



The Permit authorizes the City to construct and operate a facility in Effingham County, Georgia, that will apply treated wastewater to land via spray irrigation.

The present case is the renewal of a prior challenge to the Permit filed by the Petitioner on November 16, 2013. In that earlier proceeding, the Director challenged the Petitioner's standing to bring the action, pursuant to O.C.G.A. § 12-2-2(c)(3)(A),<sup>1</sup> and the parties presented evidence on this issue during a three-day hearing that took place on January 27, February 5, and February 10, 2014. By Order dated March 5, 2014, the Court determined that the Petitioner had standing to bring the action.

Shortly thereafter, on March 7, 2014, the parties moved jointly to remand the matter to the Environmental Protection Division ("EPD"), on the grounds that the Federal Emergency Management Agency ("FEMA") was considering revisions to the 100-year flood zone in the vicinity of the proposed facility, and that any such revisions had the potential to impact the Permit. By Order dated March 11, 2014, the Joint Motion was granted, and the case was remanded without prejudice. The parties stipulated that the Petitioner was authorized to renew his appeal within thirty days of a determination by EPD that the Permit remained in compliance with applicable laws and rules.

On November 14, 2014, the Petitioner timely renewed his appeal by filing an amended Petition for Hearing ("Petition") with EPD.<sup>2</sup> By agreement of the parties, the evidentiary hearing on the merits of the Petition took place on March 2 and 3, 2015.<sup>3</sup> After consideration of the

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<sup>1</sup> The City joined in the Director's Motion.

<sup>2</sup> The Petition was received at the Office of State Administrative Hearings on November 24, 2015.

<sup>3</sup> As provided in the Scheduling Order entered on December 12, 2014, the entire record of the hearing on standing has been included in the record of the evidentiary hearing. The transcript of the standing hearing is cited herein as

evidence and legal arguments, and for the reasons stated below, the Director's issuance of the Permit is **AFFIRMED**.

## II. FINDINGS OF FACT

### A. Overview

The Permit authorizes the City to build and operate a land application system ("LAS") facility on a 265-acre tract of land located in Effingham County, Georgia, in the Ogeechee River basin ("Guyton site"). (Exs. J-1, P-6, R-28.) The site is bounded on its southwest side by Riverside Drive, a dirt road that divides the proposed LAS facility from a farm owned by the Petitioner. (T1. 177-79; Exs. J-4 at 2-3, P-6, P-15, R-28.) The Petitioner's farm sits between the Guyton site and the Ogeechee River, which runs along the southwestern border of the Petitioner's property. (Ex. R-28.)

Land application systems assimilate wastewater constituents by using an irrigation process that supports vegetative growth. (T1. 98-100; Ex. J-5 at § 1.1.) The LAS facility at issue in this case will apply treated wastewater to fields at the Guyton site using spray irrigation. (T1. 100; Exs. J-1, R-16.) As the wastewater percolates through the soil, a percentage of wastewater constituents will be taken up and recycled by crops planted on the sprayfield. (T1. 100-02; Exs. J-4, R-16.) Approximately 44.1 acres, or seventeen percent, of the Guyton site will be devoted to the LAS sprayfield. (T1. 510-11; J-1 at 8, J-4 at 31.) The remainder of the

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"T1." The transcript of the evidentiary hearing is cited herein as "T2." The evidentiary hearing record closed on April 24, 2015, after the parties submitted their proposed Findings of Fact and Conclusions of Law. It must be noted, however, that no party complied with the Court's directive to submit proposed Findings of Fact and Conclusions of Law, not to exceed thirty-five pages, that included citations to both the hearing record and to relevant legal authorities. See Amended Scheduling Order (March 4, 2015); T2. 316-321. The Petitioner avoided the prescribed page limit by submitting his Findings of Fact in single-spaced format. The Director, although his pleading was less than seventeen pages, submitted no Findings of Fact and included few record citations. The City merely adopted the Director's brief. Thus, the parties' post-hearing submissions were of limited utility.

property will not be used for wastewater irrigation under the Permit. (Ex. J-4 at 21-22.) The Petitioner fears that surface water and groundwater entering his property from the Guyton site will contain levels of constituents that are harmful to aquatic species and/or exceed the levels authorized by the Permit. (T1. 187-88.)

**B. Characteristics of Guyton Site**

1. Soils

Centenary and Foxworth soils predominate throughout the Guyton site's proposed sprayfield, with Pelham-Plummer soils present in the areas between the proposed sprayfield and the on-site wetlands. (Exs. J-4 at 5-8, P-319.) Centenary and Foxworth soils are sandy and rapidly permeable, and their saturated hydraulic conductivity<sup>4</sup> ranges from 23.17 inches per hour to 30.90 inches per hour. (Ex. J-4 at 19-20.) This permeability classification far exceeds the recommendation contained in EPD's Guidelines for Slow-Rate Land Treatment of Wastewater Via Spray Irrigation ("LAS Guidelines"), which state that "[i]n general, soils with a . . . permeability classification of moderate to moderately rapid (0.6 to 6.0 inches/hour) are suitable for wastewater irrigation." (Ex. J-5 at § 3.1.3.) Rapidly permeable, sandy soils are not preferred for wastewater irrigation because they have a low cation exchange capacity. (T1. 143.) This means that they are limited in their ability to hold nutrients, such as nitrogen and salts, making the nutrients more likely to reach groundwater absent immediate plant uptake. (T1. 118, 143; Ex. J-4 at 26.)

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<sup>4</sup> Saturated hydraulic conductivity is the rate at which water percolates through fully saturated soils. (T1. 113-16.)

## 2. Surface Water

Due to the rapidly permeable soils on the Guyton site, surface water movement takes place only infrequently. (T1. 104-05, 148-49; Ex. J-4 at 19-20.) Nonetheless, during and after storm events, rain that does not absorb into the ground travels offsite and onto the Petitioner's property. (T1. 69-71, 266-70.) Specifically, surface water drains from a 72.8-acre basin on the southwestern side of the Guyton site through culverts that have been built under Riverside Drive, connecting the Guyton site with the Petitioner's property.<sup>5</sup> (T1. 35, 41; Ex. P-20A.) This 72.8-acre drainage area includes approximately 23.9 acres of proposed LAS sprayfield.<sup>6</sup> (T1. 35; Exs. P-20A, R-35.) An additional 39.8 acres, primarily on the southern edge of the Guyton site, drains through another culvert to the Petitioner's property. (T1. 41; Exs. P-20A, R-35.) This basin also contains a small area of proposed sprayfield.<sup>7</sup> (Id.) The remaining acreage on the Guyton site drains to the northeast, away from the Petitioner's property. (Ex. P-20A.)

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<sup>5</sup> The culvert openings on the Guyton site are at a slightly higher elevation than the openings on the Petitioner's property, indicating that surface water flows through these culverts from the Guyton site on the north side of the road to the Petitioner's property on the south side. (T1. 35-40, 266-70; Ex. P-20A.) In addition, an aerial photograph shows a darkened surface or subsurface flow path traveling from the Guyton site to the Petitioner's property through the culvert under Riverside Drive. (T1. 268-70; Exs. J-3A, P-14 through P-19.) This manner of surface water flow has been personally observed by both the Petitioner and one of his expert witnesses, John Maerz, who presented videographic evidence of his observations at the evidentiary hearing. (T1. 181-82; T2. 159-60; Maerz Test. ¶ 3.16; Ex. P-179.) At the standing hearing, the City's consultant, Sam Asady, characterized Riverside Drive as a "continental divide" through which it is impossible for surface water to pass. (T1. 286-87.) However, this testimony was contradicted by the physical characteristics of the site, the personal observations of the Petitioner and Dr. Maerz, the testimony of other experts, and the incontrovertible videographic evidence. (T1. 35-41, 181-82, 266-70; T2. 159-60; Maerz Test. ¶ 3.16; Exs. P-16, P-17, P-20A, P-179.) Consequently, the Court rejects Dr. Asady's testimony in this regard.

<sup>6</sup> Some of the spray heads present in the original design have been relocated since the standing hearing, when this evidence was presented. (Causse Test. ¶ 23; Exs. P-20A, R-35.)

<sup>7</sup> The original site design included .2 acres of spray heads within the 39.8-acre basin. (Ex. P-20A.) Additional spray heads were moved into this area when the design was revised. (Causse Test. ¶ 23; Ex. R-35.)

### 3. Groundwater

In addition to this surface water flow, the groundwater south of a ridgeline on the southwestern side of the Guyton site also travels toward the Petitioner's property.<sup>8</sup> (T1. 104-08, 122-24, 454-56; Dixon Test. ¶ 34; Exs. J-7, J-7A.) The groundwater divide runs from approximately 400 feet north of Riverside Drive, near the western corner of the Guyton site, to approximately 255 feet from Riverside Drive to the southeast. (Dixon Test. ¶ 34; Exs. P-204 through P-209.) Roughly ten percent of the Guyton site, including a portion of the proposed sprayfield, lies south of the groundwater divide. (T1. 454-56; Dixon Test. ¶ 34; Kendall Test. ¶ 9; Ex. R-35.)

Water that originates on the surface percolates vertically through the soil until it reaches the water table, where it mixes with existing groundwater and moves laterally to lower groundwater elevations. (T1. 104-05). Therefore, the treated wastewater that is applied to the sprayfield north of the groundwater divide will flow away from the Petitioner's property when it reaches the groundwater. (T1. 161-63.) However, percolate that infiltrates groundwater from the sprayfield on the south side of the groundwater divide will move in the opposite direction, eventually migrating to the groundwater underlying the Petitioner's property. (T1. 104-05, 454-56; Dixon Test. ¶ 34.)

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<sup>8</sup> Dr. Asady testified that he lacked sufficient data points to accurately represent groundwater elevations and flow in the area surrounding Riverside Drive. (T1. 335-36; Ex. J-7A.) However, the other experts who testified, including James Kennedy, the State geologist, expressed confidence that the map was sufficiently accurate to support a conclusion that groundwater from a portion of the Guyton site flows to the Petitioner's property. (T1. 106-09, 476.) Further, groundwater elevations generally follow surface topography. (T1. 108-09.) Thus, groundwater underlying the southwest side of the Guyton site, like surface water in the same area, flows to the Petitioner's property. (T1. 104-09.) Dr. Asady's testimony was defensive and, at times, evasive, which further undermined its reliability.

The seasonal high water table underlying the Guyton site's sprayfield likely measures four to five feet below the surface for the months of December to March in most years. (T2. 97-98; Exs. J-4 at 33.) This estimate of the seasonal high water table is consistent with both the findings of the 2011 Soil Investigation and Hydrogeologic Assessment Report ("Hydrogeologic Assessment"), which was submitted to EPD in conjunction with the City's permit application, and the testimony of the Petitioner's hydrogeology expert, Stewart Dixon, who collected depth to groundwater data from eleven piezometers on the Petitioner's property during each quarter of 2014.<sup>9</sup> (T2. 76, 99-100; Dixon Test. ¶¶ 22, 35; Exs. J-4 at 33, P-204 through P-212.) The estimated seasonal high water table at the Guyton site is higher than is recommended by the LAS Guidelines, which provide, "Sites with a seasonal high water table less than 5 feet from the surface will not be accepted for slow-rate land treatment unless drainage improvements are made." (Ex. J-5 at § 3.13.)

#### 4. Wetlands

The Guyton site includes seven wetlands<sup>10</sup> with a total area encompassing nearly 77 acres. (Exs. J-2, P-6, P-7.) The wetlands support an amphibian population that ranges across an

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<sup>9</sup> Because the City's soil data was collected in October 2007, a relatively dry period in Georgia, the depth to groundwater at that time was greater than seven feet in all piezometers save one and did not provide a reliable projection of the seasonal high water table. (T1. 334, 451; Ex. J-4 at 33.) Consequently, the seasonal high water table must be estimated based on the characteristics of the Centenary and Foxworth soils, both of which are expected to have a seasonal high water table of less than five feet, and Mr. Dixon's data, which was collected approximately seven years later and did not include any measurements of depth to groundwater on the Guyton site. (T2. 76, 100; Dixon Test. ¶¶ 22, 35; Exs. J-4 at 33, P-204 through P-212.) The Court has also considered the testimony of Dr. Kennedy, who estimated that the depth to groundwater underlying the Guyton sprayfield was greater than 5 feet ninety-five percent of the time. (Kennedy Test. ¶¶ 7-9.) However, his calculations were based on a United States Geological Survey well located twenty-five miles away, and he had not had the opportunity to review Mr. Dixon's 2014 data. (T2. 238-39.) Unfortunately, because none of the parties, at any point in time, collected synchronous measurements of depth to groundwater on both the Guyton site and the Petitioner's property, the evidence on this issue was incomplete. (T2. 229-30.)

<sup>10</sup> These wetlands are considered jurisdictional wetlands under the federal Clean Water Act and are regulated by the United States Army Corps of Engineers. (Ex. J-2.) Two of the seven wetlands were initially identified as

interconnected network of spatially proximate wetlands on the Guyton site and its surrounding properties. (T2. 185-88; Batzer Test. ¶ 5; Maerz Test. ¶ 3.11.) It is likely that both surface water and groundwater infiltrate the wetlands on the site.<sup>11</sup> (T2. 180-81; Dixon Test. ¶ 36; Ex. P-7.)

## 5. Floodplain

Portions of the Guyton site lie within the 100-year flood zone, which is a flood level that has a one percent chance of occurring in any given year. (T1. 76.) Computer models use technical data to project flood elevations during a 100-year flood event and serve as the basis for FEMA's flood zone maps. (T1. 44.) One significant variable that is applied to calculate flood elevations is the Manning's roughness coefficient. (T1. 45-46.)

The Manning's roughness coefficient is a characterization of the hydraulic roughness of a channel (here, the Ogeechee River) and its overbanks and floodplain. (T1. 45-46.) Hydraulic roughness impacts flood elevations because water travels through a rough, densely vegetated channel at slower velocity than it would through a smooth channel. (T1. 50-51.) Slow-moving water accumulates in and around the channel and increases flooding. (Id.) Consequently, a relatively rough channel and floodplain, as represented by a Manning's roughness coefficient of

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geographically isolated and therefore non-jurisdictional. (Peiken Test. ¶¶ 4-5; Exs. J-2, P-6, P-7.) However, to expedite the required jurisdictional determination, the City decided to characterize all of the on-site wetlands as jurisdictional. (Id.)

<sup>11</sup> James Kennedy, the State Geologist, testified that he believed the wetlands on the Guyton site were fed exclusively by surface water, based on his analysis of the depth to groundwater on the site. (T2. 237.) However, his testimony did not address the Pelham-Plummer soils found across broad swaths of the site, in the areas between the wetlands and the proposed sprayfield. (Id.; Exs. J-4 at 8, P-319.) The presence of these soils indicates that the depth to groundwater is less than two feet in those areas. (Ex. P-321.) Dr. Kennedy further testified that groundwater that is within two feet of the ground surface can penetrate wetlands. (T1. 463.) Even so, the soils on the Guyton site do not contain a clay lens that would cause the shallow subsurface flow in the vadose zone to move horizontally into the wetlands prior to reaching the groundwater. (T1. 473-75.)



greater value, correlates with a higher flood elevation. (Id.; Quigley Test. [Flood Elevation] ¶ 25.)

FEMA revised its flood zone map for the Ogeechee River basin near the Petitioner's property and the Guyton site in 2014. (Quigley Test. [Flood Elevation] ¶ 31; Ex. P-315.) Prior to the revision, the Manning's roughness coefficient for the main channel, overbanks, and floodplain in this area was 0.07 for all cross-sections. (T1. 45-46; Quigley Test. [Flood Elevation] ¶ 8; Ex. P-9.) During the revision process, the Petitioner submitted reports from two experts recommending that the Manning's roughness coefficient be increased based on newly acquired technical data. (T1. 47-49; Quigley Test. [Flood Elevation] ¶¶ 9, 12, 14; Exs. P-304, P-307.) Both experts recommended that the Manning's roughness coefficient should be increased from 0.07 to 0.14<sup>12</sup> for eight cross-sections of the river, based on vegetative surveys, photographic evidence, observed historical flooding, and the Guide for Selecting Manning's Roughness Coefficients for Natural Channels and Flood Plains published by the United States Geological Survey. (Quigley Test. [Flood Elevation] ¶¶ 12-30; Exs. P-45 through P-79, P-101 through P-140, P-304, P-306 through P-312, P-316.) However, FEMA did not adopt their recommendations in full. (Quigley Test. [Flood Elevation] ¶ 13, 31; Exs. P-305, P-313.) Instead, FEMA elected to increase the Manning's roughness coefficient to values between 0.124 and 0.155 for the left overbank of three cross-sections of the river. (Id.) Flood modeling based on this revised data raised projected 100-year flood elevations on the Petitioner's property and

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<sup>12</sup> Due to a mathematical error in his original calculation, one of the Petitioner's experts, Robert Campbell, initially recommended the application of a Manning's roughness coefficient with a value between 0.20 and 0.22. (T1. 45-46.) However, he revised his recommendation after the error was discovered. (Exs. P-303, P-304.)

the Guyton site, but not to the degree that the experts believed was warranted. (Quigley Test. [Flood Elevation] ¶¶ 24-26; Ex. P-310, P-316.)

**C. Characteristics of Petitioner's Property**

The Petitioner owns a 2,400-acre farm that lies between the Ogeechee River, to the southwest, and Riverside Drive, to the northeast. (T1. 177; Ex. R-28.) He uses the property for pine forestry, recreation, and aesthetic enjoyment, including the observation of amphibian species. (T1. 177-79, 188; T2. 165.) The Petitioner also promotes wildlife on his property by growing food plots for game, such as turkey and deer. (T2. 165.) Although he does not reside at the farm on a full-time basis, he spends most weekends there and has enjoyed observing and learning about the animals on his property. (T1. 177-80, 190.) The Petitioner has invited herpetologists and other experts onto his land to teach him about the species that reside there. (T1. 178-80.)

The northeastern section of the Petitioner's farm, which is just across Riverside Drive from the Guyton site, contains an isolated depression wetland that provides a habitat for frogs, toads, salamanders, and turtles, among others.<sup>13</sup> (T1. 236-37; Maerz Test. ¶ 3.1; Ex. P-141.) This wetland, which is consistently ponded in most years and contains water that is clear and tea-stained, is known as a blackwater wetland. (T2. 146; Maerz Test. ¶¶ 3.1, 3.2; Exs. P-142 through P-156.) Groundwater is a primary recharge source, as the wetland is not stream-fed and surface water runoff is minimal due to the topography and sandy soils. (Maerz Test. ¶ 3.3; Dixon Test. ¶

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<sup>13</sup> John Maerz, a wildlife ecologist and Associate Professor of Vertebrate Ecology at the University of Georgia, documented breeding activity of the following amphibian species in the isolated wetland on the northern boundary of the Petitioner's property: spring peepers (*pseudacris crucifer*), southern chorus frogs (*pseudacris nigrita*), southern leopard frogs (*lithobates [rana] sphenoccephalus*), southern toads (*anaxyrus [bufo] terrestris*), and marbled salamanders (*ambystoma opacum*). (Maerz Test. ¶ 3.4.) These species, because they breed in the winter and spring, are particularly vulnerable to decreased water quality between the months of January and May. (*Id.*)

36.) The wetland and its surrounding forest are high-quality habitats for an abundant and diverse population of amphibians. (T1. 236.) The wetland is also an important breeding site for many amphibian species that are vulnerable to increased concentrations of nitrate and salts and decreased levels of dissolved oxygen. (T1. 236; Maerz Test. ¶ 3.4.)

Studies have shown that nitrate exposure inhibits development and increases rates of disease in amphibians. (T1. 204-10.) Nitrate exposure at concentrations between 3.5 and 6 mg/L can reduce amphibian populations by impairing embryonic and larval development, reducing hatching rates, and hindering the growth of hatchlings. (T1. 204-07, 209-10, 227-28; Maerz Test. ¶¶ 3.7-3.8.) Concentrations of salts as low as 135 mg/L can cause high embryonic and larval mortality. (T1. 230-31.) Additionally, contemporaneously elevated concentrations of nitrogen and phosphorus can induce eutrophication, a process whereby increased algae growth in a water body suppresses oxygen levels. (T1. 208-09; Batzer Test. ¶ 5; Mallin Test. ¶¶ 4, 10.) Low levels of dissolved oxygen are harmful to aquatic organisms. (Id.; Maerz Test. ¶ 3.9; Mallin Test. ¶ 13.)

#### **D. Design of LAS Facility**

The Guyton LAS facility is required to operate in accordance with the Design Development Report and other supporting data submitted in conjunction with the City's permit application, including the Hydrogeologic Assessment. (Causse Test. ¶ 9; Exs. J-1 at 1, R-15 through R-17.) The facility must also comply with all Permit conditions. (Hendricks Test. ¶ 11; Ex. J-1 at 16.)

Wastewater will enter the facility after being collected in the City of Guyton's sewer system. (T1. 100, 485-86; Causse Test. ¶ 17; Ex. R-16 at § 4.2.) Upon arrival, the wastewater

will first pass through screens that will remove solids. (T1. 486; Ex. R-16 at § 4.3.) Next, it will move to aeration ponds, where bacteria will break down the organic waste. (T1. 486; Ex. R-16 at § 4.5, R-29.) This treated wastewater, which must meet the pretreatment requirements found in Part I.B.1 of the Permit, will then be transferred to storage ponds<sup>14</sup> and eventually applied to fields at the Guyton site using spray irrigation. (T1. 100, 153-54, 486; Cause Test. ¶ 17; Ex. J-1 at 4, R-16 at §§ 4.7, 4.10.)

The sprayfield may be operated five days per week (Monday through Friday) and is divided into five zones. (Cause Test. ¶ 18; Ex. R-16 at § 4.10.2.) The maximum application rate for each zone is 0.25 inches per hour and 1.61 inches per week. (T1. 100, 153-54, 486; Cause Test ¶ 18; Ex. J-1 at 8.) Only one zone may be irrigated per day, which allows for a resting period of at least six days between applications. (Cause Test. ¶ 18; Ex. R-16 at § 4.10.2.) Because the Permit places an absolute prohibition on any discharge to surface water, the facility is not authorized to irrigate if conditions would permit runoff and discharge outside the sprayfield. (Cause Test. ¶ 18; Ex. J-1 at 15.) No spray heads will be placed inside the 100-year flood zone<sup>15</sup> as depicted on FEMA's current flood map.<sup>16</sup> (T1. 489-90; Cause Test. ¶ 23; Exs. P-315, R-35.) In addition, the Permit provides for a fifty-foot buffer between the sprayfield

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<sup>14</sup> The facility will maintain a storage capacity of up to twelve days to account for periods of wet weather and other possible operational issues. (Cause Test. ¶ 17; Ex. R-16 at § 4.7.)

<sup>15</sup> Spray heads that would have been placed in the 100-year flood zone under the original design plan have been relocated to areas outside the flood zone, in accordance with FEMA's revised map. (Cause Test. ¶ 23; Ex. R-35.) EPD has allowed spray heads within the 100-year flood zone in "a couple of instances . . . historically," with the rationale that the permit would prohibit spray irrigation during a flood. (T1. 508.)

<sup>16</sup> FEMA's flood zone maps are commonly relied upon for LAS design and permitting purposes. (T2. 58.)

and the on-site wetlands,<sup>17</sup> as well as a 150-foot buffer around the entire site. (T1. 490-91; Cause Test. ¶ 22; Ex. R-35.)

The City is required to establish and maintain a vegetative cover on the sprayfield as a condition of the Permit. (Ex. J-1 at 12.) Bermuda grass will be planted during the warm season, while rye and/or oats will grow during the cool season. (T1. 119; Ex. J-4 at 27.) When plant uptake is active, most of the nitrogen will be captured. (T1. 119-20; Ex. J-4 at 28-29.) However, crop growth is not static. (Id.) Therefore, although the sprayfield crops will provide good overall constituent uptake, nitrate and salts will likely infiltrate the groundwater and migrate off-site, especially during a three- or four-week period each spring and fall when crop rotation occurs. (T1. 119-21, 142-43, 146-47, 169-70.) For this reason, the Permit requires that nitrate in the groundwater leaving the Guyton site may not exceed the maximum contaminant level for drinking water, or 10 mg/L. (Ex. J-1 at 7.) Additionally, pursuant to the Hydrogeologic Assessment submitted with the City's permit application, which has been incorporated into the Permit, the nitrate concentration in percolate reaching the groundwater must be less than 7 mg/L at all times of year. (Cause Test. ¶¶ 19-20; Ex. J-4 at 28-29.)

As previously noted, treated wastewater may be applied to the Guyton sprayfield at a maximum rate of 0.25 inches per hour and 1.61 inches per week. (T1. 100, 153-54, 486; Cause Test. ¶ 18; Ex. J-1 at 8.) These Permit limits were established in accordance with the LAS Guidelines, which provide for the selection of a wastewater loading rate after consideration of predicted precipitation, evapotranspiration, the design percolation rate, nitrogen loading limitations, other constituent loading limitations, groundwater and drainage conditions, and

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<sup>17</sup> Intermittent wetlands on the site must be evaluated annually, with additional buffers imposed if the intermittent wetlands should become perennial. (T. 490-91; Cause Test. ¶ 22.)

average and peak design wastewater flows. (Ex. J-5 at 17.) Generally speaking, EPD has established a ceiling on wastewater application rates of 2.5 inches per week for an LAS facility. (T1. 491, 498; Ex. J-5 at 18.) At the Guyton site, however, nitrogen loading necessitates a more stringent limit on the quantity of wastewater that can be applied to the sprayfield. (T1. 102.)

Nitrogen exists in many forms and transforms easily in soils from one form to another. (T1. 294-95.) Most of the nitrogen in land-applied wastewater is removed or assimilated through one of four processes: ammonia volatilization,<sup>18</sup> denitrification,<sup>19</sup> microbial immobilization,<sup>20</sup> or vegetation uptake. (Ex. J-4 at 27-28.) The predicted concentration of nitrate in the percolate reaching groundwater is derived from a nitrogen balance calculation, which considers the total nitrogen inputs to the site and subtracts the nitrogen removed through the four assimilation pathways. (Ex. J-4 at 27-29.) Any residual nitrogen exists in the form of nitrate and is assumed to migrate to the groundwater. (T1. 102; Ex. J-5 at 19.)

At the Guyton facility, the projected concentration of total nitrogen in the applied wastewater is 30 mg/L, with approximately half of this total, or 15 mg/L, in the form of ammonia. (Ex. J-4 at 27.) To ensure that the percolate concentration of nitrate does not exceed 7 mg/L by the time it reaches the groundwater, the nitrogen balance equation found in the LAS Guidelines applies conservative assumptions regarding the amount of nitrogen lost to

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<sup>18</sup> Ammonia is an intermediate form of nitrogen that evaporates after being converted in the soil from an organic form. (T1. 411.)

<sup>19</sup> Denitrification is a bacterial process that releases atmospheric nitrogen, an inert gas. (T2. 170.)

<sup>20</sup> Microbial immobilization is a process whereby microbes in the soil consume and retain nitrogen drawn from the soil matrix. (T1. 102, 118; Ex. J-4 at 28.)

volatilization, denitrification, immobilization, and crop uptake. (T1. 405-06; Ex. J-5 at 19, 41, 44-45.)

The total nitrogen input from wastewater application at the Guyton facility is estimated at 285.38 pounds per acre during a six-month period. (Ex. J-4 at 29.) This figure is then added to the estimated nitrogen input from rainfall of 2.5 pounds per acre, for a total nitrogen input from all sources of 287.88 pounds per acre every six months. (Id.) Approximately five percent of the ammonia nitrogen, or a projected 7.13 pounds per acre, will be removed through volatilization. (Ex. J-4 at 28-29.) Denitrification accounts for another ten percent of the total nitrogen applied, or 28.79 pounds per acre. (Id.) The immobilization rate is assumed to be zero. (Id.) Crop uptake is expected to remove an additional 167 pounds per acre during the winter growing season (October to March) and 225 pounds per acre during the summer growing season (April to September). (Id.) Based on these figures, the nitrate concentration in the percolate reaching groundwater is projected at 6.47 mg/L in the winter months and 3.29 mg/L in the summer months. (Id.) The nutrient concentration will attenuate as it moves toward the Petitioner's property, decreasing by approximately 22% at 200 feet and 38% at 400 feet from the sprayfield. (T1. 457-59.)

The City is required to install groundwater monitoring wells around the sprayfield and to take quarterly measurements to ensure compliance with the Permit. (Causse Test. ¶ 21; Ex. J-1 at 7.) If groundwater leaving the spray field boundary<sup>21</sup> exceeds the 10 mg/L maximum

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<sup>21</sup> DNR Rules establish the maximum contaminant level for groundwater leaving the boundary of a land disposal system, which for an LAS facility is the edge of the area wetted by the irrigation spray. (Hendricks Test. ¶ 7.)

contaminant level for drinking water, the facility's operations may be suspended or other corrective action required. (T1. 134-35; Hendricks Test. ¶¶ 7, 11-12; Ex. J-1 at 7.)

### III. CONCLUSIONS OF LAW

The Petitioner has challenged the Director's issuance of the Permit under O.C.G.A. § 12-2-2(c)(2), which provides that "[a]ny person who is aggrieved or adversely affected by any order or action of the director shall . . . have a right to a hearing before an administrative law judge of the Office of State Administrative Hearings . . . acting in the place of the Board of Natural Resources."<sup>22</sup> The evidentiary hearing is *de novo*, and the administrative law judge "shall make an independent determination on the basis of the competent evidence presented at the hearing." Ga. Comp. R. & Regs. 616-1-2-.21(1). As a third party challenging the issuance of a permit, the Petitioner bears the burden to prove, by a preponderance of the competent evidence presented at the hearing, that the Director's issuance of the permit was unlawful. Ga. Comp. R. & Regs. 616-1-2-.07(1), .21(4); see also Longleaf Energy Assoc., LLC v. Friends of the Chattahoochee, 298 Ga. App. 753, 768 (2009) (the administrative law judge is required "to consider the applicable facts and law anew, without according deference or presumption of correctness to the EPD's decision, and to render an independent decision on whether the Challengers carried their burden to prove by the preponderance of the evidence that the permit should not have been issued.").

The Petitioner argues that the Director's decision to issue the Permit should be reversed for the following reasons: (1) the Permit was issued in violation of Georgia's antidegradation rule; (2) operation of the Guyton LAS facility as permitted will violate Georgia's water quality standards; (3) the Permit was issued in violation of the LAS Guidelines and without a rational

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<sup>22</sup> When a contested case is referred to the Office of State Administrative Hearings, the administrative law judge assigned to the case has "all the powers of the referring agency . . ." O.C.G.A. § 50-13-41(b).



basis for a departure from those standards; and (4) at times, the facility will be unable to comply with its Permit. However, after hearing and evaluating the evidence and the parties' arguments, the Court finds that the Director's issuance of the Permit was lawful.

**A. The Permit As Issued Complies With Georgia's Antidegradation Rule.**

According to the Petitioner, the Director was not authorized to issue the Permit without the antidegradation review contemplated by Ga. Comp. R. & Regs. 391-3-6-.03(2)(b)(ii). More specifically, the Petitioner argues that the City was required to submit a detailed antidegradation analysis, as specified in EPD's Antidegradation Analysis Guidelines, to demonstrate that the issuance of the Permit was "necessary to accommodate important economic or social development."<sup>23</sup> Ga. Comp. R. & Regs. 391-3-6-.03(2)(b)(ii); Antidegradation Analysis Guidelines (May 2014) (Ex. R-37).

Georgia's antidegradation rule has its origins in the Federal Water Pollution Control Act (subsequently renamed the "Clean Water Act" or "CWA"), which was enacted "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" pursuant to a "national goal" of eliminating pollutant discharges into navigable waters. 33 U.S.C. § 1251(a). Under the Clean Water Act, such discharges are allowed only if the applicable requirements of the statute and its implementing regulations have been met. 33 U.S.C. § 1311.

Under the CWA, the United States Environmental Protection Agency ("EPA") has the authority to issue National Pollution Discharge Elimination System ("NPDES") discharge permits and to delegate this authority to the states where appropriate. 33 U.S.C. § 1342. In

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<sup>23</sup> An antidegradation analysis must include regional water plan projections, population and flow projections, an analysis of the technical feasibility of specific alternatives to the proposed discharge, and an economic feasibility analysis, among other requirements. Antidegradation Analysis Guidelines at 4-15.

Georgia, EPA has authorized the Director to issue NPDES permits pursuant to the CWA. Hughey v. JMS Dev. Corp., 78 F.3d 1523, 1525 (11th Cir. 1996); see 33 U.S.C. § 1342; O.C.G.A. § 12-5-30. To determine whether an NPDES permit should be issued, and under what conditions, the Director implements standards established by the rules of the Georgia Department of Natural Resources (“DNR”). The DNR rules, in turn, must comply with the minimum requirements established by EPA pursuant to its authority under the CWA. 33 U.S.C. § 1342(b).

EPA’s regulation implementing the CWA also directs states to develop an antidegradation policy and sets forth the policy’s minimum requirements. 40 C.F.R. §§ 131.12(a)(2), 131.4(a). See 33 U.S.C. § 1370; Pud No. 1 v. Wash. Dep’t of Ecology, 511 U.S. 700, 704 (1994). Georgia’s antidegradation rule, which is identical to the minimum policy requirements established by EPA,<sup>24</sup> provides as follows:

- (i) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.
- (ii) Where the quality of the waters exceed[s] levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the division finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the division's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the division shall assure water quality adequate to protect existing uses fully. Further, the division shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

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<sup>24</sup> The only difference between the Georgia rule and the EPA rule is that Georgia uses the word “division” in place of the word “State.” Ga. Comp. R. & Regs. 391-3-6-.03(2)(b); cf. 40 C.F.R. § 131.12(a)(1)-(2).

Ga. Comp. R. & Regs. 391-3-6-.03(2)(b). Since Georgia's antidegradation rule was promulgated to implement the Director's delegated authority under the CWA, the CWA must guide interpretation of the rule.

The Petitioner argues that, as applied to the Guyton LAS facility, Georgia's antidegradation rule requires a detailed analysis to establish the necessity of the discharge for social and economic development and the absence of a feasible alternative. See Antidegradation Analysis Guidelines at 2, 4. However, interpreting the rule in accordance with the CWA, the Court concludes that only a point source discharge to surface water will trigger a detailed antidegradation analysis. Therefore, because the Guyton LAS facility is a nonpoint source that will discharge to groundwater rather than surface water, a detailed antidegradation analysis is not required.

1. Groundwater Discharges Are Not Regulated Under the CWA.

Under the CWA, an NPDES permit is required to discharge pollutants into "navigable waters," which are defined as "waters of the United States, including the territorial seas." 33 U.S.C. §§ 1311(a), 1362(12)(A). EPA's regulatory definition of "waters of the United States" includes many categories of surface water, including those that are not navigable in the traditional sense.<sup>25</sup> 40 C.F.R. § 230.3(s); see also 33 CFR § 328.3(a) (similar definition of

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<sup>25</sup> EPA has defined "waters of the United States" as follows:

- (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (2) All interstate waters including interstate wetlands;
- (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

“waters of the United States” promulgated by United States Army Corps of Engineers).<sup>26</sup> The CWA, however, does not expressly regulate discharges to groundwater.

Nonetheless, some courts have mandated the issuance of an NPDES permit pursuant to the CWA for certain groundwater discharges. For instance, district courts in California, Colorado, Idaho, Washington, and Puerto Rico, reasoning that Congress intended the CWA to protect all surface waters regardless of the source of pollution, have concluded that an NPDES permit is required for a groundwater discharge with a direct hydrologic connection to surface water. See McClellan Ecological Seepage Situation v. Weinberger, 707 F.Supp. 1182, 1196 (E.D. Cal. 1988), rev'd on other grounds, 47 F. 3d 325 (9th Cir. 1995); Sierra Club v. Colorado Refining Co., 838 F. Supp. 1428, 1434 (D. Colo. 1993); Idaho Rural Council v. Bosma, 143 F. Supp. 2d 1169, 1180 (D. Idaho 2001); Washington Wilderness Coalition v. Hecla Mining Co.,

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- (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
  - (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  - (iii) Which are used or could be used for industrial purposes by industries in interstate commerce;

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

- (4) All impoundments of waters otherwise defined as waters of the United States under this definition;
- (5) Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;
- (6) The territorial sea;
- (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

40 C.F.R. § 230.3(s).

<sup>26</sup> Although O.C.G.A. § 12-5-22(13) defines the term “waters” to include “all . . . bodies of surface or subsurface water,” this definition does not govern interpretation of the antidegradation rule, which was promulgated to implement the Director’s NPDES permitting authority.

870 F. Supp. 983, 990 (E.D. Wash. 1994); Hernandez v. Esso Std. Oil Co., 599 F. Supp.2d 175, 181 (D. P.R. 2009).

In contrast, the Fifth and Seventh Circuits have declined to apply the CWA's NPDES permitting provisions to groundwater discharges, even where such discharges may migrate to surface water. Rice v. Harken Exploration Co., 250 F.3d 264, 269 (5th Cir. 2001); Village of Oconomowoc Lake v. Dayton Hudson Corp., 24 F.3d 962, 965 (7th Cir. 1994). Relying on the express language of the CWA, as well as its legislative history and EPA's interpretation, these courts have reasoned that Congress' sole intent was to regulate surface water, and thus that the authority to regulate groundwater discharges had been left to the states. Rice, 250 F.3d at 272 ("We must . . . respect Congress's decision to leave the regulation of groundwater to the States."); Village of Oconomowoc Lake, 24 F.3d at 964-65 ("not even the EPA shares [the] view that the national government has regulatory power over every drop of water"). This reading of the CWA is consistent with the holding in Rapanos v. United States, 547 U.S. 715 (2006). There, a plurality of the United States Supreme Court cautioned against an overly expansive interpretation of "navigable waters," finding that the CWA regulated wetlands only to the extent the wetlands bore "a continuous **surface** connection to bodies that are 'waters of the United States' in their own right." Id. at 742 (emphasis added). After reviewing the applicable legal authorities, this Court concludes that a better reading of the CWA limits the applicability of its NPDES permitting provisions to surface water discharges. NPDES permits are therefore not required for groundwater discharges, even where the groundwater is hydrologically connected to a surface water.

2. Nonpoint Source Discharges Are Not Regulated Under the CWA.

The CWA also does not require the issuance of an NPDES permit for nonpoint sources of water pollution. See 33 U.S.C. §§ 1311(a), 1342; N. Plains Res. Council v. Fid. Exploration & Dev. Co., 325 F.3d 1155, 1160 (9th Cir. 2003) (“The CWA prohibits the discharge of any pollutant from a point source into navigable waters of the United States without an NPDES permit.”) Notwithstanding this exclusion, however, the CWA requires EPA, as a condition of its approval of a state’s NPDES permitting authority, to ensure that the state issues permits to “control the disposal of pollutants into wells.” 33 U.S.C. § 1342(b)(1)(D). Furthermore, EPA, while recognizing that the CWA “does not establish a regulatory program for non point sources,” has also acknowledged that its antidegradation rule contemplates the States’ aggressive implementation of “all cost-effective and reasonable best management practices for nonpoint source control.” EPA’s Questions and Answers on Antidegradation (Dec. 1983) at 6 (Ex. P-318); 40 C.F.R. §§ 131.12(a)(2). In Georgia, the Director therefore issues a different category of permit for nonpoint sources, as explained below.

3. Nonpoint Source Discharges to Groundwater Are Regulated Under Georgia Law.

Because NPDES permits are not issued for nonpoint source discharges to groundwater, Georgia has opted to regulate such discharges pursuant to the Georgia Water Quality Control Act (“WQCA”), which provides, in pertinent part, as follows:

Any person desiring to erect or modify facilities or commence or alter an operation of any type which will result in the discharge of pollutants from a **nonpoint source** into the waters of the state . . . shall obtain a permit from the director to make such discharge. . . . The director may, after public notice and opportunity for public hearing, issue a permit which authorizes the person to make such discharge upon condition that such discharge meets or will meet, pursuant to any schedule of compliance included in such permit, all water quality

standards, effluent limitations, and all other requirements established pursuant to this article.

O.C.G.A. § 12-5-30(b). The terms “waters” and “waters of the state” are defined under the WQCA as:

any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and **all other bodies of surface or subsurface water**, natural or artificial, lying within or forming a part of the boundaries of the state which are not entirely confined and retained completely upon the property of a single individual, partnership, or corporation.”

O.C.G.A. § 12-5-22(13) (emphasis added). Thus, the WQCA vests the Director with permitting authority over nonpoint source discharges into any water of the State, including groundwater.

Land disposal permits, including LAS permits, are issued by the Director pursuant to his authority to regulate nonpoint source discharges, as described in O.C.G.A. § 12-5-30(b). Ga. Comp. R. & Regs. 391-3-6-.11(3). Contrary to the Petitioner’s argument, the LAS facility at issue in this case is not a point source of water pollution. The WQCA defines “nonpoint source” as “any source which discharges pollutants into the waters of the state other than a point source.”

O.C.G.A. § 12-5-22(5). “Point source,” in turn, means “any discernible, confined, or discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.” O.C.G.A. § 12-5-22(8).<sup>27</sup> The Guyton facility cannot be considered a point source because its land application system will use spray irrigation to dispose of treated wastewater over an area spanning more than 44 acres, and

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<sup>27</sup> Georgia’s definition of “point source” is consistent with that found in the CWA. See 33 U.S.C. § 1362(14).

will not involve a “discernible, confined, or discrete conveyance.”<sup>28</sup> See id. Rather, the Guyton facility is a nonpoint source that requires the issuance of a land disposal permit rather than an NPDES permit.

4. Georgia Law Does Not Require an Antidegradation Analysis for Nonpoint Source Discharges to Groundwater.

As explained previously, Georgia’s antidegradation rule was promulgated pursuant to DNR’s authority under the federal CWA. Therefore, the antidegradation rule does not apply to nonpoint source discharges to groundwater, which are not covered by the CWA, except to the extent the rule expressly requires “all cost-effective and reasonable best management practices for nonpoint source control.” Ga. Comp. R. & Regs. 391-3-6-.03(2)(b). This interpretation is consistent with EPD’s Antidegradation Analysis Guidelines,<sup>29</sup> which outline the requirements for a detailed antidegradation analysis “when a new or expanded **point source** which will degrade or lower water quality is proposed for discharge to **surface waters.**” Antidegradation Analysis Guidelines at 2 (emphasis added). The Guidelines further specify that “[a]n antidegradation analysis is only required for proposed new or expanded (increase in loading) wastewater discharges to surface waters” and “is not required for . . . Land Application Systems (LAS).” Id. at 3. Accordingly, the Director was not required to undertake a detailed antidegradation analysis before issuing an LAS permit for the Guyton facility.

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<sup>28</sup> An NPDES permit is only required for a land disposal system that uses “overland flow, subsurface drain fields, or other techniques which result in one or more **point source** discharges into surface waters . . . .” Ga. Comp. R. & Regs. 391-3-6-.11(3) (emphasis added).

<sup>29</sup> EPD’s “interpretation of its own rules” must be afforded deference, even where, as here, its rules have been promulgated by DNR. Upper Chattahoochee Riverkeeper, Inc. v. Forsyth County, 318 Ga. App. 499, 504 (2012); see also Bentley v. Chastain, 242 Ga. 348, 350-51 (1978) (recognizing that “agencies provide a high level of expertise and an opportunity for specialization unavailable in the judicial or legislative branches”).



Instead, to comply with the antidegradation rule, the Director was required only to ensure that the Permit incorporated “all cost-effective and reasonable best management practices for nonpoint source control” and that it would maintain and protect “[e]xisting instream water uses and the level of water quality necessary to protect the existing uses . . . .” Ga. Comp. R. & Regs. 391-3-6-.03(2)(b)(i)-(ii). As described in the Findings of Fact and explained more fully below, the Director fulfilled these obligations by issuing a Permit that meets Georgia’s water quality standards and complies substantially with the LAS Guidelines.

**B. The Permit Complies With Georgia’s Water Quality Standards.**

Georgia law provides that a permittee must comply with “all water quality standards, effluent limitations, and all other requirements” imposed by the Director pursuant to the WQCA. O.C.G.A. § 12-5-30(b). These standards, limitations, and requirements are found in DNR’s narrative water quality standards, numeric water quality standards, and antidegradation rule.

DNR has promulgated regulations that establish general water quality standards for all waters of the state, as follows:

- (a) All waters shall be free from materials associated with municipal or domestic sewage, industrial waste or any other waste which will settle to form sludge deposits that become putrescent, unsightly or otherwise objectionable.
- (b) All waters shall be free from oil, scum and floating debris associated with municipal or domestic sewage, industrial waste or other discharges in amounts sufficient to be unsightly or to interfere with legitimate water uses.
- (c) All waters shall be free from material related to municipal, industrial or other discharges which produce turbidity, color, odor or other objectionable conditions which interfere with legitimate water uses.
- (d) Turbidity. The following standard is in addition to the narrative turbidity standard in Paragraph 391-3-6-.03(5)(c) above: All waters shall be free from turbidity which results in a substantial visual contrast in a water body due to a man-made activity. The upstream appearance of a body of water shall be as

observed at a point immediately upstream of a turbidity-causing man-made activity. That upstream appearance shall be compared to a point which is located sufficiently downstream from the activity so as to provide an appropriate mixing zone. For land disturbing activities, proper design, installation, and maintenance of best management practices and compliance with issued permits shall constitute compliance with Paragraph 391-3-6-.03(5)(d).

- (e) All waters shall be free from toxic, corrosive, acidic and caustic substances discharged from municipalities, industries or other sources, such as nonpoint sources, in amounts, concentrations or combinations which are harmful to humans, animals or aquatic life. . . .

Ga. Comp. R. & Regs. 391-3-6-.03(5). These narrative standards apply to both wetlands and groundwater. See O.C.G.A. § 12-5-22(13).

In addition to the narrative standards, waters may be subject to numeric standards based on their designated use. These designated use classifications are as follows: (a) Drinking Water Supplies; (b) Recreation; (c) Fishing, Propagation of Fish, Shellfish, Game and Other Aquatic Life; (d) Wild River; (e) Scenic River; or (f) Coastal Fishing. Ga. Comp. R. & Regs. 391-3-6-.03(14). Wetlands are part of the fishing use classification, which must maintain dissolved oxygen levels that are “[a] daily average of 5.0 mg/L and no less than 4.0 mg/L at all times . . . .”

Ga. Comp. R. & Regs. 391-3-6-.03(6)(c)(i). No numeric criteria for nitrate or salts have been established for wetlands or other waters classified as fishing use. Ga. Comp. R. & Regs. 391-3-6-.03(6)(c). Groundwater, which is classified as a drinking water supply, must both support the fishing use and meet additional standards, which include the following:

- (iv) No material or substance in such concentration that, after treatment by the public water treatment system, exceeds the maximum contaminant level established for that substance by the Environmental Protection Division pursuant to the Georgia Rules for Safe Drinking Water.

Ga. Comp. R. & Regs. 391-3-6-.03(6)(a). See also Ga. Comp. R. & Regs. 391-3-6-.11(4)(e) (“[t]he groundwater leaving the land disposal systems boundaries must not exceed maximum contaminant levels for drinking water . . . .”) The maximum contaminant level for nitrate in drinking water is 10 mg/L. Ga. Comp. R. & Regs. 391-3-5-.18(1)(a). The maximum contaminant level for salts in drinking water is 250 mg/L.<sup>30</sup>

Finally, the antidegradation rule, as it is applied to nonpoint sources in Georgia, requires that “[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected” and mandates the use of “all cost-effective and reasonable best management practices for nonpoint source control.” Ga. Comp. R. & Regs. 391-3-6-.03(2)(b).

In the case at bar, the Petitioner failed to establish that the operation of the Guyton LAS facility in accordance with its Permit would cause a violation of the narrative standards, the numeric drinking water standards, or the antidegradation rule. Regarding the narrative standards, although he presented the testimony of experts who opined that algal blooms or other nuisance growth of aquatic vegetation would invade the wetlands on the Guyton site and the Petitioner’s farm and cause changes to the color or turbidity of the water, this testimony was not supported by site- and Permit-specific data and analysis. See, e.g., T1. 208; T2. 117-24; Mallin Test. ¶¶ 6-11. Further, there was no evidence that percolate leaving the facility would contain “toxic, corrosive, acidic and caustic substances” harmful to humans, animals, or aquatic life. See Ga. Comp. R. & Regs. 391-3-6-.03(5)(e). Nitrate and salts are naturally occurring nutrients that are

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<sup>30</sup> None of the parties identified a maximum contaminant level for salts. However, the Court presumes that the applicable limit is 250 mg/L, which is the drinking water standard for chloride. Ga. Comp. R. & Regs. 391-3-5-.19(2). This is a secondary drinking water standard for which compliance is not mandatory. Ga. Comp. R. & Regs. 391-3-5-.19(1).

not toxic, corrosive, acidic, or caustic. Id. Moreover, the Petitioner failed to prove that the projected concentrations of nutrients within the wetlands (as distinguished from the projected nutrient concentrations in the percolate or in the groundwater leaving the perimeter of the sprayfield) would be harmful to aquatic species. None of the Petitioner's experts, in fact, presented reliable projections of wetland nutrient concentrations that accounted for attenuation and dilution of the percolate as it left the sprayfield through the groundwater and eventually infiltrated the wetlands.

As to the numeric water quality criteria, the only standards that apply in this case are the fishing use standards, which establish the minimum concentration of dissolved oxygen, and the drinking water standards, which establish the maximum contaminant levels for nitrate and salts. In this case, there is no evidence that dissolved oxygen levels are expected to fall below 5 mg/L as a daily average or 4 mg/L at any time. See T1. 234. Similarly, the Petitioner presented little evidence that groundwater leaving the LAS boundary would violate the drinking water standards for either nitrate or salts. The Petitioner's primary expert on this topic did not identify any errors in the City's nitrogen balance data and offered only his general opinion, which was not based on any site-specific data or modeling, that nitrate leaving the site would exceed 10 mg/L. See T1. 119-21, 149. This evidence is insufficient to support a conclusion that the Permit was issued in violation of the drinking water standards.

Finally, as required by the antidegradation rule, the Permit ensures that the existing uses of the groundwater and wetlands, for drinking water and fishing, are protected. See Ga. Comp. R. & Regs. 391-3-6-.03(2)(b). The Permit also incorporates appropriate best management practices to maintain compliance with the applicable water quality standards. Id. These include

limiting the wastewater application rate, placing buffers around the on-site wetlands and the perimeter of the site, prohibiting any discharge to surface water, requiring groundwater monitoring, and ensuring that the Permit provides for appropriate enforcement mechanisms if any violations should occur. See Ex. J-1. Accordingly, while the Petitioner might prefer the imposition of stricter standards for nitrate, salts, and dissolved oxygen, he has not shown by a preponderance of the evidence that the Permit was issued in violation of any Georgia water quality standard.

**C. The Permit Substantially Complies With the LAS Guidelines.**

Although the Permit does not strictly comply with the LAS Guidelines in all respects, the Director was nonetheless authorized to grant the Permit. This does not mean that the Guyton site is an ideal location for an LAS facility. On the contrary, as detailed in the Findings of Fact, the site is characterized by rapidly permeable, sandy soils that heighten the risk of off-site migration of wastewater nutrients; a relatively high groundwater table with an uncomfortably close connection to nearby wetlands, which support a large population of vulnerable aquatic species; and a 100-year floodplain that is likely more expansive than has been recognized by FEMA. However, the LAS Guidelines are “not intended to be a cookbook,” and the Director is not required to reject a permit application if a particular site does not meet each and every criterion listed. LAS Guidelines (Ex. J-5) at 1.

Rather, the Director may issue a permit that contains specific conditions to address the site’s limitations in a manner that complies with Georgia law. Here, the Permit accounts for the

rapidly permeable soils and the depth of the groundwater table<sup>31</sup> by employing a series of conservative assumptions in the nitrogen balance equation and limiting the wastewater application rate to 1.61 inches per week and 0.25 inches per hour. Further, the Permit requires monitoring to ensure that the nitrate concentration in the groundwater leaving the wetted area of the sprayfield does not exceed the drinking water standard of 10 mg/L. The Director is not required to impose a more stringent nitrate limit, even if certain aquatic species may be adversely affected by nitrate-enriched groundwater that infiltrates the nearby wetlands. As to the floodplain issue, the evidence at the hearing indicated that FEMA's 2014 revised flood zone map likely understates the extent of the floodplain on the Guyton site. However, the Director reasonably relied upon the FEMA map in establishing the allowable spray zones, and he also has the authority to modify the Permit based on any future flood zone adjustments. Moreover, because the facility must operate as a no-discharge system under the Permit, any unanticipated flooding of the sprayfield will require the facility to curtail its operations. The City, by electing to proceed with the design, permitting, and construction of the LAS facility despite the site's significant limitations, has accepted this consequence.

**D. The Facility Will Have the Ability to Comply With Its Permit.**

The Petitioner argues, finally, that the Permit should be reversed because the site conditions are such that the facility will be unable, at times, to comply with its permit requirements. To support this argument, the Petitioner relies on In Re Proteus Group, 1992 Ga. ENV LEXIS 4 (OSAH Feb. 26, 1992). In that case, the Director had issued an LAS permit that

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<sup>31</sup> Although the depth to groundwater became an issue at the hearing, the Petition for Hearing does not contend that the site is unsuited for an LAS facility on this ground. See Petition for Hearing (Nov. 14, 2014) at 14-16. Additionally, while the LAS Guidelines recommend drainage improvements for sites with a seasonal high water table less than five feet from the surface, no testimony was presented as to whether any drainage improvements would be required based on the specific characteristics of the Guyton site. See LAS Guidelines (Ex. J-5) at § 3.13.

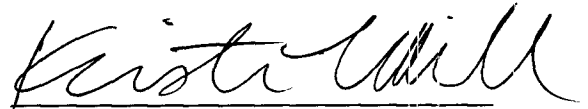
authorized the permittee to use spray irrigation to dispose of wastewater from its chicken rendering plant. Id. at \*6. The permit allowed a nitrogen concentration of up to 20 mg/L in the treated wastewater that would be applied on the site. Id. at \*8-9. The hearing testimony, however, revealed that the system as designed could not comply with this limit. In fact, the applicant's own engineer testified that the system could not achieve post-treatment nitrogen concentrations less than 120 mg/L, given that the untreated wastewater would contain nitrogen concentrations in excess of 900 mg/L. Id. at \*9. The administrative law judge reversed the permit, finding that it was "more likely than not" that the permittee would be unable to comply with the permit conditions. Id. at \*10.

In Re Proteus is factually distinguishable from the case at bar. Here, although the Petitioner presented expert testimony that nitrate concentrations in the groundwater leaving the Guyton site's sprayfield would exceed 10 mg/L during a period of three to four weeks when crop rotation takes place, in the spring and fall, this testimony was not supported by a detailed model or other analysis of site-specific data. See T1. 119-21, 149. In contrast, the nitrogen balance calculations submitted with the City's application, which were based on specific soils data and technical guidance, projected that nitrate concentrations in the percolate reaching groundwater would not exceed 7 mg/L at any time of year. See Cause Test. ¶¶ 19-20; Ex. J-4 at 28-29. This evidence was more reliable than the unsupported testimony of the Petitioner's expert. Further, if for any reason nitrate concentrations in the groundwater exceed the drinking water standard of 10 mg/L, a variety of enforcement tools are available to the Director. O.C.G.A. § 12-5-30(d). Thus, although compliance can never be guaranteed with absolute certainty, the Court is satisfied that the City has the ability to comply with its Permit in this case.

**IV. DECISION**

In accordance with the foregoing Findings of Fact and Conclusions of Law, the Director's issuance of Land Application System Permit No. GAJ040010 to the City of Guyton, Georgia, is hereby **AFFIRMED**.

**SO ORDERED**, this 20<sup>th</sup> day of May, 2015.

  
**KRISTIN L. MILLER**  
**Administrative Law Judge**