wash water**, landfill runoff uncapped landfill, landfill leachate, Condensate Polisher Regeneration ; Mist Eliminator wash Water; Service Water; Pump Seal Water	Yes	Yes		**Yes**
Seminole	SPD-6	Pond 9			**ASH pile runoff, FGD scrubber purge**, Floor drain wastewater, General runoff, **Gypsum pile runoff, Gypsum wash water**, landfill runoff uncapped landfill, landfill leachate, Condensate Polisher Regeneration ; Mist Eliminator wash Water; Service Water; Pump Seal Water	Yes	Yes		**Yes**
Seminole	SPD-7	South Perc Pond			Air heater cleaning water, Other, Stormwater from grassy areas	No	No		

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
Seminole	SPD-8	North Perc Pond			Boiler blowdown, Other, Stormwater from grassy areas	No	No		
Seminole	SPD-9	Coal Pile Pond			Coal pile runoff	Yes	No		
St Johns River Power Park	LAND FILL-2		**Bottom ASH, Fly ASH, FGD Calcium Sulfate (Gypsum)**	Construction debris		No	No	**Yes**	
St Johns River Power Park	LAND FILL-3		**Bottom ASH, Fly ASH, FGD Calcium Sulfate (Gypsum)**	Construction debris		No	No	**Yes**	
St Johns River Power Park	RET-LAND FILL-1		**Bottom ASH, Fly ASH, FGD Calcium Sulfate (Gypsum)**			No	No	**Yes**	
St Johns River Power Park	SPD-1				Filter Backwash, Ion exchange water, General runoff, Other, SPD-5 Effluent, **Discharge from SPD-6**, Waste Neutralization system effluent, **Discharge from SPD-8**	Yes	No		**Yes**
St Johns River Power Park	SPD-2				Coal pile runoff, Limestone pile runoff, Other, WWT-1 Effluent	Yes	No		
St Johns River Power Park	SPD-3				Air heater cleaning water, Boiler tube cleaning water, Boiler blowdown, Other, WWT-1 Effluent	Yes	No		
St Johns River Power Park	SPD-4				Oily Waste Water from oily waste sumps & area drains	Yes	No		

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
St Johns River Power Park	SPD-5				Other, Discharge from SPD-4	Yes	No		
St Johns River Power Park	SPD-6				**FGD scrubber purge, FGD slurry blowdown, Gypsum wash water, Bottom ASH sluice, General runoff**	Yes	No		**Yes**
St Johns River Power Park	SPD-7				Other, Storm Water Runoff	No	No		
St Johns River Power Park	SPD-8				**Bottom ash sluice, General runoff, Gypsum pile runoff, Landfill runoff - uncapped landfull, Yard drain wastewater**	No	No		**Yes**
St Johns River Power Park	SPD-9				Landfill runoff- uncapped landfill	No	No		
St Johns River Power Park	SPD-10				Landfill runoff - uncapped landfill	No	No		
Stanton Energy Center	LAND FILL-1	CWSA	**Bottom ASH, Fly ASH, FGD Pozzolanic Material**	Brine plant/crystallizer solids, Solid material from pond dredging		No	No	**Yes**	
Stanton Energy Center	SPD-2	Wastewater Pond			Cooling tower blowdown	Yes	No		

Plant Name	Pond ID	Designation	Solid Waste (Primary Coal Ash)	Solid Waste (Primary Coal Ash and Other)	Wastewater (Non-Primary Coal Ash)	Liner	Leachate Collection	Primary Coal Ash	Non-Primary Coal Ash
Stanton Energy Center	SPD-3	Recycle Pond			Landfill runoff - uncapped landfill, Floor drain wastewater, Cooling tower blowdown, Yard drain wastewater, General runoff, Coal pile runoff, Neutralization basin wastewater	Yes	No		
Stanton Energy Center	SPD-4	CWSA Runoff Pond			Landfill runoff - uncapped landfill	Yes	No		
Stanton Energy Center	SPD-5	Coal Storage Area Runoff Pond			Coal Pile runoff, yard drain wastewater,	Yes	No		