RESERVOIR MANAGEMENT PLAN

OF

THE UPPER OCONEE BASIN WATER AUTHORITY BEAR CREEK RESERVOIR JACKSON COUNTY, GEORGIA

WITH REVISIONS THROUGH MAY 28, 2014

INDEX

SECTION 1.00	<u>DEFINITIONS.</u>	2
SECTION 2.00	PURPOSE.	5
SECTION 3.00	OBJECTIVES.	
SECTION 4.00	APPLICABILITY.	
SECTION 5.00	AUTHORITY AND JURISDICTION.	6
SECTION 6.00	LAKESHORE MANAGEMENT RULES.	6
SECTION 7.00	PROJECT USE, DESCRIPTION AND HISTORY.	
SECTION 8.00	GENERAL LAKESHORE ALLOCATION.	
Section 8.01	Prohibited Access Areas.	
Section 8.02	Public Recreation Areas.	
Section 8.03	Project Shoreline Areas.	
SECTION 9.00	PERMITS.	
Section 9.01	Special Event Permits.	
Section 9.02	Specified Act Permits.	
Section 9.03	Project Shoreline Area Use Permits.	
Section 5.05	Eligibility Requirements.	
	Duration of Permits.	
	Site Requirements.	
	Handicapped-Accessible Facility Requirements.	
Section 9.04	Specific Land-Use Practices.	
Section 9.05	Violation of Permit Conditions/Unauthorized Use.	
SECTION 10.00	BOUNDARY CONTROL.	
SECTION 11.00	ENCROACHMENT RESOLUTION.	12
Section 11.01	Minor encroachments.	
Section 11.02	Major encroachments.	
SECTION 12.00	FOREST MANAGEMENT.	
	Shoreline Area" forest and vegetative management objectives	
	Recreation Area" forest management objectives	
SECTION 13.00	WILDLIFE MANAGEMENT.	
SECTION 14.00	FISHERIES MANAGEMENT.	
SECTION 15.00	WATER QUALITY.	
SECTION 16.00	WETLANTDS.	
SECTION 17.00	AQUATIC WEEDS.	
SECTION 18.00	ENDANGERED SPECIES.	
SECTION 19.00	CULTURAL, HISTORICAL & ARCHEOLOGICAL.	
SECTION 20,00	COMMERCIAL ACTIVITY.	18
SECTION 21,00	REGULATORY BUOYS.	
SECTION 22.00	REGULATIONS GOVERNING PUBLIC USE.	
Section 22.01	Vehicles	
Section 22.02	Vessels,	. 19
Section 22.03	Aircraft.	
Section 22.04	Swimming and Diving.	
Section 22.05	Picnicking.	
Section 22.06	Camping.	
Section 22.07	Hunting and Trapping.	
Section 22.08	Sanitation.	
Section 22.09	Fires.	
Section 22.10	Control of Animals.	
Section 22,11	Restrictions.	
Section 22,12	Reserved	
Section 22.13	Public Property.	
Section 22.14		
	Abandonment and Impoundment of Personal Property.	23
Section 22.15	Abandonment and Impoundment of Personal Property. Lost and Found Articles.	

Section 22.16	Advertisement.	24
Section 22.17	Permits	24
Section 22.18	Unauthorized Structures	25
Section 22.19	Special Events	25
Section 22,20	Unauthorized Occupation	25
Section 22.21	Recreation Use Fees.	25
Section 22,22	Interference with Authority Employees.	26
Section 22.23	State and Local Laws.	26
SECTION 23.00	ENFORCEMENT OF RULES	27
SECTION 24.00	SUMMARY AND AMENDMENT PROCEDURE.	
SUPPLEMENT		27
Security		27
Water Quality N	Aonitoring	28
Control of Publi	c Access	28
Table 1		29
Figure 1,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	30
5		

.

UPPER OCONEE BASIN WATER AUTHORITY BEAR CREEK RESERVOIR

RULES AND REGULATIONS GOVERNING LAKESHORE MANAGEMENT AND PUBLIC USE

JACKSON COUNTY, GEORGIA

WHEREAS, the Upper Oconee Basin Water Authority (the "Authority") recognizes that securing a safe and reliable source of water is absolutely essential to growth and for meeting water needs of the four-county region in periods of drought. The Authority recognizes that the population of the area is growing, and that the demand for water for residential, business and industrial uses is increasing. The Authority also recognizes that available water resources are limited to begin with and are further restricted by environmental concerns, and that the cost of developing safe and reliable water resources is very high. If increasing water needs are to be met at a reasonable cost, immediate steps must be taken to assure that necessary supplies of water will be available in the future.

The Authority, in response to the critical water shortages caused by droughts in recent years, has determined that the most practical and least environmentally damaging method of assuring a safe and reliable source of water for residents of the region is to construct a water impoundment project on the waters of Bear Creek. The reservoir, known as the Bear Creek Reservoir, lies in Jackson County.

The purpose of these Rules and Regulations is to set out the activities permitted within the Bear Creek Reservoir and adjacent areas as well as the activities prohibited thereon.

WHEREAS, the Upper Oconee Basin Water Authority has acquired, or will acquire, certain lands by fee ownership and certain easement rights for the development of the Bear Creek Reservoir, and has resolved to provide for the protection of the proposed Project Lands in order to assure a safe and reliable supply of raw water and to protect the quality thereof.

NOW THEREFORE, the Upper Oconee Basin Water Authority adopts these Rules and Regulations Governing Lakeshore Management and Public Use of the Bear Creek Reservoir, and provides as follows:

SECTION 1.00

DEFINITIONS.

"Athens-Clarke County, Georgia" - A political subdivision of the State of Georgia, consisting of the unified governments of the City of Athens and Clarke County, acting by and through its duly elected officers.

"Authority" - The Upper Oconee Basin Water Authority.

"Barrow County, Georgia" - A political subdivision of the State of Georgia, acting by and through its duly elected and qualified Board of Commissioners.

"Bear Creek Reservoir" - The water impoundment project, consisting of the impoundment of waters from Bear Creek, which shall be located in Jackson County, Georgia.

"Board" - The Board Members of the Upper Oconee Basin Water Authority.

"Easement Lands" -Consist of the land area between the "Property Line" and either the 702 MSL contour or a line 150 feet measured horizontally from and parallel to the "Property Line" whichever is greater. This area is subject to restrictive covenants of public record intended to protect the water quality and environment of the Project. Easement Lands create a natural buffer which can be disturbed only as provided for within the Reservoir Management Plan or permitted under Section 9.00 of this Reservoir Management Plan. (See Diagram on Page 4.)

"Executive Director" - The designated employee of the Upper Oconee Basin Water Authority who shall have responsibility for management of the day-to-day business and affairs of the Authority.

"Flotation Device" - Any device, structure, or item, motorized or non-motorized, which may be utilized as a means of buoyant transportation on the surface of the water. Examples include, but are not limited to, rafts, floats, tubes, barrels, styrofoam blocks, and pontoons.

"Impervious Surface" - A man-made structure or surface which prevents the infiltration of storm water into the ground below the structure or surface. Examples include, but are not limited to, buildings, roads, driveways, parking lots, swimming pools, and patios.

"Jackson County, Georgia" - A political subdivision of the State of Georgia, acting by and through its duly elected and qualified Commissioners.

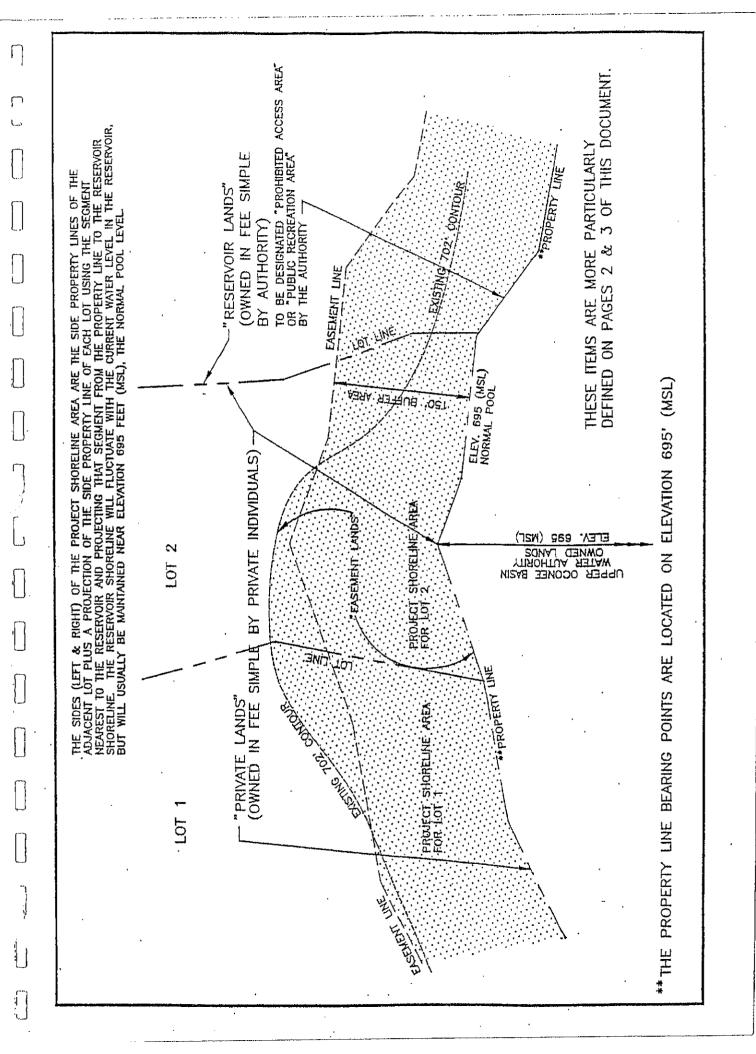
"MSL" - Mean Sea Level, the level of the ocean's surface halfway between the high and low tide, used as a standard in measuring land elevation.

"Oconee County, Georgia" - A political subdivision of the State of Georgia, acting by and through its duly elected and qualified Board of Commissioners.

"Private Lands" -All property not owned in fee simple by the Authority.

"Prohibited Access Areas" - see Section 8.01.

"Project" - The Bear Creek Reservoir water impoundment project and related public recreational areas. "Project Lands" - Project Lands consist of all real property acquired by and owned in fee simple by Upper Oconee Basin Water Authority in and around the Bear Creek Reservoir ("Reservoir Lands"), as well as those portions of Private Lands over which the Upper Oconee Basin Water Authority has acquired specific easements or covenant rights for flood, access, buffer, environmental or water quality protection purposes. "Project Shoreline Areas" - See Section 8.03. "Property Line" - The outer boundary of the normal pool level, owned in fee simple by the Authority, lying at an elevation of 695 feet MSL. "Public Recreation Areas" - All areas dedicated to public use and recreation by the Authority. "Reservoir Lands" - All land acquired in fee simple by the Upper Oconee Basin Water Authority for the construction, maintenance, and operation of the Bear Creek Reservoir and all related improvements and facilities. "Reservoir Manager" - The designated employee of Upper Oconee Basin Water Authority, who is designated hereby to perform the duties set out herein within the Project Lands for the purposes of enforcing these Rules and Regulations. Unless otherwise indicated herein, the term "Reservoir Manager" shall include the authorized representatives of the Reservoir Manager. The Reservoir Manager shall be appointed by, serve at the pleasure of, and report to the Executive Director of the Upper Oconee Basin Water Authority. "Reservoir Waters" - Shall consist of that area located within the Property Line, the normal pool level of the reservoir, and measuring approximately 505 acres. "Upper Oconee Basin Water Authority" - A political subdivision of the State of Georgia, acting by and through its qualified Board Members. "Utility" - Utility refers to public or private systems of water and sewer piping systems, water and sewer pumping stations and treatment systems, electric power lines, fuel pipelines, cable television and telephone lines, roads, driveways, bridges, river and lake access facilities, storm water systems, railroads, and other utilities identified by local government.



SECTION 2.00

PURPOSE.

The primary and overriding purpose of these Rules and Regulations is to preserve and protect the quality of water in the Bear Creek Reservoir. The subordinate purposes of these Rules and Regulations are to regulate the management, protection, and preservation of the lake's shoreline and environment; to establish and maintain acceptable fish and wildlife habitat, aesthetic quality and natural environmental conditions; to protect Project Lands and adjacent privately owned lands; and to promote the safe and healthful use of the lake's shoreline and waters for recreational purposes by the general public. No provision hereof shall be construed to permit anything prohibited by the Water Supply Watershed Rules (Ga. E.P.D. Rules, Chapter 391-3-16-01 Criteria For Water Supply Watersheds) or zoning ordinances or other land use ordinances established by Jackson County.

SECTION 3.00

OBJECTIVES.

The Bear Creek Reservoir was planned and designed and will be constructed to provide a reliable raw water supply for the Upper Oconee Basin Water Authority. The paramount and overriding objective is the protection of the quality of water in the reservoir. While some highly regulated recreational uses of the Reservoir Waters and some private uses of Easement Lands are desirable and compatible with the primary objective of water quality protection, any individual use, public or private, otherwise permissible under the terms of these Rules and Regulations or permit issued by the Authority may be limited, regulated, denied, or prohibited, and ordered removed, in the sole discretion of the Authority or its designee, if such use is believed to create an unacceptable risk to the quality of the water in the reservoir. The secondary objectives of these Rules and Regulations are:

- A. To insure the availability of, and provide public accessibility to, Project Lands and Reservoir Waters, but not to Private Lands.
- B. To provide a level of recreational opportunities that do not or will not overly impact Project Lands and Reservoir Waters.
- C. To promote a reasonably safe and healthful environment for visitors to the Project.
- D. To respond to changing land and water conditions.
- E. To manage Project Lands in a manner that will conserve the basic resources of air, soil, and water.
- F. To provide for diverse and viable plant, animal, and fish communities.
- G. To give special consideration to the protection of threatened and endangered plant and animal species.
- H. To preserve important historical, cultural, and natural aspects of our heritage.
- I. To reduce or prevent long-term damage or hazards from insects, animals, or other pests.

- J. To manage Project Lands so as to establish, enhance, and maintain acceptable fish and wildlife habitat, aesthetic quality, and to sustain natural environmental conditions.
- K. To manage private use of Project Lands in a manner that provides the least environmental impact.
- L. To establish a means of education for and communication with the Project user.
- M. To manage recreational and natural resources in a manner responsive to the general public.
- N. To provide for the protection of public land and water.

SECTION 4.00 APPLICABILITY.

These Rules and Regulations shall be applicable to the Project Lands of the Bear Creek Reservoir. ALL OTHER FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS REMAIN IN FULL FORCE AND EFFECT WHERE APPLICABLE. The Bear Creek Reservoir consists of a water impoundment project on the waters of Bear Creek, upstream from the confluence of Bear Creek and the Middle Oconee River, having a projected normal pool elevation of 695 feet MSL, plus pump storage from the Middle Oconee River, an easement consisting of a strip of land between elevation 695 MSL and 702 MSL or one hundred and fifty (150) feet wide, measured horizontally from the contour of elevation of 695 feet MSL, whichever is greater (the "Easement Lands"), additional land which will be or has been acquired by easement or in fee simple by the Upper Oconee Basin Water Authority to provide public access to the Reservoir Waters and Public Recreation Areas, a water treatment plant, and treated and raw water distribution lines. Public use of Bear Creek Reservoir shall be limited to Reservoir Waters and Public Recreation Areas. Nothing contained herein shall be construed to authorize any public use of Private Lands.

SECTION 5.00 AUTHORITY AND JURISDICTION.

The Bear Creek Reservoir is wholly owned in fee simple by the Upper Oconee Basin Water Authority and lies wholly within Jackson County, Georgia. The Authority also possesses certain easement covenant rights in areas of land surrounding the reservoir for flood, access, buffer, environmental and water quality protection purposes. Each provision of these Rules shall apply to all Project Lands. These Rules, all rights of the Authority contained herein, and all restrictions herein imposed may be administered, exercised and enforced by the Authority and its agents and employees.

SECTION 6.00 LAKESHORE MANAGEMENT RULES.

These Rules govern the following areas of concern:

- A. Water Quality
- B. Land-Use Practices
- C. Shoreline Erosion
- D. Carrying Capacity
- E. Boating Safety

- F. Commercial Activities
- G. Wildlife & Fisheries Management
- H. Forest Management
- I. Special Events
- J. Island Management
- K. Shoreline Zoning

SECTION 7.00

PROJECT USE, DESCRIPTION AND HISTORY.

The Bear Creek Reservoir is a water impoundment project designed to assure an adequate supply of clean, safe water to meet the needs of the area residents served by the Authority well into the twenty-first century. The Project has a water surface area of approximately 505 acres at a pool elevation of 695 feet MSL. It is anticipated that full impoundment will be reached by December 2000, and thereafter development of adjoining private property is expected to increase.

SECTION 8.00

GENERAL LAKESHORE ALLOCATION.

The anticipated use of the Project Lands and Reservoir Waters, along with expected development of adjacent private properties, prompt the development of these Rules and Regulations for the protection of the reservoir and the shoreline. The Authority or its designee, shall designate various areas of the lake and shoreline as Prohibited Access Areas, Public Recreation Areas, and Project Shoreline Areas. Commercial activity is prohibited in all of these areas. Modification of land form or vegetative characteristics is prohibited in these areas.

Section 8.01 Prohibited Access Areas.

Portions of the Reservoir Lands and portions of the surface area of the lake will be designated Prohibited Access Areas. This classification is established for the protection of Project operations and ecosystems and to provide for the physical safety of the recreational visitor. This classification includes, for example, certain hazardous locations, areas located near dams or spillways and environmental protection areas such as fish spawning beds. Certain areas adjacent to or near the reservoir may be classified as mitigation areas and are intended to remain in their natural state as much as possible to mitigate the effects to the environment caused by the Project. These areas are to be left undisturbed and public access shall be prohibited. Land access, boating, mooring of any vessels or flotation devices, and modification of land form and vegetative communities are prohibited in these areas. These area includes all Reservoir Lands not expressly designated Public Recreation Areas.

Section 8.02 Public Recreation Areas.

Portions of the Reservoir Lands and the majority of the water surface areas of the Bear Creek Reservoir are considered available for limited recreational purposes. Certain specific areas may be set aside for intensive recreational development or use. These sites may include boat launching facilities, parking areas, picnicking areas, day-use parks, and primitive or natural areas. The primary management concerns in the Public Recreation Areas are to provide sites suitable for quality recreational experiences with facilities that can sustain intensive use, are vandal-resistant, reasonably safe, and large enough to support normal weekend use during the peak recreation

season. To avoid any adverse impact upon water quality, any proposed development or landscape alteration of any kind for a Public Recreation Area must be reviewed and approved in writing by the Authority. Water quality considerations shall outweigh recreational concerns. No activity will be permitted in these areas unless expressly authorized by these Rules.

Section 8.03 Project Shoreline Areas.

Project Shoreline Aras consist of all Easement Lands located on Private Lands. Public pedestrian traffic and other public use of Project Shoreline areas is strictly prohibited unless the Authority has acquired an easement specifically for those purposes. Land access, boating and mooring of any vessels or flotation device by anyone other than the fee simple owner of the Easement Land, his family, guests and invitees is strictly prohibited.

Upon issuance of a permit, certain specific uses, hereinafter set forth, of Project Shoreline Areas may be made by the fee simple owner of the Easement Land. Permit procedures and requirements are outlined in Section 9.00 hereof. Any permit application will be reviewed and considered solely on its individual merits.

SECTION 9.00 PERMITS.

The Project Lands must be regulated to fulfill the primary purpose of the Project, to encourage proper utilization of the Project Lands and to promote public safety. This Section describes the activities that may be allowed within the Project and when permits are required. All permit requests must be submitted to the Reservoir Manager, who will review and forward the request with his recommendation to the Board for action. The Board will seek the advice of the DNR-EPD Water Quality Program whenever a requested permit may potentially impact water quality. No permits will be issued for boat launch ramps outside Public Recreation Areas. No permits will be issued for boat docks without the prior written consent of the State of Georgia Department of Natural Resources, Environmental Protection Division.

Section 9.01 Special Event Permits.

Special Event Permits are required for recreational use of Public Recreation Areas and Reservoir Waters whenever more than 12 persons or vessels are involved in a proposed activity. In determining whether or not to grant a Special Event Permit, the Board will consider all relevant factors including, without limitation, environmental laws and regulations, regulatory guidance, public safety, availability of space, effect on the rights of others; and the nature, duration, and extent of the proposed activity. Permits issued by the Board for special events do not relieve the permittee from the necessity of obtaining similar local or statute authorizations, if required. Examples of activities requiring Special Event Permits include, without limitation, sailing regattas, family reunions and company or corporate outings. However, fishing tournaments do not require a Special Event Permit.

Section 9.02 Specified Act Permits.

Specified Act Permits are required for the performance of certain minor one-time only acts such as the removal of hazardous trees or noxious plants like kudzu, poison oak, ivy, or sumac; the planting of native species; the establishment of footpaths; the placement or erection of limited shoreline protection devices, etc. The Specified Act Permit will detail the authorized work

including the methods to be employed, time-frame for completion, location, equipment to be used, if any, and a plan for restoration of Project Land, if necessary. A simple drawing or plan including photographs may be required. The Specified Act Permit is issued for short-term use only. No Specified Act Permit that will result in damage, destruction or significant alteration of Project Lands shall be issued. Each request for a Specified Act Permit will be reviewed based on all relevant factors including, without limitation, those enumerated in Section 9.01. Each request will be decided upon its own merits. See Section 9.04 for land use activities which are generally prohibited but which may be authorized pursuant to a Specified Acts Permit.

Section 9.03 Project Shoreline Area Use Permits.

Project Shoreline Area Use Permits are required for certain specific long term uses of Project Shoreline Areas.

Eligibility Requirements.

Project Shoreline Area Use Permits may be issued only to the fee simple owner of the adjacent Private Land or Easement Land. Proof of ownership of the underlying or adjacent Private Land may be presumptively established by submitting a certified copy of a recorded deed. Failure to provide satisfactory proof of ownership will result in denial of a permit.

Permits shall not be issued to any person under the age of 18.

Permits shall not be issued for speculative purposes or for enhancement of the value of private property. The permittee must be the ultimate user of any facilities or structures permitted.

Public roads or private lands through which the public has unrestricted access, such as areas set aside as subdivision park lands or common access points for all subdivision residents, shall not be recognized as access for the purpose of obtaining an individual permit. Property owners may establish a community facility where common access is present in subdivisions and Private Lands are set aside for access to Project Lands for members of a specific subdivision only.

The issuance of such permit shall not confer private property ownership of, or rights in, Project Lands.

Duration of Permits.

The permits are temporary in nature and shall contain expiration dates. The permit will be issued for a three year period. However, the Authority reserves the right to inspect such use and terminate such permit for any reason whatsoever, but especially when such use is found to be in a state of disrepair, creates a health or safety danger, or is no longer functional.

Permits are <u>not</u> transferable and shall automatically lapse upon a conveyance of the adjacent Private Land or Easement Land or upon the non-payment of any required permit fee. Permits are <u>not</u> transferable and shall automatically lapse upon a conveyance of the adjacent Private Land or Easement Land.

Site Requirements.

Any location selected for placement of facilities or structures via a permit must conform with these Rules and Regulations and be located in a Project Shoreline Area. The location of proposed facilities or structures must not cause a safety hazard to either the applicant/user or the general public.

Structures placed on Project Lands via a Project Shoreline Area Use Permit shall be treated as private property on Project Lands for the term of such permit.

Permits shall not be issued in Project Shoreline Area locations where there are archeological sites, historical sites, endangered species habitat(s) or federal jurisdictional wetlands. Every effort will be made to designate such locations as "Prohibited Access Area".

Handicapped-Accessible Facility Requirements.

Handicapped-accessible facilities for lake areas and Public Recreation Areas will be developed in accordance with the requirements of law. Should further needs arise, each case or need will be reviewed on its own merits. To qualify for special consideration, the individual must be eligible for federal or state assistance. Every effort will be made to grant permits to those who meet eligibility requirements; except that site conditions may limit the Reservoir Manager's ability to accommodate every applicant. Due to safety considerations, rail and ski-lift type facilities shall not be authorized.

Section 9.04

Specific Land-Use Practices.

It is the policy of the Authority to authorize certain private uses of Project Lands when these uses or acts are compatible with maintaining water quality and with the provisions of public law and regulation. The following is a list of commonly occurring situations for which permits may be sought:

- A. Erosion control such as planting of vegetation, placing water breaks along footpaths, placement of stone to reduce rainwater runoff velocity, or application for shoreline protection may be authorized pursuant to either a Specified Acts Permit or Project Shoreline Area Use Pemit.
- B. Land formations generally may not be modified except as permitted pursuant to a Project Shoreline Area Use Permit.
- C. Underbrushing. Limited underbrushing may be permitted pursuant to a Specified Acts Permit. See Section 12.00, Forest Management.

- D. Exotic species or plants not native must be removed. Flower or vegetable gardens are not authorized. Native vegetative species may be planted in a random or natural fashion pursuant to a Specified Acts Permit. See Section 9.02.
- E. Broad use of chemical agents such as pesticides is prohibited. Chemical products such as pre-emergent weed killers, fertilizers, growth retardants, etc., shall not be used on Project Lands; however, some topical applications to control noxious species may be allowed under rigid controls. To avoid detrimental impact upon water quality, any usage of any such product must be authorized by a Specified Act Permit.
- F. Fires or burning on the shoreline are not authorized on Project Lands regardless of the lake level except as provided in these Rules and Regulations. See Section 22.09. County burn permits shall not authorize burning on Project Lands.
- G. Tree cover is necessary to protect the reservoir's total ecosystem. The alteration of the existing tree cover is permitted only pursuant to a Project Shoreline Area Use Permit. Pursuant to such a permit, the Reservoir Manager will cooperate with individuals to determine a suitable site scheme. The goal is not to establish a dense forest in areas presently void of canopy, but to create cover equaling or greater than 60 square feet of basal area per acre or provide a 60/40 relationship between shade and sun. See Section 12.00, Forest Management.
- H. Mowing or Bushhogging. Permits for mowing and general lawn care of Project Shoreline Areas will not be granted except as follows: mowing or bushhogging may be allowed in open areas historically evolved from agricultural practices that removed tree cover prior to land acquisition by the Authority or from tree loss due to fires, diseases or other causes. Landowners may continue maintaining these grassy areas, provided the activity is authorized by a Project Shoreline Area Use Permit. Site plans delineating the limits of cleared areas, underbrushing, or plantings will be developed on-site by the applicant and the Reservoir Manager.
- I. Foot paths up to six (6) feet in width authorized by a Project Shoreline Area Use Permit may be maintained by mowing and limited underbrushing. Site plans delineating the limits of cleared areas, underbrushing, or plantings will be developed on-site by the applicant and the Reservoir Manager.
- J. Hazardous trees that endanger life or property may be cut/dropped and/or removed from Project Lands. Specified Act Permits will be issued or the applicant advised in writing of the reasons for denial. If the Reservoir Manager is requested to fell hazardous trees, any subsequent cleanup or removal of the tree (including the costs and expenses thereof) shall be the sole responsibility of the applicant.
- K. Pest and varmint control includes extermination of forest insects, pets or stray animals, rodents and other health related nuisances and may be permitted by a Specified Acts Permit. Coordination between local government agencies is essential not only to reduce health hazards but also to prevent endangerment to others and the reservoir.

- L. No Impervious Surface, septic tank, or septic tank drain field shall be located, by Special Use Permit or otherwise, within the Easement Lands.
- M. Any Utility that proposes construction within the Easement Lands must obtain the prior written approval of the Authority prior to construction.
- N. Adjacent landowners may remove forest litter found within six (6) feet of their residence where residential structures are built in close proximity to Project Lands.

Section 9.05

Violation of Permit Conditions/Unauthorized Use.

Violations of the permit conditions or unauthorized uses will result in corrective action that may include termination of the permit, removal of private property, restoration of Project Lands and/or other legal action as deemed necessary. Unauthorized uses include, but are not limited to, the conversion of Project Lands to private use through planting vegetable and flower gardens, clearing trees, underbrushing without a permit, constructing roadways to the shoreline, and abandoning or disposing of personal property on Project Lands. Construction of houses, sundecks, docks, porches, swimming pools or outbuildings partially on Project Lands, as well as the placement thereon of related debris, fill, septic tanks and drain fields is expressly prohibited. When a permit violation or unauthorized use is corrected, the violator may reapply for a Project Shoreline Area Use Permit subject to current regulations; however, the Board may consider such violation or unauthorized use as a factor in its decision whether or not to grant or renew such Permit.

SECTION 10.00 BOUNDARY CONTROL.

Questions may arise concerning the Project's boundaries. The Property Line, 695 feet MSL, will be surveyed and monumented during the land and easement acquisition phase. Boundaries of land owned in fee simple by the Authority consist of straight lines between points which approximate the normal pool elevation of 695 feet MSL. These points may be represented on the ground by either angle iron, 1/2" rebar or monuments. Recognizing that the water level in the lake may fluctuate, the inner boundary shall be the shoreline of the Reservoir Water. The left and right boundaries shall be determined by extending the boundary line of the private lot from the Property line to the shoreline.

The outer boundaries of Easement Lands shall consist of lines offset a horizontal distance of 150 feet from the Property line or the 702 MSL contour line whichever is further from the Property Line.

A private survey should be obtained prior to any construction on Private Land adjacent to Project Lands. Information related to the Project's boundaries may be obtained from the Reservoir Manager, Upper Oconee Basin Water Authority, 305 Research Drive, Athens, Georgia 30610, Telephone (706) 369-5650.

SECTION 11.00 ENCROACHMENT RESOLUTION.

Unless permitted in writing by the Board, items of realty or personalty placed on Project Lands longer than 24 hours constitute an encroachment and shall be subject to summary removal and impoundment at the owner's expense by the Reservoir Manager. Impounded items will ultimately be

disposed of if not claimed. (See Sections 22.14 and 22.15). Encroachments are classified as either major or minor.

Section 11.01 Minor encroachments.

Minor encroachments are portable personal properties. The Authority generally prefers to return minor encroachments to private owners. Abandoned personal property often takes the form of solid waste such as rubber tires, styrofoam, lumber, steel, furniture, building debris, etc. Solid waste shall be disposed of by the Authority.

Section 11.02 Major encroachments.

Major encroachments are items of more substantial value or more permanent in nature, such as improvements or fixtures on the land. An unpermitted major encroachment may result in the filing of a civil action to enforce removal. Major encroachments generally include, without limitation, docks, storage sheds, swimming pools, decks, screen porches, houses and garages.

SECTION 12.00 FOREST MANAGEMENT.

Forested Project Lands shall be managed to attain multiple benefits. Project Lands shall be developed and maintained to assure forest resources by the Authority and shall be managed for multiple-use yield so as not to impair the future productivity of the land. Forest products, however, shall not serve as the primary focus of management goals at the Bear Creek Reservoir. Equally important within the context of multiple-use yield are aesthetics, wildlife benefits, air and water quality, soil erosion, and outdoor recreation experiences. However, no action will be taken that may compromise water quality. Implementation of forest and vegetative management objectives shall be accomplished utilizing a variety of methods including selective thinning to reduce basal area and increase stand vigor and encourage regeneration.

A. "Project Shoreline Area" forest and vegetative management objectives at Bear Creek Reservoir shall be to sustain a healthy, vigorously growing, unevenly-aged, aesthetically pleasing forest.

In such areas, limited underbrushing may be authorized by Specified Acts Permits, provided that adequate underbrush is maintained for forest regeneration and the underbrushing can be accomplished without degradation of the site. Approval for underbrushing will be considered on a case-by-case basis and accomplished if possible through an on-site meeting to develop an underbrushing plan that supports management objectives for the particular site.

The cutting of dead or diseased trees posing a threat to persons or property may be authorized in these areas by Specified Acts Permit.

Clearing to obtain scenic vistas or to establish lawns shall not be permitted. However, areas modified to provide vistas or lawns prior to land acquisition by the Authority may be authorized for continued maintenance pursuant to a Project Shoreline Area Use Permit.

Removal of forest humus or mulch shall be prohibited since it results in sheet erosion, root damage, and soil compaction.

B. "Public Recreation Area" forest management objectives shall be to maintain a healthy, vigorously growing forest capable of supporting pressure from recreational use. The preferred density for stands in those areas should provide a 60/40 relationship between shade and sun and can be achieved with a basal area of 60 square feet per acre. In public recreation areas which are undeveloped at this time, the objective is to carry a healthy vegetative cover capable of supporting future development and low-density recreational use.

SECTION 13.00 WILDLIFE MANAGEMENT.

Successful wildlife management at the Bear Creek Reservoir can best be achieved by integrating wildlife programs with effective forest management. The goal of wildlife management is developing, improving, and maintaining vegetative communities that will serve diverse wildlife. Different types of wildlife are associated with different types of vegetation. Fulfillment of this goal will provide enhanced opportunities to observe wildlife and to engage in other non-consumptive uses such as photography and nature study.

Hunting is prohibited on Project Lands. Consequently, non-game wildlife, small game and waterfowl shall be promoted. The Reservoir Manager shall enhance and preserve endangered and threatened wildlife and their habitats wherever they may occur on the Project.

In keeping with the promotion of a diverse wildlife community, the Authority may manipulate habitats. Active management includes providing deficient habitat components, such as installing nesting structures or food plots. Since Project Shoreline Areas tend to receive stress from human activity, the Authority encourages and authorizes the planting of native vegetation that are consistent with the Authority's Forest Management Practices. (See Section 12.00, Forest Management.) Snag or dead trees not endangering life or property may be purposely left to benefit both birds and mammals.

Wildlife population regulation, especially game species, is the responsibility of the Georgia Department of Natural Resources. The Authority supports state population regulation by providing habitat for the production of game species (for off-site utilization) and by assisting with the control of pest species.

SECTION 14.00 FISHERIES MANAGEMENT.

Subject to the Project's primary purpose of water supply, fisheries management is implemented to enhance and maintain existing fisheries habitat to provide for sustained recreational use of a diverse fishery. Habitat enhancement is accomplished by conducting various practices such as water level management for stabilizing spawning habitats, installation of fish attractors and planting attractors, and planting native vegetation for erosion control and habitat. Because the reservoir is sensitive to many outside influences, other activities must be monitored for adverse impacts such as nearby construction activities. Maintenance of productive fisheries habitat is achieved in part by maintaining an active water quality program. Authority personnel shall cooperate with the Georgia Environmental Protection Division to resolve water quality problems. Authority personnel shall also cooperate with county health departments to correct septic tank pollution and with state and county planning and engineering departments to resolve soil erosion problems, both of which adversely affect water quality.

Cooperation with the Georgia Department of Natural Resources, Wildlife Resources Division, Fisheries Management Section ("FMS") is necessary to manage fish resources. The Fisheries Management Section is responsible for population management. Authority personnel are instructed to assist FMS in several ways, such as fish kill investigation, habitat enhancement, and occasionally, field monitoring of fish populations. The Reservoir Manager may enter into cooperative fish attractor projects to provide increased fish populations to support recreational use of the Project.

Working under specific management directives, Authority personnel will work with reservoir users to minimize infringement of fish spawning habitats and adverse effects on water quality.

Visitors should refrain from clearing non-hazardous shoreline stumps or trees that have fallen into the lake bed.

SECTION 15.00 WATER QUALITY.

Water quality management at the Bear Creek Reservoir is a complex and challenging task due largely to the potentially varied human activity both in and around the reservoir. The Authority's goal for this management responsibility is to promote water quality adequate for safe and healthy public use as well as conservation of wildlife, fish and other beneficial aquatic life. To achieve this goal, the Authority strives to maintain compliance with federal and state water quality laws as they relate to specific operations. Protection of Reservoir Waters is promoted by the following activities: enforcement of water pollution regulations, periodic water quality assessment, implementation of solid waste abatement programs for the shoreline, and promotion of environmental awareness. Periodic water quality assessment will entail several different measures. Raw water withdrawn from the Middle Oconee River and pumped into the Bear Creek Reservoir will be continuously monitored for turbidity, pH and the presence of oil. Data from intake monitoring equipment will be sent to Bear Creek WTP's reporting and alarm system. Raw water withdrawn from the reservoir to the WTP will also be continuously monitored for turbidity, pH and the presence of oil. Daily sampling and testing for coliform and total bacteria count will also be made. Daily water samples will also be analyzed for the presence of algae. Monthly testing will be made of the total organic carbon (TOC) content of both river and reservoir raw water. Additionally, the Authority will actively seek and maintain cooperative relations with other water quality management agencies.

Jurisdiction and enforcement of water quality is encumbered by multiple government agencies having different and overlapping regulatory responsibilities. The Authority is mandated to protect the reservoir resource for safe and healthful public use. Authority personnel are authorized to enforce laws and regulations which prohibit the discharge of pollutants in and onto Project Lands. As situations dictate, Authority personnel shall conduct preliminary investigations of violations on or near the Project Lands and forward their findings to agencies with appropriate jurisdiction for continued investigation and enforcement.

The State of Georgia and its political subdivisions have principal authority and responsibility to enforce Georgia laws affecting the Project. The State has its own water quality control law which grants enforcement authority to the Georgia Environmental Protection Division (EPD). EPD is also authorized by the U.S. Environmental Protection Agency (EPA) to implement and enforce the Federal Clean Water Act within Georgia and its waters. A major component of this federal law involves the National Pollutant Discharge Elimination System (NPDES), a permit program allowing the regulated discharge of effluent into open waters. A common example of a permitted discharge includes treated waste-water from a

municipal sewage facility. The Authority shall refer cases of continuing unpermitted discharges to EPD which administers the NPDES program.

To complement EPD's management of surface discharges, a separate permit program is administered to accommodate on-site sub-surface disposal of waste water. This program is administered by environmental health officers of the Jackson County Health Department which issues permits for septic tank installation and underground disposal of waste water or sewage such as that from residences.

Although private citizens possess no statutory authority to control pollution in open waters, individuals can play an important role in the investigatory process. Visitors can report eyewitness accounts of water-quality violations to appropriate agencies. Such action may possibly lead to formal investigations.

Authority regulations prohibit the discharge of sewage, garbage, and other pollutants from vessels into Bear Creek Reservoir. Bear Creek Reservoir shall be a <u>zero-discharge</u> water body for all vessels. <u>No gasoline or diesel powered vessels of any kind or size may be operated in the Bear Creek Reservoir.</u> Any other provision of these Rules and Regulations notwithstanding, the Reservoir Manager and law enforcement and emergency rescue personnel shall be permitted to maintain and operate gasoline powered vessels as necessity dictates.

Water pollution may be derived from, and categorized into, two broad sources, point and non-point. Point sources are best described as pollution originating from an identifiable source such as an effluent line. Non-point sources are not readily identifiable and are derived over a broad area. Examples of non-point source pollution include, without limitation, pesticide run-off and soil erosion from a stream watershed. Depending on the circumstances, some types of pollution may occur in either category. Thus the classification of pollution sources is a relative determination, but this description has some significance as far as applicable regulations and enforcement are concerned.

Because point sources are easier to identify than non-point sources, they are generally easier to control. Septic tanks may occasionally degrade the reservoir's water quality by being located too close to the flood plain and/or malfunctioning. Septic tanks or drain fields shall not be permitted on Project Lands. These measures will reduce infiltration of septic tank contents into Reservoir Waters during periods of higher pools. Health officials with jurisdiction over adjacent Private Lands or Easement Lands shall prohibit new septic tank systems or drain fields on Project Lands regardless of property ownership.

Cleaning vessels with soaps and solvents on the shoreline pollutes the reservoir. This activity and the unauthorized use of insecticides, herbicides, pre-emergents and fertilizers are prohibited. Application of the above chemicals and construction on adjacent private property has strong potential to disperse pollutants into the reservoir. Instances of sedimentation and chemical pollution will be investigated and dealt with appropriately.

Generation of non-point source pollution is difficult to control. Chemical application over large areas ultimately degrades the reservoir's quality. Indiscriminate use of fertilizer contributes to nutrient loading, thus accelerating the natural aging of the Reservoir. Phosphorus from fertilizers and other sources controls the reservoir's productivity. Cases of excess phosphorous generate unwanted high levels of algae that can reduce oxygen levels and kill fish. To relieve some of these problems, the Authority strives to educate the public about the values of good water quality. Additionally, the Authority conducts periodic

solid waste removal along the general shoreline. This removal eliminates a substantial amount of debris that in itself is a form of water pollution or has potential to become soluble in lake water.

In a comprehensive effort to control pollution, the EPD and the Authority are involved to different degrees in monitoring water quality is the Bear Creek Reservoir. The EPD samples the reservoir's water quality regularly and occasionally when conditions exist which are suspected to threaten public health. Contingent upon its findings, the EPD may issue orders restricting the use of Reservoir Waters. If Reservoir Waters are found to be a health hazard, the Authority will comply with requests by either the EPD or the Division of Public Health, Department of Human Resources to post warnings and/or restrict access to any portion of the Reservoir Waters.

To meet its own directives, the Authority will conduct water quality monitoring. To establish a broad baseline of the Reservoir's condition, the Authority will sponsor water quality studies periodically.

Any incident of littering, water pollution, or any other act or omission, after first warning, which threatens water quality, in addition to any other punishment provided by other local, state or federal law, may be punishable by a fine up to a maximum of \$1000.00, which is allowed by law in the Magistrate Court of Jackson County pursuant to O.C.G.A. Section 15-10-60, et seq.

SECTION 16.00 WETLANDS.

The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands in, on, or around the Bear Creek Reservoir provide significant natural biological functions including food chain production, general habitat for aquatic and land species such as nesting, spawning, rearing and resting sites, and serve to purify water. Maintenance of wetland areas is important due to their scarcity in North Georgia. All habitats in an area should be preserved to promote the region's ecological integrity. No permit will be granted which involves general or specific use or alteration of wetlands unless prior written approval is obtained from the United States Army Corps of Engineers.

SECTION 17.00 AQUATIC WEEDS.

Nuisance aquatic weeds may invade the Project. The transport of such weeds is possible, and low areas may eventually have seasonal problems unless the general public inspects and cleans boats and trailers after visiting other waterways known to have aquatic weed pests. Of most concern are hydrilla and Eurasian watermilfoil.

SECTION 18.00 ENDANGERED SPECIES.

It is the intention of the Authority to conserve threatened and endangered species and the ecosystems upon which those species depend. No permit will be granted that poses any danger to the habitat(s) of any endangered species. Any permit issued in violation of this Section shall be rescinded.

SECTION 19.00 CULTURAL, HISTORICAL & ARCHEOLOGICAL.

It is the further intent of the Authority to protect historical sites and recover historical and archeological data. No permit will be granted which involves general or specific use or alteration of any historical or archeological site. No permit in such instances will be granted, and if previously granted will be rescinded, if it is determined that the permit infringes upon a historical or archeological site.

SECTION 20.00 COMMERCIAL ACTIVITY.

Commercial activity shall be prohibited on all Project Lands and Reservoir Waters.

SECTION 21.00 REGULATORY BUOYS.

The placement of regulatory buoys such as "no wake" buoys shall be accomplished by the Authority with the concurrence of the Georgia Department of Natural Resources, Wildlife Resources Division. It is the intent of these Rules and Regulations to provide for general public boating safety.

SECTION 22.00 REGULATIONS GOVERNING PUBLIC USE.

The Public Recreation Areas and Reservoir Waters not in Prohibited Access Areas shall be open for public use and shall be available to the public without regard to sex, race, color, creed, age, nationality or place of origin. No one providing any service to the public shall discriminate against any person because of sex, race, creed, color, age, nationality or place of origin in the conduct of any operations under any lease, license or permit.

In addition to these Rules, all applicable federal, state and local laws and regulations remain in full force and effect on Project Lands or Reservoir Waters.

Any violation of any section of these Rules shall constitute a separate violation for each calendar day in which it occurs.

For the purposes of these Rules, the owner of any unattended vehicle, vessel or aircraft as described herein shall be presumed to be responsible for its use on Project Lands or Reservoir Waters.

Section 22.01 <u>Vehicles.</u>

- A. This section pertains to all vehicles, including, but not limited to, automobiles, trucks, motorcycles, mini-bikes, snowmobiles, dune buggies, all-terrain vehicles and trailers, campers, bicycles or any other such equipment.
- B. Vehicles shall not be parked in violation of posted restrictions, or in such a manner as to obstruct or impede normal or emergency traffic movement or the parking of other vehicles, create a safety hazard, or endanger any person, Project Lands or environmental feature. Vehicles so parked are subject to removal and impoundment at the owner's expense.

- C. The operation and/or parking of a vehicle off authorized roadways is prohibited except at locations and times designated by the Reservoir Manager. Taking any vehicle through, around or beyond a restrictive sign, barricade, fence or traffic control barrier is prohibited.
- D. Vehicles shall be operated only in accordance with posted regulations and applicable federal, state and local laws, which shall be enforced by authorized enforcement officials.
- E. No person shall operate any vehicle in a careless, negligent or reckless manner so as to endanger any person, Project Lands or environmental feature.
- F. At developed recreation areas, vehicles shall be used only to enter or leave the area or individual sites or facilities unless otherwise posted.
- G. Except as authorized by the Reservoir Manager, no person shall operate any motorized vehicle without a proper and effective exhaust muffler as defined by state and local laws, or with an exhaust muffler cutout open, or in any other manner which renders the exhaust muffler ineffective in muffling the sound of engine exhaust.

Section 22.02 <u>Vessels.</u>

- A. Except as otherwise provided herein, no vessel shall be operated on Reservoir Waters with a gasoline, diesel, or other internal combustion engine or power plant. Electric motors are permissible.
- B. This section pertains to all vessels or watercraft, including, but not limited to, powerboats, cruisers, houseboats, sailboats, rowboats, canoes, kayaks, jet skis and any other such equipment capable of navigation on water, whether in motion or at rest.
- C. The placement and/or operation of any vessel or watercraft for a fee or profit upon Reservoir Waters or Project Lands is prohibited.
- D. Except as otherwise provided in subparagraph (a) of this Section 22.02, vessels or other watercraft including, without limitation buoys, may be operated on the Reservoir Waters, except in prohibited or restricted areas, in accordance with posted regulations, and applicable federal, state and local laws, as regulated by authorized enforcement officials. All vehicles or watercraft so required by applicable federal, state and local laws shall display an appropriate registration on board whenever the vessel is operated on Reservoir Waters.
- E. The operation of vessels or other watercraft in a careless, negligent or reckless manner so as to endanger any property or person (including the operator and/or user(s) of the vessel or watercraft) is prohibited.
- F. All vessels, when in use, shall have safety equipment, including without limitation personal flotation devices, on board in compliance with U. S. Coast Guard boating safety requirements (Coast Guard Pamphlet CG-290; 46 CFR Parts 25, 30, 33 CRF Part 175) and in compliance with boating safety laws issued and enforced by the State of Georgia.

- G. Unless otherwise permitted by federal, state or local law, vessels or other watercraft may not be used for either overnight occupancy or otherwise as a place of habitation or residence.
- H. Water skis, parasails, ski-kites and other similar devices are prohibited.
- I. All vessels when not in actual operation shall be removed from Project Lands and Reservoir Waters unless moored or stored at designated areas approved by the Authority or its designee. The placing of floating or stationary mooring facilities on, adjacent to, or interfering with a buoy, channel marker or other navigational aid is prohibited.
- J. The use within the confines of the Project of any vessel not constructed or maintained in compliance with the standards and requirements established by the Federal Safe Boating Act of 1971 (Public Law 92-75, 85 Stat.213), or promulgated pursuant to such Act, is prohibited.
- K. Any other provision of these Rules and Regulations notwithstanding, the Reservoir Manager and law enforcement and emergency rescue officials shall be permitted to maintain and operate gasoline-powered vessels for police, emergency and other uses.

Section 22.03 Aircraft.

- A. This section pertains to all aircraft, including, but not limited to, airplanes, seaplanes, helicopters, ultralight aircraft, motorized hang gliders, hot air balloons, any non-powered flight devices or any other such equipment.
- B. The operation of aircraft on Project Lands is prohibited. This provision shall not be applicable to aircraft engaged on official business of federal, state or local governments or law enforcement agencies, or aircraft used in emergency rescue in accordance with the directions of the Reservoir Manager or aircraft forced to land due to circumstances beyond the control of the operator.
- C. Except in emergencies threatening human life or serious property loss, the air delivery of any person, material or equipment by parachute, helicopter or other means onto Project Lands or Reservoir Waters without written permission of the Reservoir Manager is prohibited.

Section 22.04 <u>Swimming and Diving.</u>

Swimming, diving, snorkeling or scuba diving are prohibited. Diving or jumping from bridges or other structures which cross Reservoir Waters is prohibited.

Section 22.05 Picnicking.

Picnicking and related day-use activities are permitted only in Public Recreation Areas.

Section 22.06 Camping.

Camping and related activities will be allowed only in areas and at sites, if any, specifically designated for such use by the Authority. Camping and related activities will be subject to the rules

to be posted at these sites. When and if camping areas are designated by the Authority, the Authority shall adopt rules and regulations to govern the public use of public camping areas.

Section 22.07 Hunting and Trapping.

Hunting and trapping are prohibited unless an emergency permit is issued for the control of overpopulation. All federal, state and local laws governing these activities apply on Project Lands and Reservoir Waters.

Section 22.08 Sanitation.

- A. Garbage, trash, rubbish, litter, or any other waste material or waste liquid generated on or brought on to the Project Lands or Reservoir Waters or generated incidental to authorized recreational activities shall be either removed from the Project or deposited in receptacles provided for that purpose. The improper disposal of such wastes, human and animal waste included, on the Project Lands or Reservoir Waters is prohibited.
- B. It is a violation to bring onto the Project Lands any household or commercial garbage, trash, rubbish, debris, dead animals or litter of any kind for disposal or dumping.
- C. The spilling, pumping or other discharge of contaminants, pollutants or other wastes, including, but not limited to, human or animal wastes, petroleum, industrial and commercial products and by-products, on Project Lands or into Reservoir Waters is prohibited.
- D. Campers, picnickers, and all other persons using Project Lands or Reservoir Waters shall keep their sites free of trash and litter during the period of occupancy and shall remove all personal equipment and clean their sites upon departure.
- E. The discharge or placing of sewage, galley waste, garbage, refuse, or pollutants into the Reservoir Waters, or onto Project Lands, from any vessel or watercraft is prohibited.

Section 22.09 Fires.

- A. Gasoline and other fuels shall not be carried onto or stored on the Project Lands without the prior written permission of the Reservoir Manager. This does not apply to gasoline contained in the fuel tanks of automobiles, trucks, or other means of conveyance located on roadways or parking areas within the Project Lands.
- B. Fires shall be confined to those areas designated by the Authority or its designee, and shall be contained in fireplaces, grills, or other facilities designated for this purpose. Fires shall not be left unattended and must be completely extinguished prior to departure. The burning of materials that produce toxic fumes, including, but not limited to, tires, plastic or treated wood products is prohibited.
- C. Improper disposal of lighted smoking materials, matches or other burning materials on Project Lands or into Reservoir Waters is prohibited.

Section 22.10 Control of Animals.

- A. No person shall bring or allow dogs, cats, or other pets into Public Recreation Areas unless penned, caged, on a leash under 6 feet in length, or otherwise physically restrained. No person shall allow animals to impede or restrict otherwise full and free use of Project Lands and Reservoir Waters by the public. Animals and pets, except properly trained animals assisting the handicapped (such as seeing-eye dogs), are prohibited in sanitary facilities or other areas so designated by the Reservoir Manager. Unclaimed or unattended animals are subject to immediate impoundment and removal in accordance with state and local laws.
- B. Persons bringing or allowing pets in designated public use areas shall be responsible for proper removal and disposal, in sanitary facilities, of any waste produced by these animals.
- C. No person shall bring or allow horses, cattle, or other livestock in camping, picnicking, or other Public Recreation Areas except in areas designated by the Reservoir Manager.
- D. Ranging, grazing, watering or allowing livestock on Project Lands and Reservoir Waters is prohibited except when authorized by lease, license or other written agreement with the Authority.
- E. Unauthorized livestock are subject to impoundment and removal in accordance with federal, state and local laws.
- F. Any animal impounded under the provisions of this section may be confined at a location designated by the Reservoir Manager, who may assess a reasonable impoundment fee. This fee shall be paid by the owner before the impounded animal is returned to its owner(s).

Section 22.11 Restrictions.

- A. The entire shoreline of the reservoir is owned by the Upper Oconee Basin Water Authority. The majority of this shoreline shall not be available for public use. Public use of the Reservoir Waters and Public Recreation Areas shall not unduly invade the privacy of the Authority or adjoining landowners or interfere with their use of their own land. Subject to the foregoing, the Reservoir Manager may establish and post a schedule of visiting hours and/or restrictions on the public use of the Project Lands or Reservoir Waters or portions thereof. The Reservoir Manager may close or restrict the use of the Project Lands or Reservoir Waters or portions thereof when necessitated by reason of public health, public safety, maintenance, or other reasons in the public interest as determined in his sole discretion. Entering or using the Project Lands or Reservoir Waters in a manner which is contrary to the schedule of visiting hours, closures or restrictions is prohibited.
- B. Quiet shall be maintained in all public use areas between the hours of 10 p.m. and 6 a.m. or those hours designated by the Reservoir Manager. Excessive noise during such times which unreasonably disturbs other persons is prohibited.
- C. Any act or conduct by any person which interferes with, impedes or disrupts the use of the Project Lands or Reservoir Waters or impairs the tranquility or privacy of adjoining land owners

or impairs the safety of another person is prohibited. Individuals who are boisterous, rowdy, disorderly or otherwise disturb the peace on Project Lands or Reservoir Waters may be requested to leave the Project.

- D. The operation or use of any audio or other noise-producing device, including, but not limited to, radios, television, or musical instruments and motorized equipment, including vessels or vehicles, in such a manner as to unreasonably annoy or endanger persons at any time or exceed state or local laws governing noise levels from motorized equipment is prohibited.
- E. Possession or consumption of alcoholic beverages is prohibited in all Public Recreation Areas.

Section 22.12 Reserved.

Section 22.13 Public Property.

- A. Destruction, injury, defacement, removal or other alteration of public property including, but not limited to, developed facilities, natural formations, mineral deposits, historical and archeological features, and vegetative growth, is prohibited except when effectuated in accordance with the Rules and Regulations contained herein.
- B. Cutting or gathering of trees or parts of trees and/or the removal of wood from Project Lands is prohibited except in accordance with the Rules and Regulations contained herein.
- C. Gathering of dead wood on the ground for use as firewood in designated recreation areas is permitted.
- D. Pumping or any other removal of water from the reservoir is prohibited.

Section 22.14 Abandonment and Impoundment of Personal Property.

A. Personal property of any kind, including automobiles or other vehicles, shall not be abandoned, stored or left unattended upon Project Lands or Reservoir Waters. After a period of 24 hours, or at any time after a posted closure hour in a public use area, unattended personal property shall be presumed to be abandoned and may be impounded and stored at a storage point designated by the Reservoir Manager who may assess a reasonable impoundment fee. Such fee shall be paid to the Authority at the main office of the Authority before the impounded property is returned to its owner.

- B. The Reservoir Manager shall, by public or private sale or otherwise, dispose of all lost, abandoned or unclaimed personal property that comes into Authority custody or control. However, property shall not be disposed of until diligent effort has been made to find the owner, heirs, next of kin or legal representative(s). If the owner, heirs, next of kin or legal representative(s) are determined but not found, the property may not be disposed of until the expiration of 120 days after the date when notice, giving the time and place of the intended sale or other disposition, has been sent by certified or registered mail to that person at the last known address. When diligent efforts to determine the owner, heirs, next of kin or legal representative(s) are unsuccessful, the property may be disposed of without delay, except that if it has a fair market value of \$25 or more, the property may not be disposed of until 90 days after the date it is received at the storage point designated by the Reservoir Manager. The net proceeds from the sale of property shall be recovered to the Upper Oconee Basin Water Authority as miscellaneous receipts. Any unclaimed personal property that is deemed to take the form of solid waste shall be appropriately disposed of by the Reservoir Manager.
- C. Personal property placed on Project Lands or Reservoir Waters adjacent to a private residence and/or developments of any private nature for more than 24 hours without permission of the Reservoir Manager shall be presumed to have been abandoned.

Section 22.15 Lost and Found Articles.

All articles found shall be deposited by the finder at the Reservoir Manager's office or with a Sheriff's Deputy. All such articles shall be disposed of in accordance with the procedures set forth in Section 22.14.

Section 22.16 Advertisement.

Advertising by the use of billboards, signs, markers, audio devices, handbills, circulars, posters, or any other means whatsoever, is prohibited without the prior written permission of the Reservoir Manager. Vessels and vehicles with semi-permanent or permanent painted or installed signs are exempt as long as they are used for authorized recreational activities and comply with all other Rules and Regulations pertaining to vessels and vehicles.

Section 22.17 Permits.

- A. It shall be a violation of these Regulations to refuse to, or fail to comply with, the fire requirements or other terms or conditions of any permit issued under the provisions of these Rules and Regulation.
- B. No permits for floating or non-floating structures, including but not limited to boat docks and boat ramps, or for the discharge of dredged or fill material in Reservoir Waters, shall be authorized or issued, except with the express written permission of the State of Georgia, Department of Natural Resources, Environmental Protection Division.

Section 22.18 <u>Unauthorized Structures.</u>

The construction, placement, or existence of any structure (including, but not limited to, roads, trails, docks, signs or landscape features) of any kind under, upon, in or over the Project Lands or Reservoir Waters is prohibited unless a permit, lease, license, or other appropriate written agreement has been issued by the Authority. The design, construction, placement, existence or use of structures in violation of the terms of the permit, lease, license or other written agreement is prohibited. The Authority shall not be liable for the loss of, or damage to, any private structures, whether authorized or not, placed on Project Lands or Reservoir Waters. Unauthorized structures are subject to summary removal or impoundment by the Reservoir Manager.

Section 22.19 Special Events.

- A. Special events including, but not limited to, water carnivals, boat regattas, music festivals, dramatic presentations or other special recreation programs are prohibited unless a Special Event Permit has been granted by the Authority pursuant to Section 9.01. An appropriate fee may be charged pursuant to Section 22.21.
- B. The public shall not be charged any fee by the sponsor of such event unless the Authority has approved in writing (and the sponsor has properly posted) the proposed schedule of fees. The Reservoir Manager shall have authority to revoke permission and require removal of any equipment upon failure of the sponsor to comply with terms and conditions of the permit/permission or these Rules and Regulations.

Section 22.20 Unauthorized Occupation.

- A. Occupying any land, buildings, vessels or other facilities within the Project Lands or Reservoir Waters for the purpose of maintaining same as a full-time or part-time residence is prohibited. The provisions of this Section shall not apply to the occupation of lands for the purpose of camping in accordance with the provisions of Section 22.06.
- B. Use of Project Lands or Reservoir Waters for agricultural purposes is prohibited except when in compliance with terms and conditions authorized by lease, license or other written agreement issued by the Authority.

Section 22.21 Recreation Use Fees.

- A. The Reservoir Manager shall collect special recreation use fees and/or special permit fees for the use of specialized sites, facilities, equipment or services related to outdoor recreation furnished at the Authority's expense.
- B. All use fees shall be fair and equitable and will be based on the following criteria:
 - (1) The direct and indirect amount of Authority expenditure.
 - (2) The benefit to the recipient.

- (3) The public policy or interest served.
- (4) The comparable recreation fees charged by federal and non-federal public agencies and the private sector within the service area of the management unit at which the fee is charged.
- (5) The economic and administrative feasibility of fee collection.
- (6) The extent of regular maintenance required.
- (7) Other pertinent factors.

Use fees shall be established and modified from time to time by the Authority and a list of such use fees shall be maintained in the Office of the Reservoir Manager.

Section 22.22 <u>Interference with Authority Employees.</u>

- A. It shall be unlawful to forcibly assault, resist, oppose, impede, intimidate, or interfere with any civilian official, agent, or employee of the Authority engaged in the performance of his or her official duties. Such actions or interference directed against an employee while carrying out these Rules and Regulations are a violation of these regulations and may be a crime punishable under the laws of the State of Georgia.
- B. Failure to comply with a lawful order issued by an employee acting pursuant to these regulations shall be considered as interference with that employee while engaged in the performance of his or her official duties. Such interference with an employee includes failure to provide a correct name, address or other identification upon request of the employee, when that employee is authorized by the Authority to issue citations in the performance of the employee's official duties.

Section 22.23 State and Local Laws.

Except as otherwise provided herein, federal laws and regulations, and state and local laws and ordinances shall apply to Project Lands and Reservoir Waters. This includes, but is not limited to, federal, state and local laws and ordinances governing:

- A. Operation and use of motor vehicles, vessels, and aircraft;
- B. Hunting, fishing and trapping;
- C. Use of firearms or other weapons;
- D. Civil disobedience and criminal acts; and,
- E. Littering, sanitation and pollution.

THESE FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES ARE ENFORCED BY THOSE FEDERAL, STATE AND LOCAL ENFORCEMENT AGENCIES ESTABLISHED AND AUTHORIZED FOR THAT PURPOSE.

SECTION 23.00 ENFORCEMENT OF RULES.

Violations of these Rules and Regulations shall be tried in the appropriate court of the county in which the violation occurred.

Any person who violates any provision of these Rules and Regulations may be punished by a fine of not more than \$1,000.00, or imprisonment for not more than sixty (60) days, or both, and may be tried and sentenced in accordance with the provisions of the laws of the State of Georgia. Persons designated by the Authority shall have the authority to issue citations for violation of these regulations, pursuant to O.C.G.A. Section 15-10-63, requiring the appearance of any person charged with the violation to appear before the appropriate Magistrate Court in Jackson County.

SECTION 24.00

SUMMARY AND AMENDMENT PROCEDURE.

The Authority is charged with protecting and managing the Bear Creek Reservoir. It is the intent of these Rules to provide the maximum benefit to the public and to balance needs against the physical limitations and natural qualities of the Project. In formulating these Rules, present and future needs were considered. The Reservoir Manager will continually monitor the needs of Reservoir users and recommend revisions that will minimize conflicts between various interests. Minor changes in area limits or allocations of areas will continue to be approved by the Reservoir Manager and reported to the Authority annually. In adopting any major revision to these Rules, all proposed revisions will be publicly announced for review and comment prior to being considered at a public hearing conducted by the Authority. Any proposed major revisions must also have the approval of the Georgia Department of Natural Resources, Environmental Protection Division, BEFORE final adoption by the Authority.

SUPPLEMENT

The Upper Oconee Basin Water Authority (UOBWA) has prepared this supplement to the Reservoir Management Plan as it evaluates future recreational and public access issues for the reservoir. This supplement addresses three main areas: security, water quality monitoring and control of public access. All other provisions of the Reservoir Management Plan remain in full force and effect.

Security

The UOBWA conducted a vulnerability assessment (VA) of the Bear Creek Water Treatment Plant and the Bear Creek Reservoir in 2002. A number of recommendations were generated from this VA and the Authority took steps to implement appropriate upgrades. These steps included:

- Perimeter Controls
- Key Control and Access Systems
- Hardening of Site Facilities
- Additional Surveillance Equipment
- Increased Inspections
- Information Management/Computer Security Measures

Prior to public access to any portions of the reservoir being instituted, the VA will be reevaluated and any additional recommended security upgrades will be implemented. For example, additional fencing will be installed around the northwest perimeter of the plant site prior to public access being allowed.

Further, the Authority's contract operators have developed a working relationship with the Jackson County Sheriff's Department as it relates to security and public access to the reservoir.

Water Quality Monitoring

The UOBWA instituted quarterly water quality sampling and monitoring of the Bear Creek Reservoir, above any regulatory requirements, several years ago. The contract operators of the treatment plan and reservoir conduct the sampling and the analysis of said samples are performed by an outside, certified, laboratory. Results for the past sampling periods are presented in Table 1. Sample locations are shown in Figure 1.

Samples are analyzed for the following parameters:

- Turbidity
- pH
- Temperature
- Color
- Iron
- Manganese
- Alkalinity
- Hardness
- Ammonia
- Dissolved Oxygen
- Nitrates
- Fecal Coliform

Prior to any public access to the reservoir, the UOBWA will institute monthly water quality monitoring of the reservoir at the locations indicated in Figure 1. All data will be complied and monitored to consistently be aware of any adverse trends in water quality.

Control of Public Access

All public access to the Bear Creek Reservoir will be controlled and monitored. The Authority has purchased property adjacent to State Route 330 for use as a parking area and boat ramp location. The site will be developed to minimize any impacts to the reservoir as it relates to storm water runoff or other adverse effects.

The Authority will institute control of boating and public access through its site as established in the Rules and Regulations of the Upper Oconee Basin Water Authority Regarding the Bear Creek Reservoir. Specifically, the UOBWA will mandate, monitor and control such items as:

- License Requirements and Regulations
- Hours of Operation
- Days of Operation
- Entrance Fees
- Types of Boats Allowed (no gasoline motors)
- A check-in process so that anyone on the reservoir can be identified
- Control of litter and types of containers allowed on the reservoir.

In addition to control of the public access area, the UOBWA has instituted a permitting program for any activities in the buffer area of the Bear Creek Reservoir. All activities in the buffer must be approved and permitted in advance. The UOBWA has also purchased GPS equipment and software, in conjunction with a new parcel mapping package, to more effectively identify and monitor buffer boundaries.

			٠.	1.		•							Fecel ,
							Manganae			Ammonia	Dissolved		Counis ,
Oundad Vans	Site Number	NTU	pН	. Temp	Color	(ren (mg/l)	(l/gm)	Alk	Herdnoss	(MgV)	Охудер	Milralea	(aelnolos)
Quade/Year	1	3,800	8.500	10,900	26,000	0,328	0.204	21,000	19,000	0.209	10,400	000,13	25,000
Fjrel\2004		3,570	6,880	11,400	27,000	0,319	0,200	23,000	19,000	0.180	11,020	6,000	.06,000
Flra1\2004	2		6,810	12,800	25,000	0,804	0,107	22,000	20,000	0,198	0,830	8,000	123,000
Firal\2004	. 3	3,330			28,000	0,312	0,190	21,000.	10,000	0,188	0,000	12,000	78,000
Firal\2004	4	3,360	7,170	12,100			0.181	21,000	10,000	0,135	006,0	9,000.	11,000
Fire(\2004	, Б	a.010	7,200	14,300	30,000	0,318			19,000	0,138	9,870	23,000	15,000
. F rsl\2004	Ð	3,740	7,350	15,100	32,000	0,802	0.178	22,000	IDIONA	0,100	0,070	40,000	, 14,000
	•								• .				Charl
											Maran Land		Fiscal County
•							Маррапав	'			Dissolved		Counts
QuarienYaur	8 ta Number	NTU	pΗ	Temp	Color	- Iron (mgli) .	(mg\l)	Alic	Hardness	(MgM)	Oxygen	Nirales	(colonias)
Second/2004	₹ '	11,400	6.700	13,000	81,000	0,916	1,640	24.000	22,000	0.302	2,100	44,000	32,000
Second/2004	. 2	1.350	6.030	16,800	13,000	°0.046	0.348	20,000	20,000	0.117	1.780	67.000	115,000
Bacond\2004	3 .	2,760	0,890	25,800	29,000	0.121	0,061	23,000	20,000	0.004	8,240	100,000	95,000
	4 '	0.710	6.830	15,300	47,000	0,789	1,890	24,000	25,000	0,298	. 1,86D	53,000	77,000
8econd\2004	б	1.560	8,800	18.100	13,000	0.085	0,580	21,000	20,000	0,133	1,880	21.000	200,000
Second\2004		3.280	9,130	24,600	26,000	0,112	0.048	24,000	20,000	0.112	8,870	8,000	65,000
Second\2004	. 8	0.200	B, 100	21,000	24,505	0,110	, 510 1-			,		,	
ů.							:				-		Fecal
			•				Manganae			Ammonta ·	Dissolved.		Counts
*	_			,				Alle ·	Hardness	(mg/l)	Oxygen	Niralas	(colonies)
Quarier\Year	Sila Number	ŊTU	pΗ	Temp	Color	Iron (mgV)	(mg\l)			0.174	7,000	11.000	
Third\2004	. 1	8,680	7.480	24,200	42,000	0.129	0,104	25,000 .	27,000				11.000
Third\2004	2	2,720	6,810	17,000	24,000	0,785	> 77	20,000	33,000	0.232	2,710	42,000	101,000
Third\2004	. 3	1.840	8.710	18,200	25,000	>3.3	> 77	31,000	35,000	0.474	2.200	38,000	71.000
Third12004	4	1,220	6.810	15.200	15,000	>3.3	> 77	39,000	38,000	0,528	4,040	69,000	43,000
Third12004	6	1,580	6,89D	17,800	15,000	0,848	>.77	30,000	28,000	0.238	2.710	28,000	65,000
Third12004	6 .	4,450	6,950	23,800	35,000	0.140	880,0	25,000	26,000	0.204	6,340	14,000	77,000
Hillorados	٠.	,,					1			•			
										•	٠, ,		Pecal
							Manganse			Ammonla	Dissolved		Counts
	Dita Manakan	NTU	pН	Temp	Color	Iron (mgV)	(mg\t)	Alk	aaanbaaH	(mgN)	Oxygen	Nitrates	(colonies)
QuarterYear	Sile Number			13.700	47,000	1.261	> 77	26,000	22,000	0.243	6.970	15,000	65,000
Fourth/2004	1	3,970	7.020			0,256	0.229	25,000	16,000	0.080	6,420	21,000	44.000
Fourth\2004	2	3,880	7,190.	13,400	31,000			24,000	20,000	0.046	8,200	44,000	73,000
Fourth\2004	8	3.310	7,250	14,400	32,000	0.245	0,245		21,000	0,810	5.650	47.000	104.000
Fourth\2004	4 1	6,610	7.010	11,200	64,000	0.279	0,867	25,000			B.830	81,000	
Fourth\2004	5	5,200	7,040	11,400	61,000	0.657	0.480	24,000	21,000	0,286			77.000
Fourth\2004	6.	6,210	7,040	11,800	000,03	. 0,766	0,557	22,000	20,000	0,288	7,860	19.000	55,000
											1		
		•		•							•		
		•		,									Fecal
	• '	:		•	-		Mangapse			Ammonia	Dissolved.	•	Counts
OrientanVess	Sila Number	NTU	Ha		Calor	(ráng)i)	Mangapae (Vem)	Alk .	Hardness	(mgV)	Diasolved. Oxygan	Nitrates	Counts (colonias)
Quarler Year	Sike Number	NTU 8.750	рН 7.050	Тетр	Color 28,000	Iron (mgN) 0,292		Alk . 20,000	18,000	(mg\!) 0.170	Diasolved. Oxygan 10,050	Nitrates 36,000	Counts (colonies) 10,000
First/2005	1 .	2.750	7,080	Temp 10,400	28,000		(MgM)			(mgV)	Diasolved. Oxygan	Nitrates 36.000 12.000	Counts (colonies) 10,000 89,000
First\2005 First\2005	1 2	8,750 8,240	7.050 7.170	Temp 10,400 11,000	28,000 28,000	0,292 0,306	(mgV) D,152	20,000	18,000	(mg\!) 0.170	Diasolved. Oxygan 10,050	Nitrates 36,000	Counts (colonies) 10,000
First/2005 First/2005 First/2006	1 2 3	8,750 8,240 8,250	7,050 7,170 7,320	Temp 10,400 11,000 11,800	28,000 28,000 26,000	0,292 0,306 0,200	(mgV) 0,152 0,228 0,070	20,000 20,000	18,000 17,000	(mg√) 0.170 0.158	Diasolved. Oxygan 10,050 10,630	Nitrates 36.000 12.000	Counts (colonies) 10,000 89,000
First/2005 First/2005 First/2006 First/2005	1 2 3 4	8,750 8,240 8,230 6,670	7,050 7,170 7,320 6,950	Temp 10,400 11,000 11,600 9,200	28,000 28,000 26,000 48,000	0,292 0,306 0,200 0,264	(mgV) 0,152 0,228 0,070 0,110	20,000 20,000 20,000 19,000	18,000 17,000 18,000 18,000	(mgV) 0.170 0.158 0.178	Dissolved. Oxygan 10,050 10,530 10,630	Nitrates 36,000 12,000 19,000	Counts (colonles) 10,000 89,000 71,000
First/2005 First/2005 First/2006 First/2005 First/2005	1 2 3 4 5	8,750 8,240 8,230 6,670 4,090	7.050 7.170 7.320 6.950 7.110	Temp 10,400 11,000 11,800 9,200 9,700	28,000 28,000 26,000 48,000 33,000	0,292 ° 0,306 ° 0,200 ° 0,264 ° 0,237	(mgV) 0,152 0,228 0,070 0,110 0,052	20,000 20,000 20,000 19,000 20,000	18,000 17,000 18,000 18,000 18,000	(mgV) 0.170 0.158 0.178 0.186 0.181	Dissolved. Oxygen 10,050 10,630 10,630 10,630	Nitrates 36,000 12,000 19,000 78,000	Counts (colonles) 10,000 89,000 71,000 76,000
First/2005 First/2005 First/2006 First/2005	1 2 3 4	8,750 8,240 8,230 6,670	7,050 7,170 7,320 6,950	Temp 10,400 11,000 11,600 9,200	28,000 28,000 26,000 48,000	0,292 0,306 0,200 0,264	(mgV) 0,152 0,228 0,070 0,110	20,000 20,000 20,000 19,000	18,000 17,000 18,000 18,000	(mgN) 0,170 0,188 0,178 0,186	Diasolved. Oxygan 10,050 10,630 10,630 10,630 11,170	Nitrates 36,000 12,000 19,000 78,000 33,000	Counts (colonles) 10,000 89,000 71,000 76,000 43,000
First/2005 First/2005 First/2006 First/2005 First/2005	1 2 3 4 5	8,750 8,240 8,230 6,670 4,090	7.050 7.170 7.320 6.950 7.110	Temp 10,400 11,000 11,800 9,200 9,700	28,000 28,000 26,000 48,000 33,000	0,292 ° 0,306 ° 0,200 ° 0,264 ° 0,237	(mgV) 0,152 0,228 0,070 0,110 0,052	20,000 20,000 20,000 19,000 20,000	18,000 17,000 18,000 18,000 18,000	(mgV) 0.170 0.158 0.178 0.186 0.181	Diasolved. Oxygan 10,050 10,630 10,630 10,630 11,170	Nitrates 36,000 12,000 19,000 78,000 33,000	Counts (colonias) 10,000 89,000 71,000 76,000 43,000
First/2005 First/2005 First/2006 First/2005 First/2005	1 2 3 4 5	8,750 8,240 8,230 6,670 4,090	7.050 7.170 7.320 6.950 7.110	Temp 10,400 11,000 11,800 9,200 9,700	28,000 28,000 26,000 48,000 33,000	0,292 ° 0,306 ° 0,200 ° 0,264 ° 0,237	(mgV) 0.152 0.228 0.070 0.110 0.052 0.027	20,000 20,000 20,000 19,000 20,000	18,000 17,000 18,000 18,000 18,000	(mgV) 0.170 0.158 0.178 0.186 0.181 0.134	Diasolved. Oxygen 10,050 10,630 10,630 10,630 11,170 11,300	Nitrates 36,000 12,000 19,000 78,000 33,000	Counts (colonias) 10,000 89,000 71,000 76,000 43,000 98,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005	1 2 3 4 5	8.750 8.240 8.230 6.670 4.090 : 5,620	7,050 7,170 7,320 6,950 7,110 7,220	Temp 10.400 11.000 11.800 9.200 9.700 10.600	28,000 28,000 26,000 48,000 43,000 41,000	0.292 0.306 0.200 0.264 0.237 0.235	(mgV) D,152 O,228 O,070 O,110 D,052 C,027	20,000 20,000 20,000 19,000 20,000 18,000	18,000 17,000 18,000 18,000 18,000 18,000	(mgV) 0.170 0.158 0.178 0.186 0.181 0.134	Dissolved. Oxygen 10,050 10,630 10,630 10,630 11,170 11,300 Dissolved	Nitrates 35,000 12,000 19,000 78,000 33,000 11,000	Counts (colonles) 10,000 89,000 71,000 76,000 43,000 98,000 Facal Counts
First/2005 First/2005 First/2006 First/2005 First/2005	1 2 3 4 5 6	8.750 8.240 8.230 6.670 4.090 : 5.620	7.050 7.170 7.320 6.950 7.110 7.220	Temp 10.400 11.000 11.600 9.200 9.700 10.600	26,000 28,000 26,000 48,000 41,000	0.292 0.806 0.200 0.264 0.237 0.235	(mgV) D,152 D,152 D,070 D,11D D,052 C,027 Manganse (mgV)	20,000 20,000 20,000 19,000 20,000 18,000	18,000 17,000 18,000 18,000 18,000 18,000 Hardness	(mgV) 0.170 0.158 0.173 0.186 0.181 0.134 Amrionia (mgV)	Dissolved. Oxygan 10,050 10,680 10,630 11,170 11,300 Dissolved Oxygan	Nitrates 86,000 12,000 19,000 78,000 33,000 11,000	Counts (colonles) 10,000 89,000 71,000 43,000 98,000 Fecal Counts (colonles)
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005	1 2 3 4 5 6	8,750 8,240 8,230 6,670 4,090 : 5,620 NTU 2,830	7.050 7.170 7.320 6.950 7.110 7.220 pH 8,670	Temp 10,400 11,600 9,200 9,700 10,600 Temp 20,100	28,000 28,000 26,000 48,000 41,000 	0.292 0.306 0.200 0.284 0.237 0.235 iron (mgN) 0.132	(mgN) D.152 O.228 O.070 O.11D D.052 C.027 Manganse (mgN) D.649	20,000 20,000 20,000 19,000 20,000 18,000 Alk- 22,000	18,000 17,000 18,000 18,000 18,000 18,000 Hardness 20,000	(mgV) 0.170 0.158 0.178 0.186 0.181 0.134 Ammonia (mgN) 0.089	Dissolved. Oxygen 10,050 10,630 10,630 11,170 11,300 Disselved Oxygen 6,140	Nitrates 35,000 12,000 19,000 78,000 33,000 11,000 Nitrates 18,000	Counts (colonles) 10.000 89,000 71,000 76,000 43,000 98,000 Feaal Counts (aclonles)
First/2005 First/2005 First/2006 First/2006 First/2006 Cuarter/Year Second/2006	1 2 3 4 5 6	8.750 8.240 8.230 6.670 4.090 : 5.620 NTU 2.630 1.720	7,050 7,170 7,820 6,850 7,110 7,220 pH 8,670 6,810	Temp 10.400 11.000 11.600 9.200 9.700 10.600	26,000 26,000 46,000 33,000 41,000 Oojor 28,000 16,000	0.292 0.306 0.200 0.284 0.237 0.235 Iron (mg/l) 0.132	(mgN) D.152 D.228 D.070 D.11D D.052 C.027 Manganse (mgN) D.649 D.127	20,000 20,000 20,000 19,000 20,000 18,000 Alk- 22,000 20,000	18,000 17,000 18,000 18,000 18,000 18,000 Hardness 20,000 18,000	(mg/l) 0.170 0.158 0.178 0.186 0.181 0.134 Ammonia (mg/l) 0.089 0.046	Dissolved. Oxygen 10,650 10,630 10,630 11,170 11,300 Disselved Oxygen 6,140 7,410	Nitrates 36,000 12,000 19,000 78,000 33,000 11,000 Nitrates 18,000 24,000	Counts (colonles) 10,000 89,000 71,000 43,000 96,000 Fecal Counts (colonles) 18,000 42,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Ouarler/Year Second/2005 Second/2005	1 2 3 4 5 6 5	8,750 8,240 8,230 6,670 4,090 : 5,620 NTU 2,830	7.050 7.170 7.320 6.950 7.110 7.220 pH 8,670	Temp 10,400 11,600 9,200 9,700 10,600 Temp 20,100	28,000 28,000 26,000 48,000 41,000 	0.292 0.306 0.200 0.284 0.237 0.235 iron (mgN) 0.132	(mgN) 0.152 0.228 0.070 0.110 0.052 0.027 Manganse (mgN) 0.649 0.127 0.030	20,000 20,000 20,000 19,000 20,000 18,000 Alic- 22,000 20,000	18,000 17,000 18,000 18,000 18,000 18,000 Hardness 20,000 18,000	(mg/l) 0.170 0.158 0.178 0.186 0.181 0.134 Ammonia (mg/l) 0.089 0.048	Dissolved. Oxygen 10,650 10,650 10,650 11,170 11,300 Dissolved Oxygen 6,110 7,410 10,740	Nitrates 36,000 12,000 19,000 78,000 33,000 11,000 Nitrates 18,000 ,24,000 77,000	Counts (colonles) 10.000 89.000 71.000 43.000 98.000 Fecal Counts (colonles) 18,000 42.000 119.000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Cuarter/Year Second/2005 Second/2005	1 2 3 4 5 6 5 6 Site Number 1 2 3	8.750 8.240 8.230 6.670 4.090 : 5.620 NTU 2.630 1.720	7,050 7,170 7,820 6,850 7,110 7,220 pH 8,670 6,810	Temp 10.400 11.000 11.600 9.200 9.700 10.600	28,000 26,000 48,000 33,000 41,000 Cojor 28,000 15,000 17,000 22,000	0.292 0.205 0.200 0.264 0.237 0.295 iron (mgN) 0.132 0.069 0.108	(mgN) 0.152 0.28 0.070 0.110 0.052 0.027 Manganse (mgN) 0.640 0.127 0.030 0.640	20,000 20,000 19,000 20,000 18,000 Alk 22,000 20,000 20,000 23,000	18,000 17,000 18,000 18,000 18,000 18,000 18,000 18,000 18,000 20,000	(mgV) 0.170 0.158 0.178 0.186 0.181 0.134 Ammonia (mgV) 0.089 0.045 0.045	Dissolved. Oxygan 10,650 10,650 10,650 11,170 11,300 Dissolved Oxygen 6,140 7,110 10,740 8,780	Nitrates 26,000 12,000 19,000 78,000 33,000 11,000 Nitrates 18,000 24,000 77,000 97,000 97,000	Counts (colonles) 10,000 89,000 71,000 43,000 98,000 Fecal Counts (colonles) 18,000 42,000 118,000 73,000 73,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Quarter/Year Second/2005 Second/2005 Second/2005	1 2 3 4 5 5 6 5 5 1 1 2 2 3 4 4 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6	8.750 8.240 8.230 6.670 4.060 : 5.620 NTU 2.830 1.720 2.080 2.080	7,050 7,170 7,820 6,850 7,110 7,220 pH 8,670 6,810 7,650	Temp 10,400 11,600 8,200 9,700 10,600 Temp 20,100 15,600 21,400	28,000 26,000 48,000 33,000 41,000 	0.292 0.206 0.200 0.264 0.237 0.235 iron (mgN) 0.132 0.069 0.108 0.114	(mgl) 0.152 0.228 0.070 0.110 0.052 0.027 Manganse (mgll) 0.640 0.127 0.030 0.640 0.166	20,000 20,000 19,000 20,000 18,000 Alk 22,000 20,000 20,000 23,000 20,000	18,000 17,000 18,000 18,000 18,000 18,000 18,000 18,000 20,000 20,000	(mgV) 0.170 0.158 0.173 0.186 0.181 0.134 Ammrania (mgV) 0.089 0.046 0.045 0.081	Dissolved. Oxygen 10,630 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,140 7,110 10,740 8,760 7,700	Nitrates 38,000 12,000 19,000 78,000 33,000 11,000 Nitrates 18,000 ,24,000 77,000 46,000	Counts (colonles) 10.000 89,000 71,000 76,000 98,000 Feal Counts (aclonles) 18,000 42,000 19,000 95,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Quarter/Year Second/2005 Second/2005 Second/2005 Second/2005	1 2 3 4 5 6 5 5 11 2 2 3 4 5 5 5	8.750 8.240 8.230 6.670 4.090 5.620 NYU 2.830 1.720 2.080 2.050 1.440	7.060 7.170 7.320 6.950 7.110 7.220 PH 8.670 6.810 7.850 6.960 6.760	Temp 10,400 11,000 9,200 9,700 10,600 Temp 20,100 15,800 21,400 17,000	28,000 26,000 48,000 33,000 41,000 Cojor 28,000 15,000 17,000 22,000	0.292 0.205 0.200 0.264 0.237 0.295 iron (mgN) 0.132 0.069 0.108	(mgN) 0.152 0.28 0.070 0.110 0.052 0.027 Manganse (mgN) 0.640 0.127 0.030 0.640	20,000 20,000 19,000 20,000 18,000 Alk 22,000 20,000 20,000 23,000	18,000 17,000 18,000 18,000 18,000 18,000 18,000 18,000 18,000 20,000	(mgV) 0.170 0.158 0.178 0.186 0.181 0.134 Ammonia (mgV) 0.089 0.045 0.045	Dissolved. Oxygan 10,650 10,650 10,650 11,170 11,300 Dissolved Oxygen 6,140 7,110 10,740 8,780	Nitrates 26,000 12,000 19,000 78,000 33,000 11,000 Nitrates 18,000 24,000 77,000 97,000 97,000	Counts (colonles) 10,000 89,000 71,000 43,000 98,000 Fecal Counts (colonles) 18,000 42,000 118,000 73,000 73,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Quarter/Year Second/2005 Second/2005 Second/2005	1 2 3 4 5 5 6 5 5 1 1 2 2 3 4 4 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6	8.750 8.240 8.230 6.670 4.060 : 5.620 NTU 2.830 1.720 2.080 2.080	7.050 7.170 7.320 6.950 7.110 7.220 pH 8,670 6.810 7.650 6.680	Temp 10,460 11,000 9,200 9,700 10,500 Temp 20,100 15,600 21,400 17,000 17,400	28,000 26,000 48,000 33,000 41,000 	0.292 0.206 0.200 0.264 0.237 0.235 iron (mgN) 0.132 0.069 0.108 0.114	(mgl) 0.152 0.228 0.070 0.110 0.052 0.027 Manganse (mgll) 0.640 0.127 0.030 0.640 0.166	20,000 20,000 19,000 20,000 18,000 Alk 22,000 20,000 20,000 23,000 20,000	18,000 17,000 18,000 18,000 18,000 18,000 18,000 18,000 20,000 20,000	(mgV) 0.170 0.158 0.173 0.186 0.181 0.134 Ammrania (mgV) 0.089 0.046 0.045 0.081	Dissolved. Oxygen 10,630 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,140 7,110 10,740 8,760 7,700	Nitrates 38,000 12,000 19,000 78,000 33,000 11,000 Nitrates 18,000 ,24,000 77,000 46,000	Counts (colonles) 10,000 89,000 71,000 76,000 43,000 99,000 Fecal Counts (colonles) 18,000 42,000 119,000 75,000 45,000 45,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Cuarter/Year Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005	1 2 3 4 5 6 5 5 1 2 3 4 5 6 6	8.750 8.240 8.230 6.670 4.090 5.620 NYU 2.830 1.720 2.080 2.050 1.440	7.060 7.170 7.320 6.950 7.110 7.220 PH 8.670 6.810 7.850 6.960 6.760	Temp 10,460 11,000 9,200 9,700 10,500 Temp 20,100 15,600 21,400 17,000 17,400	28,000 26,000 48,000 33,000 41,000 	0.292 0.206 0.200 0.264 0.237 0.235 iron (mgN) 0.132 0.069 0.108 0.114	(mgll) 0.152 0.228 0.070 0.110 0.052 0.027 Manganae (mgll) 0.648 0.127 0.030 0.640 0.186 0.039	20,000 20,000 19,000 20,000 18,000 Alk 22,000 20,000 20,000 23,000 20,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 17.000	(mgV) 0.170 0.158 0.178 0.186 0.181 0.134 Amirrionia (mgV) 0.046 0.045 0.046 0.081	Dissolved. Oxygen 10,650 10,650 10,650 11,170 11,300 Dissolved Oxygen 6,140 7,740 8,780 7,790 14,590	Nitrates 38,000 12,000 19,000 78,000 33,000 11,000 Nitrates 18,000 ,24,000 77,000 46,000	Counts (colonles) 10,000 89,000 71,000 43,000 98,000 Fecal Counts (colonles) 18,000 42,000 119,000 65,000 45,000 Fecal
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Cuarter/Year Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005	1 2 3 4 5 6 5 5 1 2 3 4 5 6 6	8.750 8.240 8.230 6.670 4.090 5.620 NYU 2.830 1.720 2.080 2.050 1.440	7.060 7.170 7.320 6.950 7.110 7.220 PH 8.670 6.810 7.850 6.960 6.760	Temp 10,460 11,000 9,200 9,700 10,500 Temp 20,100 15,600 21,400 17,000 17,400	28,000 26,000 48,000 33,000 41,000 	0.292 0.206 0.200 0.264 0.237 0.235 iron (mgN) 0.132 0.069 0.108 0.114	(mgl) 0.152 0.228 0.070 0.110 0.052 0.027 Manganse (mgll) 0.640 0.127 0.030 0.640 0.166	20,000 20,000 19,000 19,000 18,000 Alk 22,000 20,000 20,000 20,000 20,000 18,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 17.000	(mgV) 0.176 0.158 0.178 0.186 0.181 0.134 Ammonia (mgV) 0.069 0.045 0.045 0.081 0.052 0.088	Dissolved Oxygen 10,650 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,140 7,410 10,740 7,700 14,690	Nitrates 36,000 12,000 19,000 78,000 33,000 11,000 Nitrates 18,000 24,000 77,000 46,000 11,000	Counts (colonles) 10.000 89,000 71,000 76,000 98,000 Feeal Counts (actonles) 18,000 42,000 119,000 65,000 46,000 Feest Counts
First/2005 First/2005 First/2005 First/2005 First/2005 Guarter/Year Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005	1 2 3 4 5 6 5 6 5 1 2 3 4 5 6 6	8.750 8.240 8.230 6.670 4.090 5.520 NTU 2.830 1.720 2.080 2.050 1.440 2.240	7.060 7.17D 7.32d 6.950 7.110 7.220 PH 8,67D 6,810 7.450 6,980 8,760 8,010	Temp 10,400 11,000 9,200 9,700 10,600 Temp 20,100 15,800 21,400 17,400 23,100	28,000 28,000 26,000 38,000 41,000 28,000 10,000 17,000 22,000 18,000 23,000	0.292 0.206 0.200 0.264 0.237 0.235 iron (mgN) 0.132 0.069 0.108 0.114	(mgll) 0.152 0.228 0.070 0.110 0.052 0.027 Manganae (mgll) 0.648 0.127 0.030 0.640 0.186 0.039	20,000 20,000 19,000 20,000 18,000 Alk 22,000 20,000 20,000 23,000 20,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 17.000	(mgN) 0.170 0.158 0.178 0.186 0.181 0.134 Amrironia (mgN) 0.089 0.046 0.045 0.081 0.052 0.088 Amrironia	Dissolved. Oxygen 10,630 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,740 7,110 10,740 8,780 7,790 14,690 Dissolved Oxygen	Nitrates 26,000 12,000 19,000 78,000 33,000 11,000 24,000 77,000 97,000 45,000 11,000 Nitrates	Counts (colonles) 10.000 89,000 71,000 76,000 43,000 98,000 Fecal Counts (colonles) 18,000 42,000 118,000 79,000 65,000 45,000 Fecal Counts (colonles)
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Guarter/Year Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005	1 2 3 4 5 6 5 6 Site Number 1 2 3 4 5 6	8.750 8.240 8.230 6.570 4.060 5.520 NTU 2.830 1.720 2.050 1.440 2.240	7.060 7.17D 7.32d 6.950 7.110 7.220 PH 8,67D 6,810 7.650 6,860 6,760 6,010	Temp 10,400 11,000 9,200 9,700 10,500 Temp 20,100 15,500 21,400 17,000 23,100	28,000 28,000 28,000 48,000 41,000 41,000 15,000 17,000 22,000 19,000 23,000	0.292 0.206 0.200 0.264 0.237 0.235 iron (mgN) 0.132 0.069 0.108 0.114 0.056 0.127	(mgll) 0.152 0.228 0.070 0.110 0.052 0.027 Manganae (mgll) 0.640 0.127 0.030 0.640 0.186 0.039	20,000 20,000 19,000 19,000 18,000 Alk 22,000 20,000 20,000 20,000 20,000 18,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 17.000	(mgV) 0.170 0.158 0.178 0.186 0.181 0.134 Amritonia (mgV) 0.089 0.046 0.045 0.081 0.062 0.088 Amritonia (mgV) 0.488	Dissolved. Oxygen 10,630 10,630 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,440 7,410 10,740 8,780 7,780 14,590 Dissolved Oxygen 7,110	Nitrates 28,000 12,000 19,000 78,000 33,000 11,000 77,000 97,000 46,000 11,000 Nitrates <1.0	Counts (colonles) 10,000 89,000 71,000 76,000 43,000 96,000 Facal Counts (colonles) 116,000 76,000 42,000 118,000 76,000 45,000 Febal Counts (colonles) 77,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Cuarter/Year Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Cuarter/Year Third/2005	Site Number 2 3 4 5 6 Site Number 1 2 3 4 5 8	8.750 8.240 8.230 6.570 4.090 5.620 NTU 2.830 1.720 2.080 2.080 1.440 2.240	7.060 7.17D 7.32d 6.950 7.110 7.220 PH 8,67D 6,810 7.650 6,880 6,760 8.01D	Temp 10.400 11.600 9.200 9.700 10.600 Temp 20,100 15.600 21,400 17.400 23,100	26,000 26,000 26,000 48,000 41,000 41,000 10,000 17,000 22,000 18,000 23,000	0.292 0.306 0.200 0.264 0.237 0.295 liron (mgN) 0.132 0.069 0.114 0.066 0.127	(mgll) 0.152 0.228 0.070 0.110 0.052 0.027 Manganae (mgll) 0.640 0.127 0.030 0.646 0.039 Manganae (mgll) 1,000	20,000 20,000 19,000 19,000 18,000 Alk 22,000 20,000 20,000 20,000 18,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 17.000	(mgN) 0.170 0.158 0.178 0.186 0.181 0.134 Amrironia (mgN) 0.089 0.046 0.045 0.081 0.052 0.088 Amrironia	Dissolved. Oxygen 10,630 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,740 7,110 10,740 8,780 7,790 14,690 Dissolved Oxygen	Nitrates 38,000 12,000 12,000 78,000 33,000 11,000 77,000 97,000 45,000 11,000 55,000 55,000	Counts (colonlas) 10.000 89.000 71,000 76.000 43,000 98.000 Fecal Counts (colonlas) 18,000 42,000 119.000 79.000 65,000 Fecal Counts (colonlas) 77,000 102,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Guarter/Year Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Third/2005 Third/2005	1 2 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	8.750 8.240 8.230 6.670 4.090 5.620 NTU 2.850 2.050 1.720 2.050 1.440 2.240 NTU 15.400 8.670	7.060 7.17D 7.320 6.950 7.110 7.220 PH 8.67D 6.810 7.650 6.860 8.760 8.010	Temp 10,400 11,600 8,200 9,700 10,600 Temp 20,100 15,600 21,400 17,400 23,100 Temp 17,300 18,300	28,000 28,000 26,000 48,000 33,000 41,000 18,000 17,000 22,000 18,000 17,000 23,000	0.292 0.306 0.200 0.284 0.237 0.235 lron (mgN) 0.132 0.069 0.114 0.056 0.127	(mgll) 0.152 0.228 0.070 0.110 0.052 0.027 Manganae (mgll) 0.640 0.127 0.030 0.640 0.168 0.039	20,000 20,000 19,000 19,000 20,000 18,000 20,000 20,000 20,000 20,000 18,000 Alk 28,000 23,000 23,000 23,000 23,000 23,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 17.000	(mgV) 0.170 0.158 0.178 0.186 0.181 0.134 Amritonia (mgV) 0.089 0.046 0.045 0.081 0.062 0.088 Amritonia (mgV) 0.488	Dissolved. Oxygen 10,630 10,630 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,440 7,410 10,740 8,780 7,780 14,590 Dissolved Oxygen 7,110	Nitrates 28,000 12,000 19,000 78,000 33,000 11,000 77,000 97,000 46,000 11,000 Nitrates <1.0	Counts (colonles) 10,000 89,000 71,000 76,000 43,000 96,000 Facal Counts (colonles) 116,000 76,000 42,000 118,000 76,000 45,000 Febal Counts (colonles) 77,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Guarter/Year Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Third/2005 Third/2005	Site Number Site Number 1 2 3 4 5 6 Site Number 1 2 3 4 5 6	8.750 8.240 8.230 8.250 6.670 4.090 5.620 NTU 2.830 1.720 2.080 2.050 1.440 2.240 NTU 15.400 8.670 3.800	7.060 7.170 7.320 6.950 7.110 7.220 PH 8.670 6.810 7.850 6.060 6.760 8.010	Temp 10,400 11,000 11,600 9,200 10,600 Temp 20,100 15,600 21,400 21,400 21,400 21,400 23,100	28,000 28,000 26,000 35,000 41,000 28,000 10,000 17,000 22,000 18,000 56,800 40,000	0.292 0.306 0.200 0.264 0.237 0.235 iron (mgN) 0.132 0.066 0.114 0.066 0.127 iron (mgN) 1.725 0.818	(mgll) 0.152 0.228 0.070 0.110 0.052 0.027 Manganae (mgll) 0.649 0.127 0.030 0.640 0.198 0.039 Manganae (mgll) 1.605 0.039	20,000 20,000 19,000 19,000 20,000 18,000 20,000 20,000 20,000 18,000 4,000 18,000 20,000 18,000 20,000 20,000 20,000 20,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 17.000 4-lerdness 22.000 27.000 22.000 22.000	(mgV) 0.170 0.158 0.173 0.186 0.181 0.134 Amritionia (mgV) 0.086 0.045 0.081 0.052 0.088 Amritionia	Dissolved. Oxygen 10,658 10,658 10,658 11,170 11,300 Dissolved Oxygen 6,140 6,740 8,780 7,700 14,690 Dissolved Oxygen 7,110 4,630	Nitrates 38,000 12,000 12,000 78,000 33,000 11,000 77,000 97,000 45,000 11,000 55,000 55,000	Counts (colonlas) 10.000 89.000 71,000 76.000 43,000 98.000 Fecal Counts (colonlas) 18,000 42,000 119.000 79.000 65,000 Fecal Counts (colonlas) 77,000 102,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Guarter/Year Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Third/2006 Third/2005 Third/2005	1 2 3 4 5 6 6 Site Number 1 2 3 4 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8.750 8.240 8.230 6.670 4.090 5.520 NTU 2.830 1.720 2.050 1.440 2.240 NTU 15.400 8.670 8.670 8.670 8.630 2.680	7.060 7.17D 7.32d 6.950 7.110 7.220 PH 8.67D 6.85D 6.760 6.760 6.01D PH 6.830 8.790 8.480 8.530	Temp 10,400 11,000 9,200 9,700 10,500 Temp 20,100 15,600 21,400 17,000 17,400 23,100 Temp 17,300 18,300 18,000 18,000	26,000 26,000 26,000 48,000 41,000 10,000 17,000 17,000 22,000 23,000 60,000 60,000 40,000 26,000	0.292 0.306 0.200 0.284 0.237 0.235 iron (mgN) 0.132, 0.689 0.104 0.144 0.066 0.127 iron (mgN) 1.726 0.818 0.209 0.108	(mgl) 0.152 0.228 0.070 0.110 0.052 0.027 Manganse (mgll) 0.640 0.127 0.030 0.640 0.196 0.039 Mangase (mgll) 1.600 1.600 1.605 0.0568 0.072	20,000 20,000 19,000 19,000 18,000 18,000 20,000 20,000 20,000 18,000 20,000 18,000 20,000 20,000 20,000 20,000 20,000 20,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 17.000 14.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000	(mgN) 0.170 0.158 0.178 0.186 0.181 0.184 Amrironia (mgN) 0.089 0.046 0.045 0.062 0.088 Amrironia (mgN) 0.488 0.385 0.087 0.088	Dissolved. Oxygen 10,630 10,630 10,630 11,1300 Dissolved Oxygen 6,140 7,110 10,740 8,780 14,690 Dissolved Oxygen 7,110 4,630 12,680 12,680	Nitrates 26,000 19,000 78,000 33,000 11,000 77,000 97,000 11,000 97,000 97,000 97,000 42,000 42,000 42,000	Counts (colonles) 10.000 89,000 71,000 76,000 43,000 98,000 Focal (colonles) 18,000 42,000 119,000 65,000 45,000 Focal Counts (colonles) 77,000 102,000 102,000 357,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Third/2006 Third/2005 Third/2005	1 2 3 4 5 6 5 6 Site Number 1 2 3 4 5 6 8 Site Number 1 2 9 4 5 6	8.750 8.240 8.230 6.570 4.060 5.520 NTU 2.830 1.720 2.050 1.440 2.240 NTU 15.400 8.670 3.500 2.680 4.680	7.060 7.17D 7.32d 6.950 7.110 7.220 PH 8.67D 6.610 7.650 6.760 6.010 PH 6.830 8.790 8.490 8.630 8.740	Temp 10,400 11,000 9,200 9,700 10,500 Temp 20,100 15,800 21,400 17,400 23,100 Temp 17,300 18,300 18,000 20,200	26,000 26,000 41,000 33,000 41,000 28,000 17,000 22,000 18,000 22,000 66,000 40,000 26,000 33,000	0.292 0.306 0.200 0.264 0.237 0.295 liron (mgN) 0.132 0.069 0.108 0.114 0.066 0.127	(mgll) 0.152 0.228 0.077 0.110 0.052 0.027 Manganae (mgll) 0.640 0.127 0.030 0.640 0.127 0.030 0.646 0.039 Manganae (mgll) 1,600 1,650 0.052 0.072 0.770	20,000 20,000 19,000 19,000 18,000 18,000 20,000 20,000 20,000 18,000 20,000 18,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 17.000 17.000 22.000 22.000 22.000 21.000 21.000	(mgV) 0.170 0.158 0.178 0.186 0.181 0.134 Amritonia (mgV) 0.089 0.046 0.045 0.081 0.068 Amritonia (mgV) 0.486 0.335 0.036 0.037 0.039	Dissolved. Oxygen 10,630 10,630 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,440 7,110 10,740 8,780 7,790 14,690 Dissolved Oxygen 7,110 4,630 12,680 12,680 6,760	Nitrates 26,000 12,000 12,000 12,000 12,000 11,000 11,000 11,000 11,000 11,000 15,000 42,000 15,000 15,000	Counts (colonles) 10,000 89,000 71,000 76,000 43,000 98,000 Fecal Counts (colonles) 18,000 42,000 110,000 73,000 45,000 Fecal (colonles) 77,000 102,000 98,000 48,000 48,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Guarter/Year Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Third/2006 Third/2005 Third/2005	1 2 3 4 5 6 6 Site Number 1 2 3 4 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8.750 8.240 8.230 6.670 4.090 5.620 NTU 2.830 2.060 1.720 2.060 1.440 2.240 NTU 15.400 8.670 8.690 4.680 12,600	7.060 7.17D 7.32d 6.950 7.110 7.220 PH 8.67D 6.610 7.650 6.760 6.010 PH 6.830 8.790 8.490 8.630 8.740	Temp 10,400 11,000 9,200 9,700 10,500 Temp 20,100 15,600 21,400 17,000 17,400 23,100 Temp 17,300 18,300 18,000 18,000	26,000 26,000 26,000 48,000 41,000 10,000 17,000 17,000 22,000 23,000 60,000 60,000 40,000 26,000	0.292 0.306 0.200 0.264 0.237 0.295 liron (mgN) 0.132 0.069 0.108 0.114 0.066 0.127	(mgl) 0.152 0.228 0.070 0.110 0.052 0.027 Manganse (mgll) 0.640 0.127 0.030 0.640 0.196 0.039 Mangase (mgll) 1.600 1.600 1.605 0.0568 0.072	20,000 20,000 19,000 19,000 18,000 18,000 20,000 20,000 20,000 18,000 20,000 18,000 20,000 20,000 20,000 20,000 20,000 20,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 17.000 14.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000	(mgN) 0.170 0.158 0.178 0.186 0.181 0.184 Amrironia (mgN) 0.089 0.046 0.045 0.062 0.088 Amrironia (mgN) 0.488 0.385 0.087 0.088	Dissolved. Oxygen 10,630 10,630 10,630 11,1300 Dissolved Oxygen 6,140 7,110 10,740 8,780 14,690 Dissolved Oxygen 7,110 4,630 12,680 12,680	Nitrates 26,000 19,000 78,000 33,000 11,000 77,000 97,000 11,000 97,000 97,000 97,000 42,000 42,000 42,000	Counts (colonles) 10.000 89,000 71,000 76,000 43,000 98,000 Focal (colonles) 18,000 42,000 119,000 65,000 45,000 Focal Counts (colonles) 77,000 102,000 102,000 357,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Third/2006 Third/2005 Third/2005	1 2 3 4 5 6 5 6 Site Number 1 2 3 4 5 6 8 Site Number 1 2 9 4 5 6	8.750 8.240 8.230 6.570 4.060 5.520 NTU 2.830 1.720 2.050 1.440 2.240 NTU 15.400 8.670 3.500 2.680 4.680	7.060 7.17D 7.32d 6.950 7.110 7.220 PH 8.67D 6.610 7.650 6.760 6.010 PH 6.830 8.790 8.490 8.630 8.740	Temp 10,400 11,000 9,200 9,700 10,500 Temp 20,100 15,800 21,400 17,400 23,100 Temp 17,300 18,300 18,000 20,200	26,000 26,000 41,000 33,000 41,000 28,000 17,000 22,000 18,000 22,000 66,000 40,000 26,000 33,000	0.292 0.306 0.200 0.264 0.237 0.295 liron (mgN) 0.132 0.069 0.108 0.114 0.066 0.127	(mgll) 0.152 0.228 0.077 0.110 0.052 0.027 Manganae (mgll) 0.640 0.127 0.030 0.640 0.127 0.030 0.646 0.039 Manganae (mgll) 1,600 1,650 0.052 0.072 0.770	20,000 20,000 19,000 19,000 18,000 18,000 20,000 20,000 20,000 18,000 20,000 18,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 17.000 17.000 22.000 22.000 22.000 21.000 21.000	(mgV) 0.170 0.158 0.178 0.186 0.181 0.134 Amritonia (mgV) 0.089 0.046 0.045 0.081 0.068 Amritonia (mgV) 0.486 0.335 0.036 0.037 0.039	Dissolved. Oxygen 10,630 10,630 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,440 7,110 10,740 8,780 7,790 14,690 Dissolved Oxygen 7,110 4,630 12,680 12,680 6,760	Nitrates 26,000 12,000 12,000 12,000 12,000 11,000 11,000 11,000 11,000 11,000 15,000 42,000 15,000 15,000	Counts (colonles) 10.000 89.000 71,000 76.000 43,000 98.000 Fecal Counts (colonles) 18,000 42,000 119.000 79.000 65,000 45,000 Fecal Counts (colonles) 77,000 102,000 98,000 357,000 46,000 68,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Third/2006 Third/2005 Third/2005	1 2 3 4 5 6 5 6 Site Number 1 2 3 4 5 6 8 Site Number 1 2 9 4 5 6	8.750 8.240 8.230 6.670 4.090 5.620 NTU 2.830 2.060 1.720 2.060 1.440 2.240 NTU 15.400 8.670 8.690 4.680 12,600	7.060 7.17D 7.32d 6.950 7.110 7.220 PH 8.67D 6.610 7.650 6.760 6.010 PH 6.830 8.790 8.490 8.630 8.740	Temp 10,400 11,000 9,200 9,700 10,500 Temp 20,100 15,800 21,400 17,400 23,100 Temp 17,300 18,300 18,000 20,200	26,000 26,000 41,000 33,000 41,000 28,000 17,000 22,000 18,000 22,000 66,000 40,000 26,000 33,000	0.292 0.306 0.200 0.264 0.237 0.295 liron (mgN) 0.132 0.069 0.108 0.114 0.066 0.127	(mgll) 0.152 0.228 0.070 0.110 0.052 0.027 Manganae (mgll) 0.640 0.130 0.640 0.196 0.030 0.640 0.196 0.030 0.050 0.050 0.070 0.770 0.700	20,000 20,000 19,000 19,000 18,000 18,000 20,000 20,000 20,000 18,000 20,000 18,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 17.000 17.000 22.000 22.000 22.000 21.000 21.000	(mgV) 0.170 0.158 0.173 0.186 0.181 0.134 Ammonia (mgV) 0.045 0.045 0.082 0.088 Ammonia (mgV) 0.088 0.086 0.087 0.089 0.234 0.665	Dissolved. Oxygen 10,630 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,140 7,110 10,740 8,780 7,700 14,690 Dissolved Oxygen 7,110 4,630 12,680 12,680 5,870	Nitrates 26,000 12,000 12,000 12,000 12,000 11,000 11,000 11,000 11,000 11,000 15,000 42,000 15,000 15,000	Counts (colonlas) 10.000 89,000 71,000 76,000 43,000 98,000 Facal Counts (colonlas) 18,000 42,000 18,000 45,000 Feest Counts (colonlas) 77,000 102,000 98,000 357,000 46,000 Facal
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Third/2006 Third/2005 Third/2005	1 2 3 4 5 6 5 6 Site Number 1 2 3 4 5 6 8 Site Number 1 2 9 4 5 6	8.750 8.240 8.230 6.670 4.090 5.620 NTU 2.830 2.060 1.720 2.060 1.440 2.240 NTU 15.400 8.670 8.690 4.680 12,600	7.060 7.17D 7.32d 6.950 7.110 7.220 PH 8.67D 6.610 7.650 6.760 6.010 PH 6.830 8.790 8.490 8.630 8.740	Temp 10,400 11,000 9,200 9,700 10,500 Temp 20,100 15,800 21,400 17,400 23,100 Temp 17,300 18,300 18,000 20,200	26,000 26,000 26,000 48,000 41,000 10,000 17,000 17,000 22,000 23,000 65,000 40,000 26,000 33,000	0.292 0.306 0.200 0.284 0.237 0.235 iron (mgN) 0.132, 0.689 0.104 0.066 0.127 iron (mgN) 1.725 0.818 0.209 0.108 0.306 0.406 0.127	(mgl) 0.152 0.228 0.070 0.110 0.052 0.027 0.110 0.052 0.027 0.127 0.030 0.640 0.127 0.030 0.640 0.196 0.039 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.770 0.700 0.700	20,000 20,000 19,000 19,000 18,000 Alk 22,000 20,000 20,000 23,000 20,000 28,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 17.000 14.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000	(mgN) D.170 0.158 C.178 C.186 C.181 C.181 C.184 Amrironia (mgN) C.089 C.046 C.045 C.081 C.082 C.088 Amrironia (mgN) D.488 C.385 C.087 C.088 Amrironia C.088 Amrironia C.088 Amrironia C.088	Dissolved. Oxygen 10,630 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,140 7,110 10,740 8,780 7,700 14,590 Dissolved Oxygen 7,110 4,630 12,680 5,870 Dissolved	Nitrates 26,000 12,000 12,000 12,000 13,000 11,000 11,000 11,000 11,000 11,000 15,000 15,000 15,000 57,000 57,000	Counts (colonles) 10.000 89,000 71,000 76,000 43,000 98,000 Fecal Counts (colonles) 18,000 42,000 118,000 79,000 45,000 Fecal Counts (colonles) 77,000 102,000 98,000 46,000 46,000 Fecal Counts
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Guarter/Year Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005	1 2 3 4 5 6 6 Site Number 1 2 3 4 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8.750 8.240 8.230 6.670 4.090 5.620 NTU 2.830 2.060 1.720 2.060 1.440 2.240 NTU 15.400 8.670 8.690 4.680 12,600	7.060 7.17D 7.326 6.950 7.110 7.220 PH 8.67D 6.610 7.650 6.760 6.760 6.760 6.760 6.760 6.760 6.760 6.760 6.760 6.760 6.760 6.770	Temp 10,400 11,000 9,200 9,700 10,500 Temp 20,100 15,800 21,400 17,400 23,100 Temp 17,300 18,300 18,000 20,200	26,000 26,000 46,000 33,000 41,000 15,000 17,000 22,000 18,000 20,000 66,000 40,000 26,000 33,000	0.292 0.306 0.200 0.284 0.237 0.235 iron (mgN) 0.132, 0.069 0.108 0.114 0.066 0.127 lron (mgN) 1.726 0.816 0.108 0.108 0.108	(mgll) 0.152 0.027 0.110 0.052 0.027 Manganae (mgll) 0.640 0.127 0.030 0.646 0.039 Manganae (mgll) 1.600 1.650 0.072 0.770 0.700	20,000 20,000 19,000 19,000 20,000 18,000 20,000 20,000 20,000 23,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 17.000 27.000 22.000 22.000 21.000 21.000 21.000	(mgV) 0.170 0.158 0.178 0.186 0.181 0.134 Amrironia (mgV) 0.089 0.046 0.045 0.081 0.062 0.088 Amrironia (mgV) 0.088 Amrironia (mgV) 0.088 Amrironia (mgV) 0.088 Amrironia (mgV) 0.088	Dissolved. Oxygen 10,630 10,630 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,140 7,110 10,740 8,780 7,780 14,590 Dissolved Oxygen 7,110 4,630 12,680 12,680 5,870 Dissolved Oxygen	Nitrates 26,000 12,000 12,000 12,000 13,000 11,000 11,000 11,000 11,000 15,000 15,000 15,000 15,000 Nitrates 16,000 15,000 Nitrates 16,000 15,000 Nitrates 16,000 Nitrates 16,	Counts (colonles) 10,000 89,000 71,000 76,000 43,000 96,000 Facal Counts (colonles) 110,000 79,000 45,000 45,000 Febal Counts (colonles) 77,000 102,000 98,000 357,000 46,000 Facal Counts (colonles) 77,000 102,000 98,000 357,000 76,000 Facal Counts (colonles)
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005	1 2 3 4 5 6 5 6 Sits Number 1 2 3 4 5 6 9 Sits Number 1 2 9 4 5 8	8.750 8.240 8.230 8.230 6.670 4.090 5.620 NTU 2.830 1.720 2.060 1.440 2.240 NTU 15.400 8.670 8.690 4.680 12,600	7.060 7.17D 7.326 6.950 7.110 7.220 PH 8.67D 6.850 6.760 6.760 6.010 PH 6.830 6.760 6.760 6.760 6.760 6.760 6.760 6.760 6.770 6.810 6.720	Temp 10.400 11.000 9.200 9.700 10.600 Temp 20.100 15.600 21.400 17.400 23.100 Temp 17.300 18.300 18.000 18.000 18.000 18.000 18.000 18.000 18.000	26,000 26,000 26,000 48,000 41,000 10,000 17,000 17,000 22,000 23,000 65,000 40,000 26,000 33,000	0.292 0.306 0.200 0.284 0.237 0.235 iron (mgill) 0.132 0.069 0.104 0.056 0.127 iron (mgill) 1.725 0.818 0.209 0.106 0.406 2.127 iron (mgill)	(mgll) 0.152 0.228 0.070 0.110 0.052 0.027 Manganae (mgll) 0.640 0.127 0.030 0.640 0.180 0.039	20,000 20,000 19,000 19,000 18,000 20,000 20,000 20,000 20,000 20,000 23,000 20,000 23,000 20,000 23,000 20,000 28,000 28,000 28,000 28,000 28,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 20.000 27.000 27.000 27.000 28.000 29.000 29.000	(mgN) D.170 0.158 0.173 0.186 0.181 0.134 Amirionia (mgN) 0.046 0.046 0.046 0.088 Amirionia (mgN) 0.080 Amirionia (mgN) 0.082 0.086 Amirionia (mgN) 0.082 0.086 Amirionia (mgN) 0.086 Amirionia (mgN) 0.086 Amirionia (mgN) 0.088	Dissolved Oxygen 10,650 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,140 7,410 10,740 7,700 14,690 Dissolved Oxygen 7,110 4,630 12,680 5,760 5,870 Dissolved Oxygen 11,460	Nitrates 36,000 12,000 12,000 12,000 33,000 11,000 11,000 97,000 45,000 15,000 57,000 15,000 57,000 Nitrates 18,000 15,000 Nitrates 18,000 Nit	Counts (colonlas) 10,000 89,000 71,000 76,000 43,000 98,000 Facal Counts (colonlas) 18,000 42,000 119,000 78,000 65,000 46,000 Fecal Counts (colonlas) 77,000 102,000 98,000 357,000 48,000 Facal Counts (colonlas) 77,000 102,000 98,000 357,000 102,000 Facal Counts (colonlas)
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Third/2005	1 2 3 4 5 6 5 6 5 6 5 6 5 6 5 6 6 5 6 6 6 6 6	8.750 8.240 8.230 8.240 6.670 4.090 5.620 NTU 2.830 2.050 1.440 2.240 NTU 15.400 8.670 8.670 8.680 12.600	7.060 7.17D 7.326 6.950 7.110 7.220 PH B.67D 6.810 7.650 6.860 6.760 8.010 PH 6.830 8.780 8.490 8.490 8.500 6.720	Temp 10.400 11.600 9.200 9.700 10.600 Temp 20.100 15.800 21.400 17.400 23.100 Temp 17.300 18.300 18.000 18.000 17.900	26,000 26,000 46,000 33,000 41,000 15,000 17,000 22,000 18,000 20,000 66,000 40,000 26,000 33,000	0.292 0.306 0.200 0.284 0.237 0.235 Iron (mgN) 0.132 0.069 0.114 0.056 0.127 Iron (mgN) 1.725 0.818 0.209 0.108 0.406 2.127 Iron (mgN) 8.300	(mgll) 0.152 0.028 0.070 0.110 0.052 0.027 Manganae (mgll) 0.640 0.127 0.030 0.640 0.196 0.039 0.640 0.196 0.039 0.640 0.196 0.070 0.770 0.700 Manganae (mgll) 0.7770 0.240	20,000 20,000 19,000 19,000 18,000 20,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 27.000 22.000 27.000 22.000 21.000 29.000 21.000 29.000	(mgN) 0.170 0.158 0.178 0.186 0.181 0.134 Amritonia (mgN) 0.046 0.045 0.082 0.088 Amritonia (mgN) 0.486 0.336 0.087 0.038 0.284 0.665 Ammoria (mgN) 0.282 0.119	Dissolved. Oxygen 10,630 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,140 7,110 10,740 8,760 7,700 14,690 Dissolved Oxygen 7,110 4,630 12,680 12,680 12,680 6,760 5,870 Dissolved Oxygen 11,460 10,270	Nitrates 36,000 12,000 19,000 78,000 33,000 11,000 Nitrates 18,000 24,000 11,000 Nitrates <1,0 55,000 15,000 57,000 Nitrates 18,000 66,000	Counts (colonlas) 10.000 89,000 71,000 76,000 43,000 98,000 Fecal Counts (colonlas) 18,000 45,000 45,000 Fecal Counts (colonlas) 77,000 102,000 98,000 357,000 46,000 Fecal Counts (colonlas) 17,000 102,000 98,000 357,000 102,000 Fecal Counts (colonlas) 10,000 73,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 First/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005 Fourth/2005 Fourth/2005 Fourth/2005 Fourth/2005	Site Number Site Number 1 2 3 4 5 6 Site Number 1 2 8 4 5 8 Site Number 1 2 8 4 5 8	8.750 8.240 8.230 8.250 6.670 4.090 5.620 NTU 2.830 1.720 2.060 1.440 2.240 NTU 15.400 2.660 4.880 12.600 1.800 2.660 4.880 12.600	7.060 7.170 7.320 7.320 9H 8.670 6.810 7.850 6.860 6.760 8.010 9H 6.830 8.490 8.490 8.530 6.740 6.720	Temp 10,460 11,600 9,200 9,760 10,600 Temp 20,100 15,600 21,400 21,400 23,100 Temp 17,300 18,000	28,000 28,000 26,000 48,000 33,000 41,000 17,000 22,000 18,000 23,000 68,000 33,000 182,000 182,000	0.292 0.306 0.200 0.284 0.237 0.235 Iron (mgN) 0.132 0.069 0.114 0.056 0.127 Iron (mgN) 1.725 0.818 0.209 0.108 0.406 2.127 Iron (mgN) 8.300	(mgll) 0.152 0.228 0.070 0.110 0.052 0.027 Manganae (mgll) 0.640 0.127 0.030 0.640 0.180 0.039	20,000 20,000 19,000 19,000 18,000 Alk 22,000 20,000 20,000 23,000 20,000 23,000 20,000 23,000 20,000 23,000 20,000 23,000 24,000 24,000 24,000 25,000 24,000 25,000 24,000 25,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 27.000 27.000 22.000 27.000 22.000 21.000 21.000 21.000 21.000 21.000 21.000 21.000 21.000 20.000 21.000 20.000 20.000	(mgN) D.170 0.158 0.178 0.158 0.181 0.134 Amrienila (mgN) 0.089 0.046 0.045 0.081 0.052 0.088 Amrienila (mgN) D.486 0.336 0.038 0.234 0.665 Ammerita (mgN) 0.486 0.138	Dissolved. Oxygen 10,630 10,630 10,630 11,630 11,1300 Dissolved Oxygen 5,140 7,110 10,740 8,780 14,690 Dissolved Oxygen 7,110 10,740 15,870 Dissolved Oxygen 7,110 15,870 Dissolved Oxygen 11,460 Oxygen 11,450 Oxygen 11,450 Oxygen 11,450 Oxygen 11,450 Oxygen 11,450 Oxygen 11,450 Oxygen	Nitrates 26,000 12,000 12,000 12,000 13,000 11,000 11,000 11,000 11,000 11,000 15,000 15,000 15,000 15,000 15,000 57,000 16,000 56,000 56,000 56,000	Counts (colonles) 10.000 89,000 71,000 76,000 43,000 98,000 Fecal Counts (colonles) 18,000 42,000 118,000 73,000 65,000 45,000 Fecal Counts (colonles) 77,000 102,000 98,000 357,000 46,000 Fecal Counts (colonles) 102,000 102,000 102,000 103,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Guarter/Year Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005 Fourth/2005 Fourth/2005 Fourth/2006 Fourth/2006	Site Number Site Number 1 2 3 4 5 6 Site Number 1 2 8 4 5 8 Site Number 1 2 8 4 5 8 Site Number	8.750 8.240 8.230 6.570 4.090 5.520 NTU 2.830 1.720 2.050 1.440 2.240 NTU 15.400 4.680 12.690 4.680 12.690 12.690 4.680 12.690 4.680 12.690 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680	7.060 7.170 7.320 7.170 7.320 9.6.850 7.110 7.220 9.6.810 7.850 6.860 6.760 8.010 9.6.850 6.740 6.850 6.740 6.720	Temp 10,400 11,000 11,000 9,200 9,700 10,500 Temp 20,100 15,600 21,400 23,100 Temp 17,300 18,000 1	26,000 26,000 48,000 41,000 41,000 10,000 17,000 22,000 18,000 56,000 26,000 26,000 33,000 Color 66,000 36,000 36,000 36,000 36,000 36,000 36,000	0.292 0.306 0.200 0.264 0.237 0.235 iron (mgN) 0.132 0.066 0.114 0.066 0.127 Iron (mgN) 1.725 0.616 0.208 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108	(mgll) 0.152 0.028 0.070 0.110 0.052 0.027 Manganae (mgll) 0.640 0.127 0.030 0.640 0.186 0.039 Manganae (mgll) 1.690 1.690 0.072 0.770 0.700 Manganae	20,000 20,000 19,000 19,000 18,000 20,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 17.000 27.000 21.000 21.000 21.000 21.000 21.000 21.000 21.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000	(mgN) D.170 0.158 0.178 0.156 0.181 0.181 0.184 Amrironia (mgN) 0.089 0.046 0.045 0.081 0.062 0.088 Amrironia (mgN) 0.486 0.335 0.087 0.039 0.284 0.665	Dissolved. Oxygen 10,650 10,650 10,650 11,170 11,300 Dissolved Oxygen 7,110 10,740 8,780 7,790 14,690 Dissolved Oxygen 7,110 4,630 12,680 5,760 5,870 Dissolved Oxygen 11,460 Oxygen 14,650	Nitrates 26,000 12,000 12,000 12,000 12,000 11,000 11,000 11,000 11,000 15,000 15,000 15,000 15,000 15,000 16,000	Counts (colonles) 10,000 89,000 71,000 76,000 43,000 98,000 Fecal Counts (colonles) 18,000 42,000 110,000 73,000 45,000 Fecal Counts (colonles) 77,000 102,000 98,000 357,000 46,000 Fecal Counts (colonles) 77,000 102,000 98,000 357,000 48,000 60,000 Fecal Counts (colonles) 71,000 60,000 Fecal Counts (colonles) 71,000 60,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005 Fourth/2005 Fourth/2006 Fourth/2006 Fourth/2006	1 2 3 4 5 6 5 6 5 5 6 5 6 5 6 6 6 6 6 6 6 6 6	8.750 8.240 8.230 6.670 4.090 5.620 NTU 2.830 1.720 2.060 2.050 1.440 2.240 NTU 15.400 8.670 8.690 4.680 12.6000 12.6000 12.6	7.060 7.17D 7.320 6.950 7.110 7.220 PH 8.67D 6.810 7.650 6.760 8.760 8.450 8.450 8.450 8.740 6.720	Temp 10.400 11.000 9.200 9.700 10.600 Temp 20.100 15.800 21.400 17.400 23.100 Temp 17.300 18.300 18.000 18.000 18.000 18.000 18.000 18.000 18.000 18.000 18.000 18.000 18.000	26,000 26,000 46,000 33,000 41,000 15,000 17,000 22,000 18,000 26,000 33,000 182,000 182,000 182,000 182,000 182,000 182,000 182,000 182,000 182,000 182,000	0.292 0.306 0.200 0.284 0.237 0.295 iron (mgN) 0.132 0.069 0.108 0.114 0.066 0.127 Iron (mgN) 1.726 0.816 0.209 0.108 0.606 0.427	(mgl) 0.152 0.228 0.070 0.110 0.052 0.027 0.110 0.052 0.027 0.127 0.030 0.540 0.127 0.039 0.546 0.039 0.056 0.072 0.770 0.700 0.720 0.700 0.721 0.700 0.721 0.721 0.721 0.721 0.721 0.721 0.721 0.721 0.721 0.721 0.721 0.721	20,000 20,000 19,000 19,000 18,000 Alk 22,000 20,000 20,000 23,000 20,000 23,000 20,000 23,000 20,000 23,000 20,000 23,000 24,000 24,000 24,000 25,000 24,000 25,000 24,000 25,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 27.000 27.000 22.000 27.000 22.000 21.000 21.000 21.000 21.000 21.000 21.000 21.000 21.000 20.000 21.000 20.000 20.000	(mgN) D.170 0.158 0.178 0.158 0.181 0.134 Amrienila (mgN) 0.089 0.046 0.045 0.081 0.052 0.088 Amrienila (mgN) D.486 0.336 0.038 0.234 0.665 Ammerita (mgN) 0.486 0.138	Dissolved Oxygen 10,650 10,630 10,630 11,170 11,300 Dissolved Oxygen 6,140 7,410 10,740 7,700 14,690 Dissolved Oxygen 7,110 4,680 12,680 5,760 5,870 Dissolved Oxygen 7,114 0,460 0,270 6,270 6,270 6,270 6,270 6,270 6,2680	Nitrates 28,000 12,000 19,000 33,000 11,000 11,000 11,000 11,000 15,000 57,000 66,000 66,000 66,000 10,000 10,000 10,000 10,000 10,000 10,000	Counts (colonlas) 10,000 89,000 71,000 76,000 43,000 98,000 Facal Counts (colonlas) 119,000 76,000 65,000 46,000 Fecal Counts (colonlas) 77,000 102,000 98,000 357,000 46,000 Facal Counts (colonlas) 102,000 98,000 357,000 46,000 Facal Counts (colonlas) 77,000 102,000 98,000 357,000 71,000 84,000 71,000 84,000 71,000
First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 First/2005 Guarter/Year Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Second/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005 Third/2005 Fourth/2005 Fourth/2005 Fourth/2006 Fourth/2006	Site Number Site Number 1 2 3 4 5 6 Site Number 1 2 8 4 5 8 Site Number 1 2 8 4 5 8 Site Number	8.750 8.240 8.230 6.570 4.090 5.520 NTU 2.830 1.720 2.050 1.440 2.240 NTU 15.400 4.680 12.690 4.680 12.690 12.690 4.680 12.690 4.680 12.690 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680 12.690 4.680	7.060 7.170 7.320 7.170 7.320 9.6.850 7.110 7.220 9.6.810 7.850 6.860 6.760 8.010 9.6.850 6.740 6.850 6.740 6.720	Temp 10,400 11,000 11,000 9,200 9,700 10,500 Temp 20,100 15,600 21,400 23,100 Temp 17,300 18,000 1	26,000 26,000 48,000 41,000 41,000 10,000 17,000 22,000 18,000 56,000 26,000 26,000 33,000 Color 66,000 36,000 36,000 36,000 36,000 36,000 36,000	0.292 0.306 0.200 0.284 0.237 0.235 Iron (mgN) 0.132 0.069 0.114 0.056 0.127 Iron (mgN) 1.725 0.818 0.209 0.108 0.406 2.127 Iron (mgN) 5.300 0.308 0.144 3.300 0.310	(mgll) 0.152 0.027 0.110 0.052 0.027 Manganae (mgll) 0.640 0.127 0.030 0.646 0.039 Manganae (mgll) 1.600 1.650 0.072 0.770 0.700 Manganae (mgll) 0.770 0.770 0.244 0.770	20,000 20,000 19,000 19,000 18,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 20,000 Alk 28,000 20,000 28,000 29,000 Alk 49,000 24,000 28,000 24,000 28,000 24,000 24,000 24,000 24,000 24,000 24,000 24,000 24,000	18.000 17.000 18.000 18.000 18.000 18.000 18.000 18.000 20.000 20.000 20.000 27.000 24.000 25.000 26.000 26.000 27.000 28.000 28.000 28.000 29.000 20.0000 20.0000 20.0000 20.0000 20.0000 20.0000 20.0000 20.0000 20.00000 20.00000 20.00000 20.00000000	(mgN) D.170 0.158 0.178 0.156 0.181 0.181 0.184 Amrironia (mgN) 0.089 0.046 0.045 0.081 0.062 0.088 Amrironia (mgN) 0.486 0.335 0.087 0.039 0.284 0.665	Dissolved. Oxygen 10,650 10,650 10,650 11,170 11,300 Dissolved Oxygen 7,110 10,740 8,780 7,790 14,690 Dissolved Oxygen 7,110 4,630 12,680 5,760 5,870 Dissolved Oxygen 11,460 Oxygen 14,650	Nitrates 26,000 12,000 12,000 12,000 12,000 11,000 11,000 11,000 11,000 15,000 15,000 15,000 15,000 15,000 16,000	Counts (colonlas) 10,000 89,000 71,000 76,000 43,000 98,000 Facal Counts (colonlas) 119,000 76,000 65,000 46,000 Fecal Counts (colonlas) 77,000 102,000 98,000 357,000 46,000 Facal Counts (colonlas) 102,000 98,000 357,000 46,000 Facal Counts (colonlas) 77,000 102,000 98,000 357,000 71,000 84,000 71,000 84,000 71,000

