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Upcoming Events

July

Annual Summer Seminar
July 30-31, 2004
King & Prince, St. Simons Island
http://www.gabar.org/envseminars.asp

WATER LAW AND POLICY IN GEORGIA

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Enacted into law on May 13, 2004, the Comprehensive State-Wide Management Planning Act ("CSWMPA") marks the commencement of the formal development of comprehensive water policy for Georgia, critical for the state's future water supply and water resources. *See* H.B. 237, 147th Gen. Assem., Reg. Sess. (Ga. 2004) (to be codified at O.C.G.A. §§ 12-5-520 to –525). The Act will affect how every Georgian uses water and the availability of future opportunities and quality of life.

The CSWMPA creates a coordinating committee denominated the "Water Council" consisting of several state agency heads to develop recommendations for regulations and water policy for the state. *See* O.C.G.A. § 12-5-524(a). Recommended rules and policies are required to be submitted to the General Assembly and must be adopted by Joint Resolution. *See id.* § 12-5-525(a)(1)(A). The coordinating committee includes the Commissioner of the Department of Natural Resources, Director of the Environmental Protection Division, Executive Director of the State Soil and Water Conservation Commission, Commissioner of the Community Affairs Department, Commissioner of Human Resources, Attorney General, Commissioner of Agriculture, and Commissioner of Industry, Trade, and Tourism. *See id.* § 12-5-524(a). In addition, the chairpersons of the Senate Natural Resources and the Environment Committee and the House Committee on Natural Resources and Environment shall serve ex officio in an advisory capacity. *See id.*

The CSWMPA is designed to regulate water resources under the state's police power authorities. Georgia currently regulates certain water withdrawals, diversions, and impoundments under the Georgia Water Quality Control Act of 1977 ("GWQCA"). Water use is also subject to Georgia's riparian rights laws that have developed over two centuries of court decisions and longstanding Georgia property statutes dealing with water use and water rights. The CSWMPA did not change or affect the existing Georgia water laws. This article provides a very brief summary of existing Georgia water laws.

Natural Flow Subject to Reasonable Use

The Georgia Supreme Court made clear in its 1980 decision in *Pyle v. Gilbert*, 245 Ga. 403, 265 S.E.2d 584 (1980), that Georgia's riparian rights laws survived the passage of the Georgia Water Quality Control Act of 1977. *See also* Ga. Op. Atty. Gen. No. 94-4. Thus, Georgia is one of a number of "regulated riparian" states where riparian rights law establishes underlying water rights, subject to police power regulation by the

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Message From the Chair

This year looks to be a great one for the Environmental Law Section. Our luncheon at the State Bar Midyear Meeting kicked off our programs for the year. Mary Kay Lynch, Regional Counsel and Director, Environmental Accountability Division for Region IV, Environmental Protection Agency, treated attendees to a discussion of EPA initiatives and issues for the upcoming year, followed by questions and answers from the audience. The Board and the Section had the opportunity to thank Peyton Nuñez, the outgoing Chair, for her service to the Section over the past several years.

In February, the Environmental Law Section and the Government Attorneys Section co-hosted a reception welcoming Dr. Carol Couch as the incoming Director of the Georgia Environmental Protection Division. Dr. Couch delivered welcoming remarks and then graciously circulated through the crowd, meeting attendees and answering questions. Many thanks to the efforts of Ann Pickett in coordinating this event with Dr. Couch and to Troutman Sanders for hosting the event.

The Section's next event was a Brown Bag Seminar on Urban Development and Smart Growth, co-sponsored with the Georgia Chapter of the Air and Waste Management Association. John Sibley, III, President, Georgia Conservancy and Board Member, Georgia Regional Transportation Authority, presented an overview of the "Smart Growth" concept. Gil Sallade, Senior Development Manager of The Sembler Company, then shared the Sembler Company's direct experience with smart growth initiative with regard to its Edgewood Retail Center project. We have received numerous positive responses to this well-attended program hosted by Kilpatrick Stockton. Many thanks to Joan Sasine of Powell Goldstein for her assistance in coordinating this event with the Georgia Chapter of the AWMA. Our next brown bag will be in September, with additional programs to follow in October and December.

At the time of printing this newsletter, the Section Board is busy preparing for the annual Summer Seminar at the King & Prince, St. Simons Island, scheduled for July 30 and 31. We are anticipating attendance of over 100 attorneys. This annual seminar offers Section members an opportunity to catch up on recent developments in environmental law and to reacquaint themselves with environmental attorneys throughout the State. We have an excellent program planned for this year and I look forward to providing a report on the seminar in the next issue.

Finally, and most importantly, by now you should have received your copy of the Georgia Bar Journal, featuring our Section and the topic of environmental law. This was an unprecedented opportunity to enlighten our State Bar colleagues on the issues environmental lawyers encounter on a day-to-day basis. I would like to thank our authors, Bill Sapp, Kate Grunin, Randy Brogden, Debra Cline, Robert Mowrey, Shelly Jacobs Ellerhost, Allison Burdette, Chad Baum, Julie Mayfield, and Jeffrey Dehner for their important contribution to this effort. Most of all, I would like to thank Jeff Dehner and Lynda Crum for spearheading this effort and making it happen. If you haven't had the opportunity to read the articles, please do so.

Please call me or any of the other Section officers if you have any questions or suggestions regarding this year's programs. We appreciate your participation in the Section.

Water Law and Policy in Georgia

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state regarding the manner of water use. The reference to "waters of the state" in the GWQCA constitutes the General Assembly's authorization of the Environmental Protection Division to regulate riparian water rights under its police power authority. *See* O.C.G.A. §§ 12-5-22, 12-5-31. By regulating water use under police power authorities, some issues regarding state authority are simplified. For example, challenges to state actions under regulatory takings analysis are handled much differently than physical takings in state and federal jurisprudence. *See, e.g., Tahoe Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency*, 535 U.S. 302, 122 S. Ct. 1465, 1489 (2002); Tulare Lake Basin Water Storage Dist. v. United States, 49 Fed.Cl. 313 (Fed. Ct. Cl. 2001) (applying physical takings analysis to taking of water resources to meet endangered species concerns).

The GWQCA, in fact, regulates only a subset of riparian rights, specifically only water *withdrawals, diversions, and impoundments*, as well as establishing standards for water quality. See O.C.G.A. § 12-5-20 *et seq.*; O.C.G.A. § 12-5-31. Other water uses are not regulated by the GWQCA (*e.g.*, withdrawals below 100,000 gallons per day, recreation, aesthetics).

Riparian rights have existed since Georgia was a British colony. The Georgia Supreme Court's decision in *Henrick v. Cook*, 4 Ga. 241 (1848) established Georgia's riparian rights doctrine as *natural flow subject to reasonable use*. Riparian rights are incident to ownership of property adjacent to waterbodies, or soil underlying waterbodies. Each riparian owner has a joint ownership right – known as a "usufruct" – in the use of adjoining waters. *See* Robert C. Kates, Georgia Water Law (1969). Georgia law has developed on this premise of riparian rights, forming the basis of property valuation and providing certainty to landowners, water suppliers, industry, and recreational water users for over 200 years in Georgia.

The use of water is an incident to ownership of property and has been recognized by Georgia courts as a property right.[1] Since the 1860s, the property title of the Georgia Code has recognized riparian rights,[2] and differences in valuation of riparian versus non-riparian land clearly reflect the existence and value of riparian rights.

Reasonable Use

Reasonable use is not specifically defined in any single case, but depends upon the totality of the circumstances regarding a water use. The general property law principle that one is free to use property in a manner so as to not injure others applies to riparian rights. *Roughton v. Thiele Kaolin Co.*, 209 Ga. 577, 74 S.E.2d 844 (1953); *Robertson v. Arnold*, 182 Ga. 664, 186 S.E. 806 (1936). Reasonable uses include withdrawal uses and in-stream uses. Georgia law has recognized a broad variety of withdrawal uses, such as domestic water supply, agricultural irrigation, and industrial use. In-stream uses include dams, diversions, impoundments, waste assimilation, recreation, and aesthetics. *See, e.g., Pyle*, 245

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New Source Review In Georgia: EPD's Stakeholder Process

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On Tuesday, December 31, 2002, the U.S. Environmental Protection Agency ("EPA") promulgated a final rule (the "NSR Reform Rule") containing significant revisions to the New Source Review ("NSR") regulations under Part C (the Prevention of Significant Deterioration or "PSD" program) and Part D (the nonattainment major NSR program) of Subchapter I of the Clean Air Act ("CAA" or "Act").[1] The rulemaking follows a litany of judicial and administrative actions that have involved changes to the NSR rules for more than a decade. These include: (i) litigation involving the Wisconsin Electric Power Company (the "WEPCo Litigation");[2] (ii) an EPA final rule establishing revisions to the NSR applicability regulations and creating rules for physical and operational changes at electric utility steam generating units ("Utility Units") as a result of the WEPCo litigation (the "WEPCo Rule");[3] (iii) 1996 proposed revisions to the NSR rules;[4] and (iv) a 1998 notice soliciting further comment on two specific aspects of the proposed revisions.[5]

In addition, EPA has issued a second final rule (the "RMRR Rule") clarifying what types of equipment replacement activities at facilities constitute routine maintenance, repair and replacement, and are thus exempt from NSR.[6] Further, on November 7, 2003, EPA issued a notice of reconsideration, responding to a number of petitions for reconsideration that had been submitted to the NSR Reform Rule.[7] In that action, EPA clarified the NSR Reform Rule in several places, but, for the most part, rejected the petitions and reaffirmed its final rule. Finally, EPA has instituted a number of enforcement cases against various electric utilities that have produced a number of interpretations of various versions of the federal NSR rules. In the one case that has received a dispositive ruling on the merits, *United States v. Duke Energy Corp.*,[8] judgment was granted in favor of Duke Energy and against the Government on the latter's claims that Duke Energy had violated the PSD provisions of the CAA.

The NSR Reform Rule changes take effect in two stages for the PSD program. For state or local reviewing authorities that have been delegated authority to issue PSD permits under the federal program (codified at 40 C.F.R. § 52.21), the changes became effective on March 3, 2003. In areas that have an EPA-approved PSD or nonattainment NSR permit program (or SIP-approved program), which is the case for Georgia, the rule does not become effective until EPA approves a SIP revision adopting these changes. In these states, the SIP revisions are not due until January 2, 2006, three years from the date of promulgation. EPA has mandated that all of the proposed changes must be adopted as minimum program elements under SIP programs implementing the PSD permit program in 40 C.F.R. § 51.166 and the nonattainment NSR permit program in § 51.165.

Historically, Georgia has received EPA approval for issuing PSD permits by incorporating by reference the provisions of the federal PSD rules found at 40 C.F.R. § 52.21.[9] In February 2004, however, the Georgia Environmental Protection Division (EPD) announced that it would be conducting a formal stakeholder process to assist it in the development of NSR rules for Georgia in response to the NSR Reform Rule. In March, a technical stakeholder workgroup was formed, consisting of some twenty-odd members from various groups interested in Georgia's NSR Rules. Workgroup activities have begun in earnest, and the stakeholder group has now met two times, in March and April of this year. This article will briefly discuss the NSR Reform Rule and some issues discussed to-date by the technical stakeholder workgroup. Reflections on the process itself will close the discussion.

The revisions that culminated in the NSR Reform Rule include the following:

- Adoption of new procedures for determining "baseline actual emissions" for purposes of identifying any proposed modification that would result in a significant emissions increase subject to NSR;
- Adoption of the "actual-to-projected actual" methodology for purposes of identifying physical or operational changes that result in an emissions increase subject to NSR;
- Creation of a plant-wide actual emissions cap, or plant-wide applicability limit ("PAL"), that would establish a threshold below which modifications could be made without triggering NSR;
- Promulgation of a new NSR applicability test for emissions sources designated as "Clean Units"; and
- Identification of specific Pollution Control Projects ("PCP") that would not trigger NSR.

EPA notes that the new regulations are intended to improve efficiency and maximize flexibility for determining NSR applicability to projects that begin construction after the effective date of these provisions. A summary of these five significant changes follows.

Determining when a modification to a major stationary source triggers NSR has historically presented many difficult regulatory issues. Under the current regulations, the source must determine whether the modification would constitute a physical change to, or change in the method of operation of the source. If so, the source must then determine whether the change would increase the amount of any PSD air pollutant that may be emitted by such source over baseline levels. Any change that results in a significant net emissions increase would constitute a "modification" under NSR, triggering the need for the source to go through

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the NSR process. To determine whether there is a significant net increase in emissions, certain existing sources must consider the actual emissions increase from the change (taking into account emission control technologies and restrictions on hours of operation or rates of production, when such controls or restrictions are enforceable), together with other contemporaneous increases or decreases in actual emissions (*i.e.*, those having occurred between the date that the emissions increase is to occur and the date five years immediately preceding the change).

The result is an "actual-to-actual" comparison. Other existing sources have had to compare their past actual emissions to the potential-to-emit ("PTE") of the unit, which is the potential of the unit to emit a given pollutant, limited only by enforceable restrictions in the applicable operating permit. Such comparison is termed an "actual-to-potential" test. Actual emissions have been generally defined as the average rate at which the source actually emitted the pollutant during the two-year period preceding the date of the change and which is representative of normal source operations.

For existing units, this "actual-to-potential" test has not been applicable to a Utility Unit, which is defined as any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than twenty-five megawatts to any utility power distribution system for sale. Pursuant to the WEPCo Rule, EPA requires that an "actual-to-representative actual" methodology be used for examining the effects of all changes at Utility Units, except construction of a new unit, or the replacement or reconstruction of an existing emissions unit. To determine if a significant net emissions increase would result under this methodology, the actual annual emissions before the change are compared with the representative actual emissions after the change. To ensure that the actual annual projection is valid, the utility must track emissions for five years after the change. The utility can use the actual annual emissions from any two consecutive years within the five years immediately preceding the beginning of construction of the change to determine the actual emissions baseline.

Baseline Actual Emissions

Under the new regulations, the relevant terminology for calculating pre-change emissions for most applications is "baseline actual emissions," rather than "actual emissions."[10] The regulations also adopt new procedures for determining "baseline actual emissions" for purposes of identifying any proposed modification that would result in a significant emissions increase subject to NSR. For any unit other than a Utility Unit, any 24-consecutive month period in the past ten years can be used to determine the baseline actual emissions for existing units. There is no longer an option to use another, more representative time period for determining baseline actual emissions.

In the baseline calculations, actual emissions must reflect current emission factors, including any current enforceable emission limitations or operating restrictions, such as BACT, MACT, LAER and RACT.[11] Baseline emissions must be adjusted downward to reflect current emission limitations, if such limits are more stringent than those that were applied during the 24-month period. Data used for the selected 24-month period to determine actual emissions, including emission factors and utilization rate must be sufficient to calculate the annual average emissions. For new emission units, *i.e.*, a unit with less than two years of operation, baseline actual emissions are presumed to be zero.

When selecting the baseline actual emissions for netting purposes, each emission unit that underwent a physical or operational change may select separate baseline periods for each contemporaneous increase or decrease. Therefore, provided that adequate data exits, each credible emission change can use any consecutive 24-month period during the ten years immediately preceding the change occurring in the contemporaneous period.

For Utility Units, the NSR Reform Rule retains the existing procedures for calculating baseline actual emissions, continuing EPA's current policy set forth in the WEPCO Rule.[12] Therefore, the baseline actual emissions for Utility Units remains the average rate in tons per year, at which that unit actually emitted the pollutant during any consecutive 24-month period within the five-year period immediately preceding the beginning of construction of the change (or another period if demonstrated to be more representative of normal source operations).

In both cases, the average rate includes fugitive emissions, to the extent quantifiable, and emissions associated with startups, shutdowns, and malfunctions. For a regulated NSR pollutant, when a project involves multiple emissions units, only one consecutive 24-month period can be used to determine the baseline actual emissions for the emissions units that are being changed. A different consecutive 24-month period can be used for each regulated NSR pollutant.

Issues discussed at the workshop have included the length of the look-back period for establishing a baseline and the types of emissions that should be included as past actuals. Although questions were raised about the ten year look-back period, EPA conducted an extensive study on the business cycles of various industry types, and concluded that such cycles lasted at least ten and perhaps as long as fifteen years.[13] Given that EPA's intent was that a source should be able to determine the representative production level (the key to establishing a representative actual emissions baseline) from levels that have actually occurred, EPA reasoned that 10 years would capture the normal business cycle for most industries.[14]

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Emerging Issues in Human and Ecological Health

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Filling in the gaps between continued population growth and environmental sustainability leads inexorably to questions about supplies of clean fresh water and our ability to manage our ecological resources so they can be enjoyed at their highest uses. This article presents an introduction to the technical aspects of two emerging areas that will be significant to environmental practices in Georgia in the coming years – emerging concerns about endocrine disrupting compounds in surface water bodies and the management of ecological resources in proximity to contaminated areas.

Endocrine Disruption – New Water Quality Battleground for Georgia

Georgia's population growth and urbanization coupled with the continuing dominance of agriculture throughout many watersheds creates a combination of factors particularly relevant to one of the most rapidly emerging issues in water quality – concerns about hormonal activity in surface waters. This concern has crystallized over the last couple of years due, in large part, to realizations about the extent of natural hormones and pharmaceutical hormone-related compounds found in stream systems across the United States; particularly, the inefficiency of wastewater treatment for addressing these compounds. Until a 2002 U.S. Geological Survey (USGS) study, concern over endocrine disrupting chemicals in surface waters was an environmental issue in need of a regulatory outlet. The issue has been highlighted further for Georgia, with the identification of potential endocrine disruptors in the Chattahoochee and other Georgia water bodies. (Frick, 2003).

The expansion of water quality testing to include endocrine-related compounds and their widespread identification has linked this topic to an existing regulatory framework, and it is the arena of discharge permitting, surface water quality compliance and the Clean Water Act in which endocrine disruption will finally create significant environmental costs and needs for legal services. Two primary factors associated with hormones and related pharmaceutical compounds are dense human populations served by large wastewater systems and animal agriculture. Georgia's demographics and extensive agricultural land uses means that hormone-related water issues will be complicated, costly, and possibly raucous.

By way of background, "endocrine disruption" refers to the idea that chemicals with hormonal activity in the environment due to human activities might affect the normal balance of internal hormones sufficient to cause adverse effects. Such chemicals may be taken up from the environment in forms that can mimic or block internal hormones. Beyond the clearly negative implication of "disruption" of the endocrine system, the issue also generates attention due to the high degree of outrage associated with perceived potential effects of endocrine disrupting chemicals on reproductive health, breast and prostate cancer, and birth defects. (USEPA; 1997a and 2004a).

Adverse effects related to endocrine activity have been documented in fish and wildlife species in association with specific, high-intensity exposures (e.g., pesticide spills) for decades. (NOAA; 1999 and 2002). However, no such effects on humans have been found and no effects associated with generalized, low-level environmental conditions have emerged to substantiate predictions that the phenomenon was a widespread threat. Endocrine activity by various definitions was demonstrated for numerous chemicals in laboratory tests, again, most convincingly at supra-environmental levels. Laboratory testing also lead to general recognition that industrially-related chemicals typically have very low endocrine activity compared to natural hormones. These circumstances kept the topic of endocrine disruption on the back burner throughout the 1990s.

Endocrine Disruption Converts to a Surface Water Issue

The tide began to turn for endocrine disruption with a series of studies from the United Kingdom documenting changes in reproductive status for fish near sewage treatment outfalls in rivers. The detection of apparently human waste-derived hormones and hormonal pharmaceuticals in association with demonstrable changes to fish brought the sub-topic of waste-related hormonal activity into clear focus for both biologists and water treatment engineers. The watershed event in the United States was the release of a large-scale USGS study showing widespread, detectable levels of waste-related hormones and pharmaceuticals. An American audience came to the realization that wastewater treatment does not break down all of the hormones and pharmaceuticals that we excrete. This has been documented close to home for Georgia wastewater treatment facilities and finished drinking water. (Henderson, 2004). As a result, instead of becoming another government report relegated to a filing cabinet, the USGS report and its journal-published follow-up were recognized by several scientific societies as the most influential papers of the year.

The chemicals that propelled concerns about endocrine disruption were not diverse industrial chemicals throughout the environment, but rather the hormones themselves and intentionally designed hormonal pharmaceuticals. This shift in endocrine disruption focus brought two particular environmental sources into the limelight – animal wastes from agricultural operations and treated domestic wastewater. With regard to animal agriculture, high density operations and the management of wastes through land application or in lagoons provide opportunities for natural hormones produced by animals, pharmaceuticals, and growth promoters with endocrine activity to reach surface waters. Discharges

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Ga. at 405, 265 S.E.2d 584; *Kingsley Mill Corp. v. Edmonds*, 208 Ga. 374, 67 S.E.2d 111 (1951); *Cairo Pickle Co. v. Muggridge*, 206 Ga. 80, 55 S.E.2d 562 (1949); *Satterfield v. Rowan*, 83 Ga. 187, 9 S.E. 677 (1889).

Transferability of Water Rights

The Supreme Court has acknowledged transfer of water rights from a riparian to a non-riparian. *See Pyle*, 245 Ga. at 411. Water rights over a riparian may be obtained by prescription of an adverse user. *See, e.g., Terrell v. Terrell*, 144 Ga. 32, 85 S.E. 1005 (1915); *City of Elberton v. Pearle Mills*, 123 Ga. 1, 50 S.E. 977 (1905). Additionally, water rights can be obtained by condemnation. *See Elberton v. Hobbs*, 121 Ga. 749, 49 S.E. 779 (1905). Deeds, easements, and other typical property documents may contain provisions transferring water rights.

Interbasin Transfers and Non-Riparian Use

The Supreme Court first acknowledged the legality of non-riparian use of water in 1980. *See Pyle v. Gilbert*, 245 Ga. 403, 265 S.E.2d 584 (1980). Prior to that, the general principle was that non-riparian use was per se unreasonable and could be enjoined if unreasonably interfered with another riparian user. *Id*. Even after *Pyle*, diversion of a portion of a stream for non-riparian uses should not be considered a protected right, regardless of its source. With respect to transfers outside of a watershed or basin, Georgia decisions have not directly addressed the issue. However, riparian law of most eastern states disapproves of interbasin transfers of water. 78 Am. Jur. *Waters* § 55 (2002).

The Significance of Georgia's Narrow Navigability Definition

The issue of navigability is of utmost importance in understanding Georgia water law. Georgia has a restrictive definition of navigability,[3] and the Georgia Supreme Court has upheld Georgia's narrow definition of navigability in a number of decisions. The court also has expressed strong rights of landowners to exclude others from non-navigable waters.[4] *See Givens v. Ichauway, Inc.*, 268 Ga. 710, 493 S.E.2d 148 (1997); *Johnson v. State*, 114 Ga. 790, 40 S.E. 807 (1902) (explaining that O.C.G.A. § 44-8-5 not intended to change the common law definition of navigability). Georgia has one of the more restrictive definitions of navigability amongst riparian states.

Navigability is important not only for commercial navigation of waters, but also in defining the scope of water rights. Georgia common law and statutes provide for stronger individual property rights in the owners of lands adjacent to and underlying non-navigable waters, such as the right of exclusive use. *See* Daniel F. Hinkel, Pindar's Georgia Real Estate Law & Procedure, Chs. 6-8, 6-13 (5th Ed. 1998); *Givens*, 268 Ga. 710. The state typically does not hold title to beds of non-navigable waters and would not have riparian rights or other property related rights in non-navigable waters. *See* O.C.G.A. § 44-8-3.[5]

Conclusion

Georgia's riparian rights laws have addressed water resource conflicts for almost two centuries. Since 1977, riparian rights have been subject to a greater level of regulation under the Georgia Water Quality Control Act, with surprisingly few legal conflicts. With growing pressure on water resources in the state, water policy changes to the current system should be carefully crafted to preserve and respect the principles of water law upon which Georgia has relied, grown and prospered.

(Endnotes)

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[1] Georgia courts recognize the inherent nature of water use as protected under the Georgia Constitution. *See Givens v. Ichauway, Inc.*, 268 Ga. 710, 493 S.E.2d 148 (1997) (citing *Young v. Harrison*, 6 Ga. 130, 141 (1849)); *Price v. High Shoals Mfr. Co.*, 132 Ga. 246, 64 S.E. 87 (1908); *Boardman v. Scott*, 102 Ga. 404, 411 (1897); *Person v. Hill*, 33 Ga. Supp. 141 (1864). While the term "usufruct" has been used regarding water by Georgia courts, this terminology does not render water any less protectable as a property interest. The Georgia Supreme Court has held that usufructs are property interests subject to Constitutional protection from takings. *McGregor v. Board of Regents*, 249 Ga. App. 612, 548 S.E.2d 116 (2001).

[2] *See, e.g.* O.C.G.A. § 44-8-1 ("Ownership of running water; right to divert or adulterate water"); O.C.G.A. § 44-8-3 ("Right of Use of Stream on Nonnavigable Waters"); O.C.G.A. § 51-9-7 ("Diversion, obstruction, or pollution of stream as trespass"). These provisions are considered a codification of riparian rights common law. *Givens v. Ichauway, Inc.*, 493 S.E.2d 148 (Ga. 1997); Robert C. Kates, Georgia Water Law (1969). *See also* O.C.G.A. §§ 44-8-2, 44-8-4, 44-8-5, 44-8-6, 51-9-7, 51-9-8, 51-9-9, and 52-1-32.

[3] O.C.G.A. § 44-8-5 states:

(a) As used in this chapter, the term "navigable stream" means a stream which is capable of transporting boats loaded with freight in the regular course of trade either for the whole or part of the year. The mere rafting of timber or the transporting of wood in small boats shall not make a stream navigable.

(b) The rights of the owner of lands which are adjacent to navigable streams extend to the low water mark in the bed of the stream.

[4] It should be noted that Federal navigability issues have no bearing on Georgia state navigability issues relating to riparian water law. *See United States v. Lewis*, 355 F.Supp. 1132 (N.D. Ga. 1976) ("Navigability for federal regulatory purposes is governed by federal law and state law is not authoritative in such cases.")

[5] The Public Trust Doctrine provides that public trust waters, lands, and some natural resources are held by the state governments in trust for the benefit of the public. Notably, the public trust doctrine applies to navigable waters. See David C. Slade, Putting the Public Trust Doctrine to Work, 13-30 (2d ed. 1997); *National Audubon Society v. Dep't of Water & Power, City of Los Angeles*, 33 Cal.3d 419 (Cal. 1983) (California decision applying public trust doctrine to certain non-navigable waters impacting the navigable Mono Lake). No reported case in Georgia has invoked the public trust doctrine to date. See *State v. Ashmore*, 236 Ga. 401,404-405, 224 S.E. 2d 334 (1976) for application of similar tidelands trust doctrine.

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With regard to the types of emissions to be included as part of the baseline, EPA specifically noted in its response to the petitions for reconsideration that start-up, shutdown and malfunction emissions, and fugitive emissions, if lawful at the time of occurrence, must be included if the baseline is to reflect actual historical emissions that occurred during the relevant 24-month period. That position codifies "longstanding Agency policy concerning the treatment of emissions associated with startup, shutdown, and malfunction activities."[15]

Actual-to-Projected Actual Applicability Test

The new regulations supplement the "actual-to-potential" applicability test with an "actual-to-projected actual" test for determining whether a change at an existing emissions unit, including a Utility Unit, will result in an emissions increase. Under this approach, for non-excluded physical or operational changes that may result in a significant emissions increase of a regulated pollutant, before construction may begin, the facility may undertake a post-change projection of emissions of NSR pollutants from the changed unit, but now based on future actual emissions rather than future potential emissions. This projection would use the maximum annual rate at which the changed units are projected to emit the pollutant in any of the 5 calendar years following the time the unit resumes regular operations after the project (or 10 years if the project increases the design capacity or PTE of the unit). The projection of future emissions would include fugitives (to the extent quantifiable) and emissions associated with startups, shutdowns, and malfunctions. It would exclude any emissions that the unit could have accommodated before the change that are unrelated to such change, and emissions resulting from increased utilization due to demand growth that the unit could have accommodated before the change (known as the "demand growth" exclusion).

The projections would then be used to calculate whether the change could result in a significant increase in emissions. If so, then netting can be applied to see if a significant net emissions increase will occur. For non-Utility Units, a report must be submitted within sixty days following the end of the calendar year, only if post-change annual emissions exceed the baseline actual emissions by a significant amount. Instead of relying on the projected actual emissions, the regulations provide the option of using the units' PTE, comparing that to the baseline actuals, in which case no tracking and reporting is required.

If the facility determines that there is a reasonable possibility that a project that is not a major modification nevertheless may result in a significant emissions increase (*i.e.*, trigger NSR), it must document and maintain a record of the following information: (i) a description of the project; (ii) an identification of the emission units where emissions could increase; (iii) the baseline actual emissions for each emission unit; (iv) the projected actual emissions, including any emissions excluded as unrelated to the change; and (v) if necessary, netting calculations documenting creditable emission reductions (if the project-related increases are determined to be significant). This record must be generated before the beginning of construction on the project, and also must be made available for inspection by the reviewing authority or the general public. Agency approval of a nonapplicability determination prior to beginning actual construction is not required.

For Utility Units, the actual-to-projected actual test replaces the actual-to-representative actual applicability test in the WEPCO rule. There appears to be no substantive difference between the two tests, however. For determinations of non-applicability, a Utility Unit must submit its projection of post-change emissions to the reviewing regulatory agency prior to the beginning of actual construction of the modification, if the reasonable possibility threshold discussed earlier is triggered. A formal non-applicability determination from the reviewing agency is not required before commencing actual construction. Further, the Utility Unit must track and report to the reviewing agency post-change emissions on an annual basis, regardless of whether the emissions have increased above the baseline by a significant amount or exceed the projected actual emissions. This report is due within sixty days after the end of the year during which the records must be generated, for a period up to ten years following the change if the reviewing agency determines that this period is more representative of normal source operations.

Applicability issues discussed at the workshop included the actual-to-actual emissions test, the demand growth exclusion, and the reasonable possibility test. Some stakeholders sought EPD's rejection of all three of these tests or exclusions. Important reasons exist, however, to retain all three provisions. The actual-to-actual emissions test is the only test that can be lawfully applied to existing sources that have already begun normal operations, regardless of whether such source is a Utility Unit or an industrial unit.[16] With regard to the demand growth exclusion, EPA concluded that it could not be removed, as the provision is required by the CAA. According to EPA, the statute requires that there be a causal link between the emissions increases and the physical or operational change, for NSR to apply.[17] Finally, when reconsidering the reasonable possibility test, EPA concluded that the qualifier provides the necessary balance between retaining information necessary to demonstrate compliance and the burden of unnecessary record-keeping and reporting. EPA reasoned that the standard was not unduly vague, as it would be evaluated retrospectively using the "reasonable person" standard used throughout other established areas of the law.[18]

Plant-Wide Applicability Limits

The NSR Reform Rule adopts an optional approach to allow major stationary sources to make changes that do not trigger NSR,

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provided emissions from the change do not exceed a facility-wide emissions cap, known as a plant-wide applicability limit ("PAL"). Here, a PAL is established for a specific pollutant by adding the baseline actual emissions (determined as discussed above) of the PAL pollutant for each emissions unit at the existing major stationary source to the applicable significance level for the pollutant. For new emission units (those with less than two years operating history), the PAL is determined on the basis of the PTE of the unit. Sources may apply for a PAL through a minor NSR process, a major NSR permit, or a SIP-approved operating permit program. PALs have an effective term of ten years, and are accompanied by stringent monitoring, recordkeeping, reporting, and testing requirements to ensure compliance. [19]

PALs are actual emissions-based rolling twelve-month emission caps (*i.e.*, ton-per-year limits) that apply on a facility-wide basis. Once a PAL has been established, changes at a facility that result in emission increases less than the PAL are exempt from major NSR and netting calculations.[20] Provided that the PAL requirements are met, no physical change or change in the method of operation of a major stationary source that maintains its total source-wide emissions below the PAL level will be considered a major modification triggering NSR. PAL permits must allow for a thirty-day public review period and opportunity for a public hearing.

A PAL has an effective term of ten years. An application for a renewal or an expiration of a PAL must be submitted at least six months (but not earlier than eighteen months) prior to the expiration date. With regard to the renewal of a PAL, the reviewing authority may renew it at the same level, provided that the sum of the baseline actual emissions during the initial term of the PAL plus an amount equal to the significance level is > than 80% of the original PAL level. If the facility's actual emissions over the ten year period, plus an amount equal to the significant level, are < 80% of the PAL level, however, the reviewing authority has the discretion to adjust the PAL downward to a level the authority considers more "representative" of actual emissions. In addition, the reviewing authority may adjust the PAL level at renewal for SIP planning purposes, considering air quality needs, advances in control technology, and anticipated economic growth. PAL renewals have the same ten-year effective period as the original PAL.

An application to increase a PAL limit caused by such activities as the addition of a new emission unit, or changing existing units in a manner that would cause the PAL to be exceeded requires a demonstration that the facility is unable to maintain emissions below its current PAL, even with a good-faith effort to control emissions from existing emission units. To make this demonstration, the facility must show that even if BACT-level controls were applied to all significant and major emission units, the resulting emissions level would exceed the current PAL (when combined with emissions from both small units and allowable emissions from the new units). In addition, a complete major NSR permit application would have to be submitted for the proposed new emission unit (or the existing emission units undergoing the change). Only the emission units that are part of the PAL major modification would be subject to major NSR, however, including the review for BACT (or LAER), any required air quality modeling, and emission offsets, if required.

Clean Units

EPA has promulgated a new applicability test for "Clean Units," which are those units that have been determined to meet BACT or LAER through the major NSR process and that have demonstrated that allowable emissions will not cause or contribute to a National Ambient Air Quality Standard ("NAAQS") or PSD increment violation or adversely impact an Air Quality Related Value ("AQRV"). Under this new test, changes can be made to a Clean Unit without triggering NSR provided that: (i) the change can be made without revising the BACT or LAER limit, and (ii) the change would not alter any of the physical and operational characteristics that formed the basis for the BACT or LAER determination. If this two-part test is not met, the proposed change would be subject to standard NSR review.

Under the new rule, emissions units that have previously been subject to major NSR automatically qualify as Clean Units. These units may use the new NSR applicability test for up to ten years after the effective date, which is the earlier of the date the unit's air pollution control technology is put into service or the date that is three years after the issuance of the major NSR permit. However, the effective date cannot be earlier than the date the Clean Unit provision becomes effective in delegated states or, for a state like Georgia, the date that the Clean Unit applicability test is adopted into a SIP-approved NSR program.

Emissions units that have not been through major NSR may also qualify for Clean Unit status (and the Clean Unit applicability test), if the source can demonstrate that the emission limitation is comparable to BACT or LAER and that allowable emissions will not cause or contribute to a NAAQS or PSD increment violation or adversely impact an AQRV. An emission limitation is comparable to BACT or LAER if: (i) the unit's control level is similar to BACT/LAER determinations for similar sources in the RACT/BACT/LAER Clearinghouse (RBLC) within the past five years, or (ii) the emission unit's controls are as effective as BACT or LAER (based on a case-by-case demonstration).

These units must go through a NSR permitting process to apply for Clean Unit designation. The effective date of the Clean Unit designation would be the initial date of service of the emission unit's control technology or the date of the permit issuance, whichever is later. These units may use the new NSR applicability test for up to ten years after the effective date of the Clean Unit designation or ten years from the date the control technology was installed in the case of sources that elect to apply BACT retroac-

tive to the time the controls were installed. Finally, those emission units that have already installed and operated the qualifying technology prior to the effective date of the regulations must apply for Clean Unit status within two years after the effective date of the regulations in the location of the unit. For those emission units that install control technologies after the regulations become effective, an application for Clean Unit designation must be made at the time the control technology is installed.

Clean Unit status applies individually for each pollutant emitted by the emissions unit. For pollutants for which Clean Unit status does not apply, the usual NSR applicability tests would have to be applied in the event of a non-excluded physical or operational change to the emission unit. Application for clean unit status for emission units that have not undergone major NSR permitting review must go through a SIP-approved permitting process (*e.g.*, minor NSR) including public notice and opportunity for a public hearing.

Clean Unit designation expires either ten years from the date a control technology was installed for sources that elect to apply BACT retroactive to the time the controls were installed, or ten years from the effective date of the Clean Unit designation for all other emission units. Some allowable changes that could be accommodated without losing Clean Unit status include: (i) increasing production to permitted levels; (ii) reconfiguring the process; (iii) changing process chemicals (if consistent with the original Clean Unit application); (iv) replacing components; (v) replacing catalysts; or (vi) adding other controls.

After Clean Unit status has expired or been lost, the unit can re-qualify by going through major NSR, or by going through a SIP-approved minor NSR permitting process for units that have not been through major NSR. If the reviewing authority determines that the current control technology does not meet the level of current BACT/LAER, new or upgraded controls would be required to re-qualify the emissions unit for Clean Unit status.

According to the NSR Reform Rule, Clean Unit status is not available if: (i) the BACT/LAER determination results in no requirement to reduce emissions below the level of a standard, uncontrolled, new emission unit of the same type, and (ii) no investment was made to control emissions. This investment requirement does not apply to emission units that automatically qualified for original Clean Unit status by previously undergoing major NSR review.

Pollution Control Project Exclusion

EPA published a new, comprehensive list of environmentally beneficial technologies that qualify as pollution control projects ("PCPs") for all types of sources, replacing the separate guidance issued previously for Utility Units and all other source categories. This list, located at 40 C.F.R. § 52.21(b)(32)(i)-(iv), includes projects undertaken for the primary purpose of reducing existing emissions of air pollutants at a unit, such as electrostatic precipitators, baghouses, conventional or advanced flue gas desulfurization units, sorbent injection for sulfur dioxide control, low-NOx burners, selective catalytic reduction, and selective non-catalytic reduction.[21] Installation of a listed PCP is not considered a major modification subject to NSR if it will not cause or contribute to a NAAQS or PSD increment violation or adversely impact an AQRV. PCPs that are not listed in the regulation may qualify for the exclusion if the reviewing authority determines, on a case-specific basis, that the non-listed PCP is environmentally beneficial. Replacement, reconstruction or modification of existing emission control equipment with more effective equipment can qualify for the PCP exclusion.

If the PCP is listed, the facility must submit notice to the reviewing authority of the project before actual construction begins. The notice must contain: (i) a description of the project; (ii) the environmentally beneficial nature of the project; (iii) a projection of emission increases or decreases based on the actual-to-projected actual test; (iv) a description of the proposed monitoring and recordkeeping; (v) certification of best engineering and design to minimize emissions; and (vi) a demonstration that the project will not have an adverse air quality impact. If the PCP is not listed, the facility must submit a permit application and obtain approval to use a PCP exclusion from the reviewing authority before construction of the PCP can begin. The permitting process must provide for an opportunity for public review and comment before the PCP can be initiated.

The environmentally beneficial analysis requires a demonstration that the emission reductions of the targeted primary pollutant outweigh the environmental detriment of a different, non-targeted "collateral" pollutant. The environmentally beneficial PCPs set forth earlier are presumed to satisfy this requirement without further analysis. Unlisted projects are subject to a case-by-case analysis to demonstrate that the project would not be environmentally harmful. Non-air pollution impacts do not have to be considered in the "environmentally beneficial" determination.

The air quality impact analysis requires that emissions from the PCP cannot cause or contribute to a violation of any NAAQS or PSD increment or adversely impact an AQRV. The air quality analysis is only required if the collateral pollutant increase is determined to be "significant" as a result of the PCP (*e.g.*, greater than 40 tons per year of NOx or 100 tons per year of CO). Emission increases are determined using the actual-to-projected actual applicability test method discussed earlier.

One issue that arose at a recent workshop was whether the "primary purpose" test should continue to apply to industrial units seeking approval for a PCP. That test requires that the source show that its primary purpose for the project is to reduce PSD-regulated air pollutants. EPA specifically rejected continued use of the test in the NSR Reform Rule, reasoning that the subjective intent of the source is unimportant in determining whether the project should

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of treated wastewater from municipal treatment plants represent the pathway for release of human-derived hormones and pharmaceuticals.

Research is ongoing to determine where waste-related hormonally active compounds are actually reaching significant levels and to identify control strategies. So far, the strongest emphasis has been on compounds with estrogenic activity. Currently, the limiting factor is the ability to reliably measure not just chemical amounts, but biological activity in environmental samples. Current analytical chemistry methods permit the identification of many chemical forms for which the actual endocrine activity is poorly understood. Both within the body and in the environment, there are numerous reactions that render hormones inactive. Agency, academic, and commercial laboratories are actively working on the methodological limitations and the publication rate for both methods and biological research is exploding.

Endocrine disruption research reports are receiving unprecedented attention in environmental and toxicology related professional organizations. Two of the best-regarded toxicology journals selected research reports on endocrine disruption as their most significant papers of 2003. The top-ranked environmental chemistry journal now includes more than one research report on environmental estrogens in each issue. Sessions and workshops on endocrine disruption at major scientific meetings are standing-room-only. These are important factors observed by and influencing scientists and policy makers at regulatory agencies.

Regulatory Context

The technical limitations and scientific "adolescent growth spurt" described above, which should be signals to proceed with caution as the landscape matures, are not preventing regulatory initiatives from progressing. Adding "endocrine disruption" to the vocabulary relevant to surface water discharges was a primary factor motivating the initiation of substantial regulatory involvement. The high sensitivity to the concept of surface waters "polluted" by wastes coupled with the high outrage factor associated with potential hormone exposures has created an environment in which it is virtually impossible for regulatory agencies to stay on the sidelines.

Since the mid-1990s, the U.S. Environmental Protection Agency (USEPA) has been reviewing and attempting to validate endocrine activity tests. Other agencies and programs had been delaying significant initiatives while the technical situation clarified, particularly waiting for signals regarding appropriate endocrine activity tests. However, European agencies have since moved ahead, listing chemicals subject to particular regulatory scrutiny for their alleged endocrine-disrupting potential. Now, with the re-oriented focus on hormones and hormonal pharmaceuticals, endocrine disruption-related regulation is moving forward, without waiting for a clear picture to emerge about the real activity of the chemicals.

Following up on the USGS effort, other studies are being performed by researchers and agencies. Agencies already have begun funding proposals to apply various test systems to characterize whether the detected compounds can be linked to biological effects. Also, agencies have begun investigating approaches for incorporating hormonally-related chemicals into environmental monitoring programs under the authority of the Clean Water Act's NPDES program. This is likely to be the primary mechanism for regulation and, correspondingly, the primary area in which parties with surface water discharges will require new legal and technical environmental services.

Where is the regulatory emphasis going to fall? For highly populated regions, human-derived inputs and therapeutic hormones are likely to be an important focus for endocrine-related compounds in the environment. Treatment plant discharges may be reconsidered with regard to adding evaluations of hormone-related compounds. Municipalities will maintain that challenges in removing pharmaceutical compounds in particular should not be their burden alone, and should be (at least) a shared responsibility with manufacturers. However, attempting to control and regulate generalized human activities, particularly the use of therapeutic agents, will be both challenging and unpopular.

Unfortunately, animal agriculture operations are also unpopular among many in urban and suburban power centers. Given basic endocrine system dynamics, the use of pharmaceutical hormones for managing reproduction and growth promoters and the density of animals in livestock operations, it is not surprising that substantial amounts of endocrine-related compounds may be present in wastes. Mammals and birds produce substantial amounts of estrogens, and the predominance of females in most operations increases the input of estrogens relative to other hormones. Therefore, we can expect that a substantial share of regulatory attention in limiting endocrine active discharges may fall on agricultural operations. Increase regulatory scrutiny may manifest itself in expanded discharge permit and monitoring requirements. As discussed above, current limitations on understanding of the most relevant and reliable analytical tests will not delay the imposition of testing requirements.

As regulatory requirements relating to the release of hormone-related compounds translate to costs, there may be competing and conflicting interests between population centers with their large treatment plant discharges and agricultural sources. Agricultural inputs to surface water are more broadly distributed than municipal treatment plant discharges. While the agricultural sources may individually be relatively small, they are likely to be more numerous in particular areas and will be less of a political challenge for agencies to regulate than human-derived inputs. Importantly, the potential for success in reducing hormone-related inputs will be perceived to be quicker and easier with regard to agricultural inputs. Hormone-related compounds derived from

livestock wastes represent a discrete, and relatively accessible target for regulatory initiatives.

This situation highlights factors relevant to Georgia rivers and regulations. There are problematic issues regarding large river systems and human density. Urban demands and impacts on the Flint-Chattahoochee system already cause disputes within the state and with Alabama and Florida. There are also many large watershed areas with numerous small streams passing through heavily agricultural areas. A highly challenging scenario is where loading to individual streams in agricultural areas is not a problem, but the downstream combination with municipal inputs then exceeds target levels in a larger river. How do we target desired reductions? Attempting to finalize and allocate loading limitations for Georgia water bodies (*i.e.*, TMDLs) has already proven to be a thorny issue before the sub-topic of hormone loading was on the horizon. Allocations for city versus country with regard to loading of hormonal activity are sure to muddy the waters further.

Some other states clearly have larger, more intensive livestock operations and some other states are clearly more urbanized. But that just-right combination of big city benefits and country living that is a source of pride for many Georgians also means that a new generation of environmental concerns regarding surface water may keep our legal community changing with the times.

The issue of how much protection that we, as a society, wish to give our ecological resources is at the root of the issue of endocrine disrupting compounds. Endocrine disrupting compounds are likely to be present in our waters for the foreseeable future. This leads to three important questions:

- What changes in environmental risk are we prepared to accept?
- What are we willing to pay to achieve that level of environmental risk management?
- What methods will we use to manage environmental risks?

Ecological Resources – What Level of Protection

While simplistic, absolute answers may sound reassuring, recognizing the complexities points out the need for working through the desired level of protection for different resources in different circumstances. The stated goal to "protect human health and the environment" is rooted in this country's environmental statutes and conscience with respect to hazardous waste sites, but questions as to the level of protectiveness continue to be debated. While the question of the level of protection may, arguably, have at least some precedent with regard to human health, specific information and supporting risk tools relevant to today's "beyond-the-basics" questions do not exist when it comes to the protection of ecological resources (except, arguably, for wildlife protected under a regulation such as the Endangered Species Act). However, recent developments in the field of ecological risk assessment (ERA) have laid the groundwork for advancements in the ability to predict and/or evaluate risks at a range of ecological levels. Better assessing ecological risks at desired levels of protection will, in turn, allow for better overall management of our ecological resources.

To put the question of protectiveness in context, it is important to recognize that all actions have the potential for both desirable and undesirable consequences. Just as the USEPA has embraced 1-in-10,000 to 1-in-1,000,000 as the "acceptable" range of excess lifetime cancer risks for human receptors at a hazardous waste site, it is important that a conceptually similar range of acceptable risks be identified for ecological receptors. If 1-in-10,000 is acceptable for humans, then it should be reasonable to assume that at least 1-in-10,000 would be acceptable for ecological receptors (absent a special, protected status). Indeed, some have proposed that wildlife populations can withstand more than 10 percent (or 1-in-10) mortality and remain sustainable.

Protection of populations is the critical endpoint for non-protected species, as stated in Principle No. 1 in USEPA's guidance on ecological risk management: "to reduce ecological risks to levels that will result in the recovery and maintenance of healthy local populations and communities of biota." (USEPA, 1999a). It is also useful to recognize that the normal residential/commercial development that occurs on a day-to-day basis throughout the country typically results in destruction of available habitat. Habitat destruction virtually assures 100 percent mortality for wildlife that previously lived and foraged in the area, as well as prevents its future recovery. Therefore, the question is not whether an acceptable level of protectiveness exists but, rather, what is that acceptable level?

The Rising Tides of Ecological Risk Assessment and Management

Regulatory agencies and other entities have been active in developing programmatic information relative to the management of ecological risks. In 1997, USEPA published a discussion document pertaining to priorities for ecological protection, in which one of the stated purposes was to propose a process by which decision makers could "set specific ecological objectives." (USEPA, 1997b). Following that, USEPA published guidance on selecting generic ecological assessment endpoints in ERAs. (USEPA, 2002). This 2002 guidance intends to improve the scientific basis for ecological risk management decisions. Outside of EPA, numerous efforts have been taken and/or are under way to further the science associated with managing ecological risks, including efforts by Stahl et al. (2001), Swindoll et al. (2002), and Barnthouse et al. (in press).

Recent advancements in ERA methodology include updated agency guidance and efforts geared toward applying decades-old techniques from the fields of ecology and conservation biology to the more-recently developed tools of ecological risk assessment. Great improvements have been made relative to updated guidance

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be considered a PCP. Rather, the focus should be on whether the change produces a net benefit to the environment.[22] If so, concluded EPA, then the project should be encouraged by the regulatory scheme, redirecting scarce administrative resources to other projects that merit closer review.

In closing, perhaps a thought on the context of the NSR stakeholder meetings is appropriate. Through this process, EPD proposes to (in twenty-odd months) develop a rule for Georgia that took the U.S. EPA, with its vast resources, and all sectors of the public, which participated in numerous stakeholder proceedings and which submitted hundreds of extensive comments to the agency, more than ten years to finalize. Although EPD should be applauded for its effort to involve the public in NSR rule development, altering the NSR Reform Rule would be an unprecedented step. If the rule were made more stringent, Georgia could be shunned by industry seeking new areas for development, crippling the State's economy in a time of intense competition with other States for economic prosperity and a higher standard of living. The overwhelmingly prudent course would be for EPD to incorporate by reference EPA's NSR Reform Rule by the required deadline for submitting its SIP.

(Endnotes)

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[1] 67 Fed. Reg. 80,186 (Dec. 31, 2003).

[2] WEPCo v. Reilly, 893 F.2d 901 (7th Cir 1990).

[3] 57 Fed. Reg 32,314 (July 21, 1992).

[4] 61 Fed. Reg. 38,250 (July 23, 1996).

[5] 63 Fed. Reg. 39,857 (July 24, 1998).

[6] 68 Fed. Reg. 61,248 (Oct. 27, 2003).

[7] 68 Fed. Reg. 63,021 (Nov. 7, 2003).

[8] *United States v. Duke Energy Corp.*, No. Civ. A. 1:00 CV 1262, 2004 WL 1118582 (M.D.N.C. Apr. 14, 2004). On June 10, 2004, the Government filed a Notice of Appeal with respect to this judgment.

[9] *See* generally Ga. Comp. R. & Regs. r. 391-3-1-.02(7).

[10] *See, e.g.*, 67 Fed. Reg. 80,247, 80,263, 80,278 (sections of NSR regulations dealing with nonattainment NSR and PSD requirements, which define baseline actual emissions).

[11] Best Available Control Technology ("BACT"), Maximum Achievable Control Technology ("MACT"), Lowest Achievable Emission Rate ("LAER") and Reasonably Available Control Technology ("RACT") are all defined levels of controls established in the CAA to implement certain air quality programs. Baseline actual emissions do have to be adjusted for MACT, if the State has not taken credit for such reductions in a SIP attainment demonstration or maintenance plan. See 67 Fed. Reg. 80,278.

[12] *See id*.

[13] Technical Support Document ("TSD") for … [the NSR Reform Rule], U.S. EPA, p. I-2-5 (November 2002); referring to "Business Cycles in Major Emitting Source Industries," Eastern Research Group, Inc. (September 25, 1997).

[14] *Id*.

[15] TSD for … [the NSR Reform Rule] Reconsideration, U.S. EPA, p. 6 (Oct. 30, 2003).

[16] *Wisconsin Electric Power Co. v. EPA*, 893 F.2d 901 (7th Cir. 1990); *United States v. Ohio Edison Co.*, 276 F.Supp. 2d 829, 863 (S.D. Ohio 2003); *United States v. Duke Energy Corp.*, 278 F. Supp. 2d 619, 640 (M.D.N.C. 2003). These cases are to be distinguished from the First Circuit's finding in *Puerto Rican Cement Co. v. EPA*, 889 F.2d 292 (1st Cir. 1989), where reliance on the potential-to-emit test for industrial sources continued. There, however, the Court ruled that Puerto Rican Cement's proposal to convert one of its cement kilns was so extensive, the resulting unit had not yet "begun normal operations."

[17] TSD at p. 18 (Oct. 30, 2003).

[18] *Id*. at p. 94.

[19] *See, e.g.*, 67 Fed. Reg. at 80,287-89.

[20] Such changes could, however, require a Title V or minor NSR permit as governed under state rules.

[21] The list contains the following:

- Conventional or advanced flue gas desulfurization for the control of $S0_2$, or sorbent injection;
- Electrostatic precipitators, bag houses and scrubbers for the control of particulate matter and other pollutants;
- Flue gas recirculation, low-NO_x burners or combustors, selective catalytic reduction, selective non-catalytic reduction, low emission combustion (for internal combustion engines) and oxidation/absorption catalysts for the control of NO_x;
- Regenerative thermal oxidizers, condensers, thermal incinerators hydrocarbon combustion flares, absorbers and absorbers, biofiltration, and floating roofs (for storage vessels) for the control of volatile organic compounds ("VOCs") and hazardous air pollutants ("HAPs").
- Other presumed environmentally beneficial PCPs include projects undertaken to accommodate: switching to a different ozone depleting substance with a less damaging ozone- depleting effect; and switching to an inherently less polluting fuel, to be limited to the following –
- switching from a heavier grade of fuel oil to a lighter fuel oil, or any grade of oil to 0.05% sulfur diesel;
- switching from coal, oil, or any solid fuel to natural gas, propane, or gasified coal;
- switching from coal to wood, excluding construction or demolition waste, chemical or pesticide treated wood, and other forms of "unclean" wood;
- switching from coal to #2 fuel oil (0.5% maximum sulfur content); and
- switching from high sulfur coal to low sulfur coal (maximum 1.2% sulfur content).

See 67 Fed. Reg. at 80,246,

[22] *Id.* at 80,238.

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since the initial USEPA ERA guidance documents were published in 1989 and 1992 (1989a; 1989b; and 1992) and USEPA's ECO Updates (1991 – 1996). While those guidance documents and others published by USEPA regions or state entities provided qualitative information regarding ecological risk strategies and principles (Sorensen and Margolin, 1998), such agency-led guidance did not begin to fully confront the quantitative issues faced by ecological risk assessors and managers until 1997 and 1998. In 1997, *Ecological Risk Assessment for Superfund* (USEPA, 1997c) was published, followed by the *Guidelines for Ecological Risk Assessment* in 1998. (USEPA, 1998). While greatly enhancing the field of ecological risk assessment, these documents also highlighted "the need to enhance EPA's ability to do better ecological risk assessments" and "recognized the need to advance the science of multiple-scale, multiple-stressor, and multiple-endpoint ecological assessments." (USEPA, 2004b).

Across the country, including Georgia and USEPA Region 4, the standard practice for conducting an ERA is to calculate risk as a hazard quotient, a ratio calculated by dividing an exposure concentration for a chemical by a reference ecotoxicity value. Through all of the regulatory progression, little substantive advancement has been made in the quantitative aspects of ecological risk assessment since 1998. The situation is exacerbated in Georgia because none of the risk reduction standards that have to be met to achieve site closure under the Hazardous Site Response Act are defined in terms of ecological risk. (Georgia Department of Natural Resources, 2003). Even when proceeding beyond a screening-level ERA, regulatory agencies are extremely resistant to any methodologies that do not involve the calculation of hazard quotients. However, ever more information exists that the hazard quotient method not only over predicts risk, but that the method itself is flawed. In particular, site after site and ERA after ERA provide evidence that the effects predicted by the hazard quotient methodology, even at the individual level, are not witnessed in the field. Paraphrasing Tannenbaum et al. (2003), if your thermometer continues to register a body core temperature of 150o F, do you declare yourself dead or do you recalibrate (or replace) your thermometer?

Recent Efforts, Developments, and the Path Forward

The good news is that regulatory agency personnel, private ecological risk assessment practitioners, and various environmental organizations have entered the debate over what is to be protected, how we should protect it, and what level of protection is necessary. In addition, the parties are actively working on developing and improving the tools that are necessary to evaluate ecological risk at the appropriate levels. One of the areas showing great promise in answering these questions is population biology. By looking at how historical ecology and biology tools have been applied in other contexts (with and without regulatory drivers), much ground is being gained in identifying tools for assessing ecological risks and managing those risks at the appropriate levels for the circumstances. These tools include net environmental benefit analysis, wildlife habitat assessment, the development of field-validated risk-based concentrations, performance based ecological monitoring, and compensatory restoration. (Sorensen et al., in press). As these efforts move forward and new methodologies are tested, honed, and added to the ecological risk toolkit, and as cooperative dialog between regulatory agencies, private organizations, and public organizations continues, environmental efforts will become both more effective and more efficient due to our increased abilities to accurately predict real risks and manage those risks appropriately.

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(Endnotes)

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