

American Society of Civil Engineers

Comprehensive Transboundary Water Quality Management Agreement

**With Guidelines for Development of a Management Plan,
Standards, and Criteria**



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STANDARDS

In 2003, the Board of Direction approved the revision to the ASCE Rules for Standards Committees to govern the writing and maintenance of standards developed by the Society. All such standards are developed by a consensus standards process managed by the Society's Codes and Standards Committee (CSC). The consensus process includes balloting by a balanced standards committee made up of Society members and nonmembers, balloting by the membership of the Society as a whole, and balloting by the public. All standards are updated or reaffirmed by the same process at intervals not exceeding five years.

The following standards have been issued:

ANSI/ASCE 1-82 N-725 Guideline for Design and Analysis of Nuclear Safety Related Earth Structures
ASCE/EWRI 2-06 Measurement of Oxygen Transfer in Clean Water
ANSI/ASCE 3-91 Standard for the Structural Design of Composite Slabs and ANSI/ASCE 9-91 Standard Practice for the Construction and Inspection of Composite Slabs
ASCE 4-98 Seismic Analysis of Safety-Related Nuclear Structures
Building Code Requirements for Masonry Structures (TMS 402-08/ACI 530-08/ASCE 5-08) and Specifications for Masonry Structures (TMS 602-08/ACI 530.1-08/ASCE 6-08)
ASCE/SEI 7-05 Minimum Design Loads for Buildings and Other Structures
SEI/ASCE 8-02 Standard Specification for the Design of Cold-Formed Stainless Steel Structural Members
ANSI/ASCE 9-91 listed with ASCE 3-91
ASCE 10-97 Design of Latticed Steel Transmission Structures
SEI/ASCE 11-99 Guideline for Structural Condition Assessment of Existing Buildings
ASCE/EWRI 12-05 Guideline for the Design of Urban Subsurface Drainage
ASCE/EWRI 13-05 Standard Guidelines for Installation of Urban Subsurface Drainage
ASCE/EWRI 14-05 Standard Guidelines for Operation and Maintenance of Urban Subsurface Drainage
ASCE 15-98 Standard Practice for Direct Design of Buried Precast Concrete Pipe Using Standard Installations (SIDD)
ASCE 16-95 Standard for Load Resistance Factor Design (LRFD) of Engineered Wood Construction
ASCE 17-96 Air-Supported Structures
ASCE 18-96 Standard Guidelines for In-Process Oxygen Transfer Testing
ASCE 19-96 Structural Applications of Steel Cables for Buildings
ASCE 20-96 Standard Guidelines for the Design and Installation of Pile Foundations

ANSI/ASCE/T&DI 21-05 Automated People Mover Standards—Part 1
ANSI/ASCE/T&DI 21.2-08 Automated People Mover Standards—Part 2
ANSI/ASCE/T&DI 21.3-08 Automated People Mover Standards—Part 3
ANSI/ASCE/T&DI 21.4-08 Automated People Mover Standards—Part 4
SEI/ASCE 23-97 Specification for Structural Steel Beams with Web Openings
ASCE/SEI 24-05 Flood Resistant Design and Construction
ANSI/ASCE/SEI 25-06 Earthquake-Actuated Automatic Gas Shutoff Devices
ASCE 26-97 Standard Practice for Design of Buried Precast Concrete Box Sections
ASCE 27-00 Standard Practice for Direct Design of Precast Concrete Pipe for Jacking in Trenchless Construction
ASCE 28-00 Standard Practice for Direct Design of Precast Concrete Box Sections for Jacking in Trenchless Construction
ASCE/SEI/SFPE 29-05 Standard Calculation Methods for Structural Fire Protection
SEI/ASCE 30-00 Guideline for Condition Assessment of the Building Envelope
SEI/ASCE 31-03 Seismic Evaluation of Existing Buildings
SEI/ASCE 32-01 Design and Construction of Frost-Protected Shallow Foundations
ASCE/EWRI 33-09 Comprehensive Transboundary Water Quality Management Agreement
EWRI/ASCE 34-01 Standard Guidelines for Artificial Recharge of Ground Water
EWRI/ASCE 35-01 Guidelines for Quality Assurance of Installed Fine-Pore Aeration Equipment
CI/ASCE 36-01 Standard Construction Guidelines for Microtunneling
SEI/ASCE 37-02 Design Loads on Structures During Construction
CI/ASCE 38-02 Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data
EWRI/ASCE 39-03 Standard Practice for the Design and Operation of Hail Suppression Projects
ASCE/EWRI 40-03 Regulated Riparian Model Water Code
ASCE/SEI 41-06 Seismic Rehabilitation of Existing Buildings
ASCE/EWRI 42-04 Standard Practice for the Design and Operation of Precipitation Enhancement Projects
ASCE/SEI 43-05 Seismic Design Criteria for Structures, Systems, and Components in Nuclear Facilities
ASCE/EWRI 44-05 Standard Practice for the Design and Operation of Supercooled Fog Dispersion Projects
ASCE/EWRI 45-05 Standard Guidelines for the Design of Urban Stormwater Systems
ASCE/EWRI 46-05 Standard Guidelines for the Installation of Urban Stormwater Systems

ASCE/EWRI 47-05 Standard Guidelines for the Operation and Maintenance of Urban Stormwater Systems
ASCE/SEI 48-05 Design of Steel Transmission Pole Structures

ASCE/EWRI 50-08 Standard Guideline for Fitting Saturated Hydraulic Conductivity Using Probability Density Functions
ASCE/EWRI 51-08 Standard Guideline for Calculating the Effective Saturated Hydraulic Conductivity

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FOREWORD

The Board of Direction approved revisions to the ASCE Rules for Standards Committees to govern the writing and maintenance of standards developed by ASCE. All such standards are developed by a consensus standards process managed by the ASCE Codes and Standards Committee. The consensus process includes balloting by a balanced standards committee and reviewing during a public comment period. All standards are updated or reaffirmed by the same process at intervals between five and ten years.

The provisions of this document are written in permissive language and, as such, offer to the user a series of options or instructions, but do not prescribe a specific course of action. Significant judgment is left to the user of this document.

The purpose of the *Comprehensive Transboundary Water Quality Management Agreement with Guidelines for Development of a Management Plan, Standards, and Criteria* (the Agreement) is to provide a framework that riparian governments could adopt or modify for comprehensive water quality planning and management of shared water resources. This Agreement and its appendices are based on the concept of shared sovereignty. It is appropriate only for those situations in which sovereign governments, hereafter called Parties, are prepared to manage their portion of shared water resource together with their neighbors and when the Parties show an interest in improving the quality of the water resource.

The Agreement is extensive and considers many aspects of planning and management of water resources. Parties agree to restrict practices to the reasonable use of water and provide sufficient data to the other Parties to verify beneficial use. The Agreement suggests that information acquisition costs be apportioned so that data collection, environmental assessment, and inventories of basin water user efforts should be systemic in nature and integrated across the basin.

The Agreement is based on the elements of Model C, Comprehensive Management Agreement Relating to the *Shared Use of Transboundary Water Resources, Model Water Sharing Agreements for the Twenty-First Century* (Draper 2002), which is based on the Delaware River Basin Compact (DRBC 1961), and its amendments. The Delaware Compact has been successful in resolving interstate conflicts over the water rights and water quality management of the basin between and among the States of New York, Pennsylvania, New Jersey, and Delaware. Commentary in this Agreement is based on the *Comprehensive Transboundary International Water Quality Management Agreement*, ASCE/EWRI Standard 33-01, published in 2001.

The intent of this Agreement is to be sufficiently flexible for use across borders of sovereign governments in a variety of geopolitical settings. Article 2 lists major definitions and general provisions for the document. Defining the terms avoids the need to include similar language at numerous points throughout the Agreement. Many definitions were taken from *The Regulated Riparian Model Water Code* (ASCE 2003).

Blanks _____ within the text are used to allow a reader to insert names or material appropriate for a particular set of Parties. Numbers underscored (20) within the text refer to sample agreements derived from other cases throughout the world. Some sub-articles are optional and have been labeled accordingly.

The ASCE/EWRI Border International Water Quality Standards Committee (BIWQ SC) is a Committee within the Standards Development Council (SDC) of the Environmental and Water Resources Institute (EWRI) of the American Society of Civil Engineers (ASCE). Committee members who have attended one or more meetings and/or voted on one or more ballots regarding the Agreement are listed below in alphabetical order. Those Committee members are as follows: Raymundo Aguirre, Fernando Cadena, Rongqiu Cai, Robert T. Chuck, Fadi G. Comair, Harold J. Day, Stephen E. Draper, John H. Easton, David J. Eaton—Chair, Thomas G. Gebhard, Jr., Carolyn E. Gerwe, Ramakar Jah, Kathlie Jeng-Bulloch, Conrad G. Keyes, Jr.—Past Chair, Mark W. Killgore—Secretary, April Lander, Elizabeth Lien, John P. McCullough, Daene C. McKinney, David H. Merritt, Percival A. Miller—Vice Chair, Stephen Niemeyer, Bernardino Olague—Treasurer, Jeroen Olthof—Representative to the EWRI SDC, Jim Stefanov, Gerald Sehlke, Mike Stenstrom, D. Rick Van Schoik, and Peter R.B. Ward.

This BIWQ SC reports to the Environmental and Water Resources Institute's Standards Development Council. The EWRI SDC and the ASCE Codes and Standards Committee have approved the balloting process according to the ASCE Rules for Standards Committees that have been established in agreement with the American National Standards Institute.

This standard has been prepared in accordance with recognized engineering principles and should not be used without the user's competent knowledge for a given application. The publication of this standard by ASCE is not intended to warrant that the information contained therein is suitable for any general or specific use, and ASCE takes no position respecting the validity of patent rights. The user is advised that the determination of patent rights or risk of infringement is entirely his/her own responsibility.

**AGREEMENT CONCERNING THE COMPREHENSIVE TRANSBOUNDARY
WATER QUALITY MANAGEMENT OF THE _____ RIVER BASIN
and/or AQUIFER BASIN**

PREAMBLE

The Parties to this Agreement, _____;
And _____;

Recognizing that the water and related resources of the _____ River Basin and/or Aquifer Basin (hereafter using _____ Basin) are regional assets, for which they have a joint responsibility, and that the reasonable and beneficial use of these water resources are necessary for the health and welfare of its respective people;

Acknowledging that water and the related resources of the _____ Basin may be experiencing water quality problems to be addressed in order to promote sustainable development;

Recognizing the need to establish a transboundary organization to strengthen cooperation among interested Parties and to facilitate the financing, construction, operation, and maintenance for projects in the _____ Basin;

Convinced of the need to collaborate with governments and states, local communities, nongovernmental organizations, the private sector, and other members of the public in the effort to manage water quality in the _____ Basin;

Recognizing that the conservation, utilization, development, management, and control of the water and related resources of the _____ Basin and its tributaries, under a comprehensive multipurpose plan, will bring the greatest benefits to public welfare and environmental protection within the context of water resource sustainability;

Recognizing that Parties seek to provide effective flood damage reduction; conservation and development of underground and surface water supply for municipal, industrial, and agricultural uses; and watershed projects;

Recognizing that protection and aid to fisheries dependent upon water resources, development of hydroelectric power potentialities, improved navigation, control of the movement of saline water, abatement and control of water pollution, and regulation of surface flow are beneficial to the Parties;

Affirming the desirability of encouraging increased investment for water quality management in the _____ Basin;

The Governments of _____ and _____ hereby solemnly covenant and agree with each other, to the following Agreement.

ARTICLE 1 DECLARATION OF PURPOSES AND POLICIES

1.1 PURPOSES OF AGREEMENT

1. The Waters of the _____ Basin are affected by local, national, and regional interests, and their planning, conservation, utilization, development, management, and control, under appropriate arrangements for intergovernmental cooperation, are public purposes for the respective signatory Parties.
2. The purposes of this Agreement are to promote comity; alleviate causes of present and future controversy; make secure and protect present developments within the governments of the _____ Basin; and encourage and provide for the planning, conservation, utilization, development, management, and control of the water resources of the _____ Basin.
3. The purposes include providing for cooperative planning, financing, and action by the signatory Parties with respect to water quality such that human health and beneficial uses are protected.
4. These policies seek to apply reasonable and nondiscriminatory treatment to all water users, and to all users of related facilities without regard to established political boundaries.
5. A controlling Commission is to be established to carry out the operations within the _____ Basin.

Commentary: A key challenge for the Parties is to make more efficient and productive use of water and to reshape the institutions managing water to better suit the increase in water shortages (Postel 1996). The purpose statement is indefinite in order to allow flexibility in the planning and management of the shared water resource.

The Parties should carefully frame the extent of the water resources involved in the Agreement. They should identify the type and geographical extent of the Waters of the _____ Basin subject to the Agreement. To be accurate, an analysis should examine factors that influence the availability of water, such as the following: the climatology, physiology, geology, and the interaction between underground and surface water resources. The analysis should also identify pollution sources and their impacts on basin water quality. The purposes and scope of the Agreement will affect this assessment, as they will delineate the Parties to be included and their responsibilities, as well as the structure of the Commission established to manage operations within the _____ Basin.

The geographic extent of the water resources to be covered by the Agreement should be equal to the water sharing problems to be addressed. The use of the terms “_____ Basin” or “Waters of the _____ Basin,” if objectionable for any reason by one or more Parties, may be changed to “region,” “area,” or “system,” or any word that accurately describes and encompasses the entirety of the water resources subject to the Agreement.

Comprehensive basin-wide management is established in a number of recent international agreements, to include the Convention on Biological Diversity (1992); Convention on Wetlands of International Importance (1975); and Rio Declaration on the Environment and Development (1992). It has been noted that “integration of water quality and quantity programs is one aspect of, and is inseparable from, comprehensive, coordinated, multipurpose, basin-wide water and related resource planning and management” (Goldfarb 1993).

Cross-Referencing: 1.6 (coordination and cooperation); 2.1.3 (amendments and supplements); 2.1.4 (withdrawal); 2.2.1 (_____basin defined); 2.2.2 (beneficial use defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 3.2 (powers and duties); 3.3 (intergovernmental relations); 5.3 (grants, loans, or payments); 5.5 (borrowing power).

1.2 JOINT EXERCISE OF SOVEREIGNTY

The water quantity and quality of the _____ Basin are subject to the sovereign right and responsibility of the signatory Parties, and it is the purpose of this Agreement to provide for the joint exercise of such powers of sovereignty in the common interests of the people of the region.

Commentary: To be effective, any sovereign government directly affected by the shared use or having direct access to the surface or underground water should be identified and included in discussions. Both governmental and private stakeholders may influence Agreement formulation, even if private water rights holders within the various jurisdictions will not participate as Parties to the Agreement. Although the extent of consultation with private groups will depend on the political nature of the sovereignties themselves, recognition of existing rights is required. For instance, in some situations a conflict could exist between demands for water for economic purposes and the needs of environmental protection. Water users may respond better to incentives to accept that some water is reserved for environmental and ecological protection.

Additional incentives may also help users to maintain or improve water quality during or following use and prior to discharge in accordance with water quality standards or other compliance requirements. Unless the governmental entities involved with formulating the Agreement consider the interests of the various user groups, the effectiveness of the Agreement may be reduced.

Many agreements reserve the sovereign right of each signatory to exploit its own resources (e.g., Convention on Long-Range Transboundary Air Pollution 1979). Some, however, allow for a measure of joint sovereignty but reserve sovereign activities that affect industrial and commercial secrecy or national security (e.g., Convention on Environmental Impact Assessment in a Transboundary Context 1993). However, some recent agreements refer to joint development of shared water resources (Trolldalen 1992) and joint development presupposes the joint exercise of sovereignty. Examples include the Delaware River Basin Compact (DRBC 1961), the Susquehanna River Basin Compact (SRBC 1970), as well as the Act Regarding Navigation and Economic Development between the States of the Niger Basin (1963); Convention Establishing the Organization pour la Mise en Valeur du Fleuve Senegal (OMVS) (1974); Convention and Statute Relating to the Development of the Chad Basin (1974); and the Agreement on the Action Plan for the Environmentally Sound Management of the Common Zambezi River System (1987).

Cross-Referencing: 2.1.4 (withdrawal); 2.2.15 (party or parties defined); 3.2.2 (powers and duties reserved to the commission); 3.2.9 (condemnation proceedings).

1.3 INTERRELATIONSHIP OF WATER RESOURCES

The Waters of the _____ Basin are functionally interrelated, and the uses of these resources are interdependent. Joint planning, management, and coordination of projects and policies within the Basin are essential to effective and efficient use of the water resource.

Commentary: This provision expands the purpose statement by expressing the intent of the Parties to seek effective water management. Similar provisions are included in the Report of the United Nations Conference on Environment and Development, Agenda 21 (1993), which proposed a program of integrated water resources development and management.

Cross-Referencing: 1.6 (coordination and cooperation); 2.2.1 (____ basin defined); 2.2.15 (party and parties defined); 2.2.17 (project defined); 2.2.25 (waters of the ____ basin defined).

1.4 SEVERANCE OR MATERIAL BREACH (Optional)

- 1. Parties consider this Agreement to be a whole. Each recommendation and provision of this Agreement is considered material to the entire Agreement, and failure to implement or adhere to any recommendation or provision may be considered a material breach.**
- 2. Tribunal Parties of competent jurisdiction may hold any part of this Agreement to be void or unenforceable; all other severity provisions shall continue in full force and effect.**

Commentary: The drafters of an Agreement should consider whether they wish to include these clauses. If any part is found to be void or unenforceable, a severance clause avoids the possibility of having the entire Agreement become null and void. These provisions are standard to most agreements, indicating that all provisions of an Agreement are interrelated and that breach of any provision by one Party may jeopardize an Agreement.

Cross-Referencing: 2.1.3 (amendments and supplements); 2.2.15 (party and parties defined); 3.2.2 (powers and duties reserved to the commission); 3.3.4 (cooperative services); 6.3 (conciliation and mediation).

1.5 GOOD FAITH IMPLEMENTATION

Each of the Parties pledges to support implementation of all provisions of this Agreement, and covenants that its officers and agencies will not hinder, impair, or prevent any other Party from carrying out any provision or recommendation of this Agreement.

Commentary: A government normally enters into any transboundary Agreement with a position of self-interest. In the negotiations, each party seeks the rights and authorities critical to certain political, economic, or social objectives while ceding less critical rights and authorities to joint decisions. While accepting this fact, all Parties have a duty to cooperate and negotiate in good faith. This principle is the foundation of international law, and it applies in all relations among sovereign States.

Similar provisions are found in the following references: Declaration on Principles of International Law Concerning Friendly Relations and Cooperation among States in Accordance with the Charter of the United Nations (1970), Charter of Economic Rights and Duties of States (1975), Helsinki Rules on the Issues of the Waters of International Rivers (1966), and Stockholm Declaration of the United Nations Conference on the Human Environment (1972).

Cross-Referencing: 2.2.15 (party and parties defined); 3.1.4 (commission administration); 3.2 (powers and duties); 3.3.2 (project costs and evaluation standards); 6.1 (alternative dispute resolution).

1.6 COORDINATION AND COOPERATION

The Parties shall at all times endeavor to agree on the interpretation and application of this Agreement, and shall make every attempt through cooperation and consultations to arrive at a mutually satisfactory resolution of any matter that might affect its operation.

Commentary: This provision recognizes the inherent need for coordination and cooperation in the joint management of the basin. This provision appears in a number of international treaties, including: Declaration on Principles of International Law Concerning Friendly Relations and Cooperation among States in Accordance with the Charter of the United Nations (1970); Stockholm Declaration of the United Nations Conference on the Human Environment (1972); Charter of Economic Rights and Duties of States (1975); Treaty for Amazonian Cooperation (1978); Convention on Long-Range Transboundary Air Pollution (1979); Vienna Convention for the Protection of the Ozone Layer (1985); Convention on Environmental Impact Assessment in a Transboundary Context (1993); the North American Free Trade Agreement (NAFTA) (1993); and Agreement between the Government of the United States of America and the Government of the United Mexican States Concerning the Establishment of a Border Environment Cooperation Commission and a North American Development Bank (1993).

Cross-Referencing: 1.1 (purposes of agreement); 1.3 (interrelationship of water resources); 2.2.13 (multilateral body defined); 2.2.15 (party or parties defined); 3.2.1 (general powers and duties); 3.2.10 (meetings, hearings, and records); 3.3.1 (intergovernmental coordination and cooperation).

ARTICLE 2 GENERAL PROVISIONS

2.1 GENERAL OBLIGATIONS

2.1.1 Effective Date of Execution

This Agreement shall become binding and effective (____) days after the enactment of concurring legislation by the signatory Parties. The Agreement shall be signed and sealed in (____) duplicate original copies by the respective chief executives of the signatory Parties. One such copy shall be filed with the Secretary of State of each of the signatory Parties or in accordance with the laws of the country or nation in which the filing is made, and one copy shall be filed and retained in the archives of the Commission.

Commentary: This provision is administrative in nature. It describes when the Agreement becomes enforceable and the administrative steps necessary to ensure all Parties are so informed (ASCE 2001a).

Cross-Referencing: 2.1.2 (duration of agreement); 2.2.15 (party and parties defined); 4.4 (water allocation).

2.1.2 Duration of Agreement

- 1. The Parties intend that the duration of this Agreement shall be for an initial period of (____) years from its effective date. If none of the signatory Parties notifies the Commission of intention to terminate, the Agreement shall be continued for additional periods of (____) years.**
- 2. In the event that this Agreement should be terminated by operation of the above paragraph, the Commission shall be dissolved, its assets and liabilities transferred, and its corporate affairs discontinued, in such manner as may be provided by agreement of the signatory Parties.**

Commentary: Setting duration for an extended period of time allows for predictability on terms of water management. This provision allows sufficient time to recover capital costs in the financing of projects. Establishing duration ensures that the Parties reconsider the Agreement only after a sufficient hydrologic record is established (ASCE 2001a).

Cross-Referencing: 2.1.1 (effective date of execution); 2.2.15 (party or parties defined); 3.1.1 (commission created); 4.2 (purpose and objectives); 4.5 (withdrawals and diversions).

2.1.3 Amendments and Supplements

1. **Amendments and supplements to this Agreement to implement the purposes thereof may be proposed by any of the signatory Parties. The amendments and supplements shall become incorporated in the Agreement if approved by all Parties.**
2. **In the event that any Party is substantially hindered or prevented from performing any obligation or implementing any provision under this Agreement by reasons of circumstances beyond the control of the Party (including natural disasters, labor disputes, judicial decrees, armed intervention, and/or action of national legislative bodies), the Parties agree to meet and negotiate an appropriate modification of the applicable provisions of the Agreement. Such modifications may include extensions of applicable schedules and timetables, or agreements on substitute actions to fulfill the objectives and spirit of this Agreement.**

Commentary: This provides a mechanism for the Parties to agree and develop extensions to the Agreement when the need arises. It also provides a remedy for unintentional breaches of the Agreement that may occur due to certain unforeseen or changed conditions. Similar provisions may be found in many agreements (Convention on Environmental Impact Assessment in a Transboundary Context 1993; Vienna Convention for the Protection of the Ozone Layer 1985). One example is the concept of a “Minute” mechanism within the Mexico–U.S. transboundary water Treaty of 1944 on Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande (1944).

Cross-Referencing: 1.1 (purposes of agreement); 1.4 (severance or material breach); 2.2.15 (party or parties defined).

2.1.4 Withdrawal

Any sovereign Party has the power and right to withdraw from this Agreement. Notification of withdrawal to all Parties shall be made (____) months in advance of the prospective withdrawal.

Commentary: This provision acknowledges the advance notification of withdrawal by any individual Party and recognizes that any relinquishment of sovereignty is limited solely to the purposes of this Agreement (ASCE 2001a).

Cross-Referencing: 1.1 (purposes of agreement); 1.2 (joint exercise of sovereignty); 2.2.15 (party or parties defined).

2.1.5 Existing Agencies

The Parties shall preserve and utilize the functions, powers, and duties of existing offices and agencies to the extent consistent with the Agreement. The institution established to enforce this Agreement is authorized and directed to utilize and employ such offices and agencies for the purpose of this Agreement to the extent it finds feasible and advantageous.

Commentary: The use of existing offices and agencies prevents duplication associated with costs of data collection and management of the water quantity and quality subject to the Agreement (ASCE 2001a).

Cross-Referencing: 2.2.15 (party or parties defined); 3.2.2 (powers and duties reserved to the commission); 3.2.7 (advisory committees); 3.3.1 (intergovernmental coordination and cooperation); 3.3.4 (cooperative services); 4.3 (conditions of comprehensive plan).

2.1.6 No Precedence (Optional)

The physical and other conditions pertinent to the _____ Basin constitute the basis for this Agreement, and its provisions are applicable only to the _____ Basin.

Commentary: The Agreement reflects the circumstances and compromises reached in its formulation. The Parties may not wish to make this Agreement apply to other basins. This clause may avoid later claims that other rivers and basins or other bodies of water should be dealt with in a similar manner (ASCE 2001a).

Cross-Referencing: 2.2.1 (_____ basin defined); 2.2.15 (party or parties defined).

2.2 DEFINITIONS

2.2.1 _____ Basin

“_____ Basin” means the area of drainage into the _____ River and its tributaries, aquifers underlying the drainage, or the aquifers themselves.

Commentary: The Agreement could include the total surface area of drainage throughout the _____ Basin and contain aquifers underlying the surface drainage. Some tributaries can be connected to the underlying aquifers holding the underground water. Some of the aquifers could be connected to more than one surface water basin. The geographic scope of the Agreement should be defined to ensure there are no future disagreements about what lands are or are not

covered by the Agreement. A map may be incorporated, but care should be taken that the map is cartographically accurate. Because the map is likely to be at a scale too small for precise delineation of boundaries, it should be made clear that it is for general reference only. In the event of a dispute over land being within the defined _____ River and its tributaries, the actual limits of the watershed as determined on the ground should be controlling (Draper 2002; ASCE 2001a).

Cross-Referencing: 1.1 (purposes of agreement); 1.3 (interrelationship of water resources); 2.1.6 (no precedence); 2.2.3 (commission defined); 2.2.23 (transboundary waters defined); 2.2.25 (waters of the _____ basin defined); 3.1.1 (commission created); 3.1.2 (jurisdiction of the commission); 3.2.1 (general powers and duties); 3.2.2 (powers and duties reserved to the commission); 3.2.3 (obligations of the commission); 3.2.6 (referral and review); 3.3.3 (projects of the signatory parties and their subdivisions); 3.3.4 (cooperative services); 4 (transboundary water quality management).

2.2.2 Beneficial Use

“Beneficial use” includes that use by which the water supply of a drainage basin or aquifer is consumed or stored, when usefully employed by human activities, and also includes water lost by evaporation and other natural causes from streams, canals, ditches, irrigated areas, and reservoirs. The term includes instream use for aesthetics, ecological and environmental maintenance, and protection, recreation, minimum flow maintenance, or any other purpose agreed by the Parties to be for the general benefit of the public and the environment.

Commentary: “Beneficial use” has long been a criterion for the validity of water rights under the appropriative rights doctrine. In that setting, the concept of beneficial use serves both to define the proper purposes for which a water right might be acquired and to limit or measure the quantity of water lawfully appropriated for the intended purpose (Dellapenna 2007). For example, if the Parties use surface water for groundwater recharge for water supply conservation, aquifer use could be pertinent. An example is recharge on Long Island, New York, established under New York Environmental Conservation Law Section ECC 27-07-04 (1983), and related rules and regulations. In this case aquifer recharge could affect the types of development allowed and pollutant discharge guidelines for the designated areas (ASCE 2001b).

At the present time, not all jurisdictions agree that “instream” uses are beneficial, but the trend is to

recognize and provide for such uses. Requirements of instream use maintenance should be addressed; if not, future requirements may result in disruption of allocation or other provisions contained in the Agreement. The Parties may wish to modify or refine this definition further, depending upon the particular goals included in the Agreement (ASCE 2001a).

Cross-Referencing: 1.1 (purposes of agreement); 2.2.3 (commission defined); 2.2.11 (instream use defined); 2.2.15 (party or parties defined); 2.2.21 (sustainable water use defined); 4.2 (purpose and objectives of transboundary water quality management); 4.4 (water allocation).

2.2.3 Commission

“Commission” means the _____ Basin Commission created and constituted by this Agreement.

Commentary: A Commission may be constituted from personnel from the Parties. Further information about the Commission is covered in Article 3 of this document (ASCE 2001a).

Cross-Referencing: 2.2.1 (_____ basin defined); 2.2.2 (beneficial use defined); 3 (administration); 4 (transboundary water quality management); 5 (financing); 6 (dispute resolution).

2.2.4 Comprehensive Transboundary Water Quality Management Plan

“Comprehensive Transboundary Water Quality Management Plan” means a plan that considers the interrelationship of transboundary water resources, describes current and prospective water uses, identifies water supplies, and matches these supplies to water uses. It also identifies water-related management measures, facility needs, and costs, addresses environmental concerns, and offers program and policy recommendations to better manage the basin’s water resources and water quality. A plan may seek to produce high quality and efficient use of water resources for the greatest benefit to the public and the environment.

Commentary: Comprehensive water management plans are guides for the orderly development and management of water resources. Such a plan could span a decades-long horizon and consider population growth, development and availability of new water supplies, water transfers from one basin to another, data sources and methodologies, cost of water, regional or sub-regional plans, regulatory issues, economic development, specific projects, health and public safety issues, specific long-term benefits of conserving water quantity and quality in the Basin, and other concerns.

The Parties should negotiate the time horizon and the schedule for revising the plan. An example is the Texas Water Plan (Texas Water Development Board 2007). Appendix to this Agreement provides Guidelines for the Development of a Transboundary Water Quality Management Plan.

Cross-Referencing: 3.3.3 (projects of the signatory parties and their subdivisions); 4 (transboundary water quality management).

2.2.5 Consumptive Use

“Consumptive Use” means water consumed or not returned to the _____ Basin.

Commentary: A consumptive use is one that diminishes the quantity of water in a water source. Excessive consumptive use impedes the sustainable development of a water source. While water rights can be perfected for both consumptive and nonconsumptive uses, the effects of the two forms of use are so different that regulations and permits will often treat consumptive uses differently from nonconsumptive uses. This has been defined by the ASCE/EWRI Standard 40-03, Regulated Riparian Model Water Code (ASCE 2003).

Cross-referencing: 4.2 (purpose and objectives of transboundary water quality management)

2.2.6 Cost

“Cost” means direct and indirect expenditures, financial commitments, and net adverse cost effects, whether compensated or not, incurred or resulting from the establishment, acquisition, construction, operation, and maintenance of a project.

Commentary: The Appropriative Rights Model Water Code (Dellapenna 2007) uses the term “cost” in the sense of “opportunity cost,” referring to the value of foregone opportunities made necessary by the project or activity for which the cost is to be determined. Opportunity costs include the actual out-of-pocket expenditures such as costs of construction, land acquisition, acquiring water rights, easements, and franchises, and expenses for engineering, legal work, planning, surveys, and other tasks for determining the feasibility of a project or activity. Opportunity costs also include the adverse effects on the environment, including costs to mitigate negative environmental impacts, and on others (people, entities, and organizations) regardless of whether those effects are compensated.

Cross-Referencing: 2.2.17 (project defined); 2.2.18 (reasonable use defined); 3.2.4 (regulations and enforcement); 3.3.2 (project costs and evaluation standards); 5.1 (annual current expense and capital budgets).

2.2.7 Drought Conditions

“Drought Conditions” means water scarcity conditions, defined by and acceptable to the Parties, brought about by occurrences such as an extended period of precipitation below the annual mean, or other causes resulting in significant drainage or depletion of water capacity of the basin.

Commentary: Management action will arise from a drought, or lack of mean annual rainfall, but could arise from other causes as well, such as the collapse of a dam with the resulting draining of a reservoir on which the Commission users depend. Mather (1974) indicates that there are many drought definitions, but the meaning of the term “drought” in any specific case should depend on the intended water use. A “drought management strategy” would be a specific course of conduct planned by the Commission as a necessary or appropriate response to the lack of precipitation or a reduction in water quantity, including catastrophic events (e.g., dam failure). This strategy may include a contingency plan, limited to emergency alternatives to historical or foreseeable drought occurrences. Other causes may be failure of a reservoir dam, earthquake drainage of a reservoir or aquifer, extensive saltwater incursion, or wide-scale contamination beyond basin water treatment capacity, etc. (ASCE 2001a).

Cross-Referencing: 2.2.15 (party or parties defined); 4.2 (purpose and objectives of transboundary water quality management); 4.3 (conditions of comprehensive plan); 4.5 (withdrawals and diversions).

2.2.8 Effluent Standards

“Effluent Standards” is a limit on the discharges of a pollutant from a point source.

Commentary: According to the State of Texas, these govern any effluent or wastewater discharged from any point source prior to entering a water body (30 TAC, Chapter 307).

Cross-Referencing: 2.2.16 (point source defined); 4.6 (water quality); Appendix A-4.3 (strategies to control pollution); Appendix A-5 (implementation of measures for sustainable use); Appendix B-1 (the process leading to establishment and implementation of transboundary water quality standards and criteria); Appendix B-2.2 (water quality regulations); Appendix B-2.3 (designated use in each government); Appendix B-4 (Mexico–U.S. transboundary water quality standards).

2.2.9 Equitable

“Equitable” means fair, just, or according to the principles of justice. An equitable settlement of a dispute is fair to each side.

Commentary: Utilization of a transboundary water resource in an equitable manner requires taking into account all relevant factors and circumstances (Draper 2002). These may include: (1) social and economic needs of the Parties, (2) population dependent on the water resource of the Parties, (3) effects of the use or uses of the water resources of the other Parties, (4) existing and potential uses of the water resources, and (5) availability of alternatives.

Cross-Referencing: 3.2.1 (general powers and duties of administration); 3.2.2 (powers and duties reserved to the commission).

2.2.10 Flood Conditions

“Flood Conditions” refers to the flow resulting from heavy runoff with a frequency agreeable to the Parties.

Commentary: A flood condition is almost the opposite of a drought. A large amount of water is to be controlled by facilities of the Commission. The Parties are to agree as to the frequency of the flow of high waters in the Basin. High flow events usually exceed the flow that occurs during the years of mean annual precipitation (ASCE 2001a).

Cross-Referencing: 2.2.15 (party or parties defined); 4.2 (purpose and objectives of transboundary water quality management); 4.3 (conditions of comprehensive plan).

2.2.11 Instream Use

“Instream Use” includes any use that does not withdraw water from the stream but may affect instream water quality or habitat. Examples include navigation, certain types of hydroelectric power facilities, maintenance of water quality, provision for fish and wildlife habitat, and fulfillment of aesthetic goals.

Commentary: The uses of water for certain types of use are to be classified as “instream use.” The Parties would need to agree as to the uses that fit into this category, such as navigation, certain types of hydroelectric power facilities, maintenance of water quality, provision for fish and wildlife habitat, and fulfillment of aesthetic goals (Dellapenna 2007; ASCE 2001a). These uses can be recognized and associated water rights could be the property of the Commission or part of the Party’s water resources.

Cross-Referencing: 2.2.2 (beneficial use defined); 4.4 (water allocation).

2.2.12 Minute

“Minute” as used in this Agreement refers to the joint undertaking of the _____ Basin

Commission to study, investigate, and prepare plans for generating projects or agreements that shall be reported to the two Governments as to the works that will be built, the estimated costs thereof, and the part of the works to be constructed by each Government.

Commentary: Each Government agrees to construct, through its section of the Commission, such works as may be recommended by the Commission and approved by the two Governments (The Treaty Between the United States and Mexico of February 3, 1944).

Cross-Referencing: 3.1.1 (commission created); Appendix A-2.3 (governmental action procedures); Appendix B-4 (Mexico–U.S. transboundary water quality standards).

2.2.13 Multilateral Body

“Multilateral Body” means any joint commission or other institutional arrangements for cooperation among Parties.

Commentary: This is another organization different from the Commission. A Commission may use such groups to carry out operations and/or other activities of the Commission or can be used by the Parties of the Commission to fulfill other items in association with the Commission activities (ASCE 2001a).

Cross-Referencing: 1.6 (coordination and cooperation); 2.2.15 (party or parties defined); 5.8 (funding and refunding).

2.2.14 Non-Point Source (NPS) Pollution

“Non-Point Source” or “NPS” pollution comes from many diffuse sources, caused by rainfall or snowmelt moving over and through the ground.

Commentary: Runoff picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water. These pollutants include excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas; oil, grease, and toxic chemicals from urban runoff and energy production; sediment from improperly managed construction sites, crop and forest lands, and eroding streambanks; salt from irrigation practices and acid drainage from abandoned mines; and bacteria and nutrients from livestock, pet wastes, and faulty septic systems. Atmospheric deposition and hydro-modification are also sources of non-point source pollution (USEPA 1994).

Cross-Referencing: 2.2.22 (total maximum daily load defined); 4.6 (water quality); Appendix A-4 (plan to improve water quality for use designations);

