

Part I
**Hearing Officers' Recommendations and
Interbasin Transfer Certificate**

**Jordan Lake Water Supply Storage Allocations
HEARING OFFICERS' RECOMMENDATIONS**

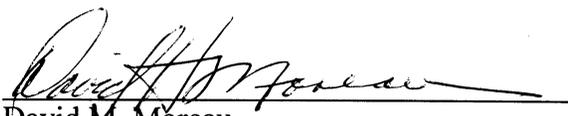
Public hearings on the Interbasin Transfer Certification Petition for the Towns of Cary, Apex, and Morrisville and Wake County (RTP South); and proposed Jordan Lake Water Supply Storage Allocations were held on March 5, 2001 at 5:00 p.m. at 512 N. Salisbury Street, Ground Floor Hearing Room, Archdale Building, Raleigh and on March 6, 2001 at 5:00 p.m. at Shaw Auditorium, Fayetteville State University, Fayetteville. A total of 57 oral comments and 71 written comments were received during the comment period. Division of Water Resources staff responses to the comments are included in the 'Response to Comments Received' section of this report.

As a result of the comments received during the public process and requirements set forth in the North Carolina General Statutes, the Hearing recommends that the Environmental Management Commission adopt the following:

- 1) The Jordan Lake Water Supply Storage Allocation recommendations are:
 - a) No increase in Chatham County's existing allocation of 6 mgd;
 - b) No allocation for Harnett County;
 - c) Allocate an additional 5.0 mgd to the Towns of Cary and Apex for a total allocation of 21.0 mgd;
 - d) Allocation 2.5 mgd to the Town of Morrisville;
 - e) Allocate 1.5 mgd to Wake County/Research Triangle Park.
- 2) Modify the Jordan Lake water supply storage contracts by adding the following provisions:
 - a) All allocation holders will be required to enact ordinances similar to the Neuse River buffer rules for the parts of their jurisdictions that are within the Jordan Lake watershed for protection of the lake
 - b) All allocation holders that have access facilities will be required to provide access at their existing intake site to other Jordan Lake water allocation holders that need access to utilize their allocation to the extent that this additional use is determined to be feasible by the Division of Water Resources. The cost associated with getting any necessary permits, engineering design, and associated construction costs are the responsibility of the allocation holder(s) requesting the access.
- 3) Grant the Towns of Cary, Apex, and Morrisville and Wake County an increase in their interbasin transfer certificate from 16 mgd to 24 mgd with the conditions as written in the following attached certificate.



E. Leo Green
Environmental Management Commission



David M. Moreau
Environmental Management Commission



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ENVIRONMENTAL MANAGEMENT COMMISSION

Certificate Authorizing the Towns of Cary, Apex, and Morrisville and Wake County
to Increase Their Transfer of Water
from the Haw River basin to the Neuse River basin
under the Provisions of G.S. 143-215.22I

On September 13, 2000, the Towns of Cary, Apex, and Morrisville and Wake County (for RTP South) petitioned the Environmental Management Commission (EMC) for an increase in the existing Cary/Apex interbasin transfer certificate from 16.0 to 27.0 million gallons per day, incidental to their proposed increased withdrawals from Jordan Lake and discharge of treated wastewater to tributaries of the Neuse River. Public hearings on the proposed transfer increase were held in Raleigh on March 5, 2001 and in Fayetteville on March 6, 2001 pursuant to G.S. 143-215.22I. A hearing officer's report was prepared in April of 2001 and mailed to members of the EMC on May 2, 2001.

The EMC considered the petitioner's request at its regular meeting on May 10, 2001. According to G.S. 143-215.22I (g), the EMC shall issue a transfer certificate only if the benefits of the proposed transfer outweigh the detriments of the proposed transfer, and the detriments have been or will be mitigated to a reasonable degree.

The EMC may grant the petition in whole or in part, or deny it, and may require mitigation measures to minimize detrimental effects. In making this determination, the EMC shall specifically consider:

1. The necessity, reasonableness, and beneficial effects of the transfer
2. Detrimental effects on the source river basin
- 2a. The cumulative effect on the source major river basin of any water transfer or consumptive water use
3. Detrimental effects on the receiving basin
4. Reasonable alternatives to the proposed transfer
5. Use of impounded storage
6. Purposes and water storage allocations in a US Army Corps of Engineers multi-purpose reservoir
7. Any other facts or circumstances necessary to carry out the law

In addition, the certificate may require a drought management plan. The plan will describe the actions a certificate holder will take to protect the source basin during drought conditions.

The members of the EMC reviewed and considered the complete record which included the hearing officer's report, staff recommendations, the applicant's petition, the Final Environmental Impact Statement, the public comments relating to the proposed interbasin transfer, and all of the criteria specified above. Based on that record, the Commission makes the following findings of fact.

Finding of Fact

THE COMMISSION FINDS:

(1) **Necessity, Reasonableness, and Benefits of the Transfer**

North Carolina has been enjoying significant population and job growth over the last decade. Growth in the Triangle is centered on the Research Triangle Park and the surrounding communities of Durham, Raleigh, Cary, Apex, and Morrisville. The proposed transfer of water will provide water to three of these fast growing communities in the Triangle. Their current combined population is about 122,900 with a maximum day water use of 23.4 million gallons per day (mgd) and projected to grow to a population of 325,400 with maximum day water use of 53.6 mgd by 2030. This water will also support economic development and job creation in the portion of RTP located in Wake County as well as the workers who are attracted to the Triangle region to fill these jobs. Raleigh and Durham each have dedicated sources of water that are adequate to meet current needs but are inadequate in their current state of development to meet long term demands for these communities. Raleigh and Durham do not have enough water to supply Cary, Apex, and Morrisville to meet their long-term needs.

Cary and Apex are located on the eastern boundary of the Jordan Lake Project and have invested in development of the only water supply intake on the lake, with approval of the state, sized to allow the withdrawal of 50 mgd of water. The Cary-Apex water treatment plant provides water to Cary, Apex, Morrisville, RTP, and Raleigh-Durham International Airport. The Chatham County water system also receives raw water through this intake to supply water to the eastern part of the county.

The state permitted the development of a raw water intake on the eastern shore of Jordan Lake to supply surrounding communities from this regional water supply. Cary and Apex received permission to use Jordan Lake water to meet their community needs and support economic development in and around RTP. They received permission to transfer 16 mgd of water from the Haw River Basin to the Neuse River Basin. This amount is no longer adequate to meet the communities' water demands. Durham and Raleigh have assisted the communities receiving water from the Cary-Apex water system by providing water to the system but can not continue because they need the water to meet demands within their own service areas.

These petitioners have made a request to transfer enough water to meet their future needs. The petitioners' combined 2030 projected transfer amount is 24.1 mgd plus an additional 2.9 mgd contingency amount for a total requested amount of 27 mgd. The projected 2009 transfer amount is 27 mgd, which will drop to 17.9 mgd in 2010 when the regional water reclamation facility becomes operational. The 24.1 mgd transfer amount assumes that the Towns of Cary and Apex will construct a regional water reclamation facility that would discharge to the Cape Fear River Basin by 2010, therefore limiting the need for additional future transfers.

The transfer of water will benefit the Research Triangle Region by guaranteeing water to support the economic development and associated population growth that have been encouraged by the establishment of the Research Triangle Park.

Based on the record the Commission finds the transfer is necessary to supply water to the growing communities of this area. Water from the source basin is readily available and within a short distance from the service area. The applicants have reasonably mitigated this need by returning treated wastewater to the source basin by December 31, 2009, and therefore the transfer is a reasonable allocation to these communities. The transfer will greatly benefit these communities by providing raw water of high quality for residential and industrial purposes.

The Commission finds that the appropriate transfer amount should not include a contingency factor, therefore 24 mgd is the appropriate necessary and reasonable transfer amount.

(2) **Detrimental Effects on the Source Basin**

In order to assess the direct impacts of the proposed transfer on the source basin, the petitioners participated in the development of a Cape Fear River Basin Hydrologic Model that was developed for water supply planning, using Moffat & Nichol and the Danish Hydraulic Institute as contractors. The model considers all major water withdrawals (water supply and irrigation) and discharges within the Cape Fear River basin, including those into and out of Jordan Lake. As required under G.S. 143-215.22I(f)(2), local water supply plans were considered in developing the model. In addition, industrial and agricultural withdrawals were model inputs. Model runs for seven alternatives were evaluated for present and 2030 water demands. Impacts were assessed for the Jordan Lake watershed and downstream to Lock and Dam Number 1, including impacts at Fayetteville.

The source for all of the petitioners' water is the water supply pool of Jordan Lake. The water supply pool is operated entirely separate from the low flow augmentation pool. The low flow augmentation pool, not the water supply pool, is dedicated to maintaining flows in the Cape Fear River downstream of Jordan Lake dam. Therefore, the petitioners' water supply withdrawals will have no significant impact on the downstream flows as demonstrated with the model. A comparison of the alternatives showed that the proposed transfer will not have any significant impact on Jordan Lake surface water elevation, minimum releases from the dam, water quality pool levels, the target flows at Lillington, flows at Fayetteville, and water quality pool levels compared to the other alternatives and to present conditions (see Appendix B in the EIS). As shown in the following figure (Figure 14 from the EIS) there are no significant differences in flows at Fayetteville.

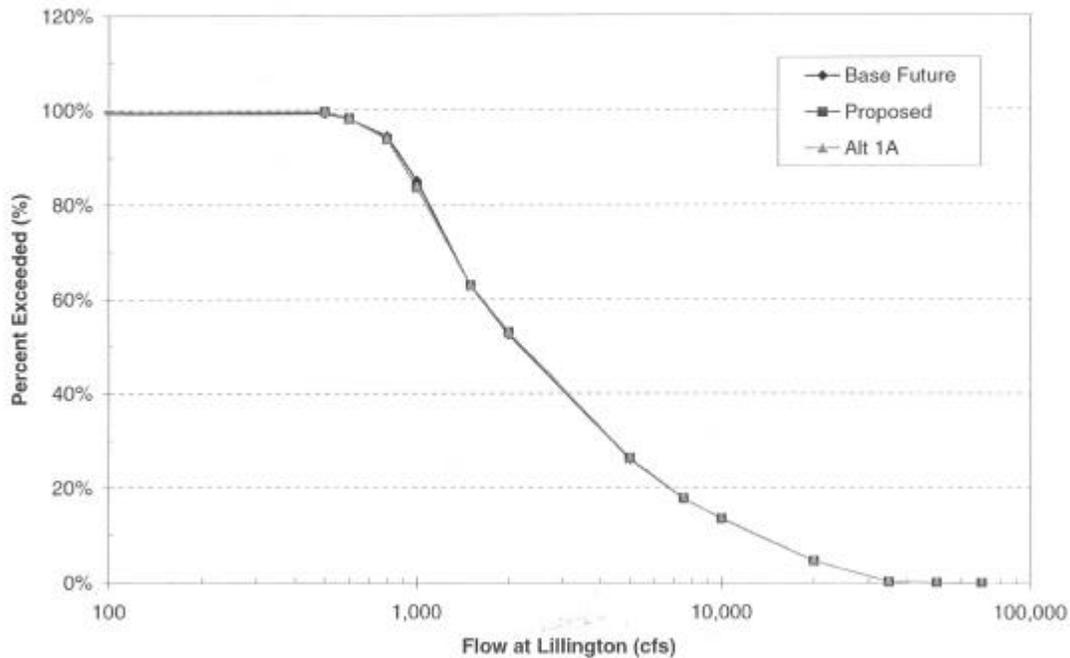
Approximately two-thirds of Jordan Lake's conservation storage is dedicated to maintaining minimum flows in the Cape Fear River, compared with the one-third dedicated to water supply. Downstream users benefit from this low-flow augmentation pool without requiring a Jordan Lake allocation and at no cost. Upstream users do not benefit from the low flow augmentation pool. The historic low flow of the Cape Fear River at Lillington was 75 cfs prior to regulation by Jordan Dam. The target flow at Lillington is now 600 cfs, supported by the low flow augmentation pool of Jordan Lake. This target flow is 8 times as great as the historic low flow, and equivalent to 388 mgd. Even allowing for instream flow requirements for habitat, an enormous amount of water is available to downstream users. Based on the 1997 Local Water Supply Plans the projected water supply demand for the middle Cape Fear River (Jordan Lake to Fayetteville) is 93.5 mgd. The target flow of 388 mgd is over 4 times as great as the projected municipal water supply demand.

Fayetteville's water supply withdrawals would not be affected by the proposed transfer or Jordan Lake allocations. Fayetteville's allowable withdrawals will only be affected by new or increased withdrawals between Lillington and Fayetteville and by water quality issues in the reach of the Cape Fear River below their water supply intake and wastewater discharge. Because wastewater assimilation is directly related to flows, no significant changes in wastewater assimilation are expected from the proposed action. Similarly, no impacts were identified for hydropower generation, navigation or recreation.

Secondary effects from growth such as increased runoff, erosion, and loss of open space are expected to have negative impacts on water quality and fish and wildlife habitat. These impacts will be mitigated to a reasonable degree through existing regulations and programs, as well as new initiatives. The most notable of these initiatives are Cary's Stream Buffer Ordinance and Open Space and Historic Resources Plan

The Commission finds that it is reasonable to minimize the impacts of secondary effects caused by growth in the Towns of Cary, Apex and Morrisville and Wake County through the implementation of ordinances similar to the Neuse River Buffer rules for the parts of their jurisdictions that are within the Jordan Lake watershed for protection of the lake.

Figure 14. Cumulative Impacts of Alternatives on Cape Fear River Flows at Fayetteville



(2a) **Cumulative effect on Source Basin of any transfers or consumptive water use projected in local water supply plans**

Local water supply plan data, including current and projected water use and water transfers, were used to develop the input data sets for the Cape Fear River Basin Model. The model was used to evaluate current and future scenarios of basin water use.

Based on the modeling discussed in Finding No. 2, the Commission finds the cumulative effects of this and other future water transfers or consumptive uses as described in G.S. §143-215.22I(f)(2a) will be insignificant.

(3) **Detrimental Effects on the Receiving Basin**

The proposed transfer will utilize existing permitted wastewater discharges to the Neuse River basin; therefore no plant expansions will be required. Previous studies for the existing plants indicated no significant direct impacts to water quality or wastewater assimilation on the receiving streams. Because stream flows in the Neuse River basin are not expected to change significantly due to the proposal, no impacts are likely to occur to navigation, recreation, or flooding. According to 1998 Neuse River Basinwide Water Quality Plan: “Over 80% of the freshwater streams in the basin that have been monitored are either impaired or rated as fully supporting but threatened. A major cause of this impairment, especially in the upper basin, is population growth and urbanization, and every indication is that this strong growth will continue for decades to come. In addition to the tremendous challenges ahead in balancing the growth in the basin with the restoration of its waters, it is also clear that if we are to prevent more waters from

becoming impaired in the future, and if the nutrient-related problems in the lower basin and lakes are to be solved, it can no longer be business as usual in the Neuse.”

Based on the record the Commission finds the transfer will support continued population growth and the attendant impacts of that growth. These impacts include effects on wastewater assimilation, fish and wildlife habitat, and water quality similar to the secondary growth effects described in Finding No. 2, above. However, these impacts will be minimal. Reasonable mitigation is prohibiting additional wastewater treatment facilities in the Neuse River basin as a result of this transfer and to limit the applicants' existing Neuse River wastewater treatment facilities to their current permitted levels.

(4) **Alternatives to Proposed Transfer**

The petitioners evaluated six alternatives to the proposed transfer. The alternatives considered include:

Alternative 1A: No IBT Increase and No Additional Jordan Lake Allocations

- No increase in the existing 16-mgd (average day basis) Jordan Lake allocation
- No increase in the existing IBT certificate (16 mgd on a maximum day basis)
- No construction of a regional treatment and water reclamation facility
- No other additional discharges to the source basin, in western Wake County

Alternative 1B: No IBT Increase with Additional Jordan Lake Allocations

- Increases in Jordan Lake water supply allocations
- No increase in existing IBT certificate (16 mgd on maximum day basis)

Alternative 2: Obtain Water From the Neuse River Basin

- No increase in existing IBT certificate (16 mgd)
- Regional Cape Fear WWTP
- Purchase of finished water from the Neuse River basin

Alternative 3: Increase Wastewater Discharges to Cape Fear River Basin

- No increase in existing IBT certificate (16 mgd)
- Additional Jordan Lake water supply allocations
- Relocation of existing Apex and Cary WWTP discharges to Cape Fear basin
- Regional Cape Fear WWTP

Alternative 4: Merger of Water and Sewer Utility Operations of Town of Cary and City of Durham

- Institutional arrangement offsets existing Durham transfer (Neuse to Haw)
- No increase in existing IBT certificate (16 mgd)
- Additional Jordan Lake water supply allocations
- Regional Cape Fear WWTP

Alternative 5: No Regional Treatment and Water Reclamation Facility

- Discharge through existing WWTPs in Neuse River basin
- Additional Jordan Lake water supply allocations
- 45 mgd IBT

The table on the following page compares the proposed transfer with the six alternatives. Factors used in the comparison of alternatives include:

- required increase in interbasin transfer
- direct and indirect impacts
- ability to meet future water needs
- capital cost
- construction of a regional water reclamation facility
- outside water purchases
- expansion of Cary/Apex water treatment plant

Except for Alternative 1A, which does not serve the projected water supply needs of the petitioners, the alternatives will not substantially reduce the expected impacts of the proposed transfer increase. The only significant impacts associated with the proposed transfer are secondary impacts associated with growth. All of the alternatives will have essentially the same growth related impacts due to high rates of regional growth.

Based on these comparisons, the Commission finds that the proposed alternative is the most feasible means of meeting the petitioners' long-term water supply needs while minimizing overall impacts and cost.

Summary of Alternatives

Item	Alternatives						
	Proposed Action	1A No Action	1B No Action	2 Water From Neuse	3 Move WWTP Discharges	4 Merger with Durham	5 No Regional WWTP
Increase in IBT (mgd)	11	0	0	0	0	0	29
Significant Direct Impacts	No	No	No	Yes	Yes	No	Yes
Significant Secondary Impacts	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Jordan Lake Allocations	Yes	No	Yes	Yes	Yes	Yes	Yes
2030 MDD Water Demands (mgd)	53.6	19	43.8	53.6	53.6	53.6	53.6
Maximum IBT (mgd)	25 ¹	16	16	16	16	19 (Neuse to Haw)	45
Total Capital Cost (million)	\$225.7	\$11.1	\$206.6	\$206.9	\$279	\$248	\$84.0
Water Reuse	3.8 mgd	3.8 mgd	3.8 mgd	3.8 mgd	3.8 mgd	3.8 mgd	3.8 mgd
Construct Regional WWTP (2030 max month capacity)	18.0 mgd	No	18.0 mgd	18.0 mgd	18.0 mgd	18.0 mgd	No
Finished Water Purchases (2030 max day demand)	No	No	No	9.2 mgd	No	No	No
Expand Cary/Apex WTP (capacity beyond 40 mgd, max day basis)	20.0 mgd	No	9.0 mgd	9.0 mgd	20.0 mgd	20.0 mgd	20.0 mgd

Note: ¹Projected IBT in 2030 is approximately 25 mgd. The requested amount of 27 mgd includes some contingency

(5) **Impoundment Storage**

This criterion is not applicable, as the petitioners do not have an impoundment.

(6) **Jordan Lake Purposes/Water Supply**

The source of the water for this transfer is Jordan Lake, which is a multipurpose reservoir constructed by the United States Army Corps of Engineers. One of the federally authorized purposes of this reservoir is water supply. Water is allocated from this reservoir intermittently. The applicants for this transfer plan to secure an allocation prior to initiating this transfer.

The Commission finds that the transfer and allocations are consistent with the federally authorized project purposes of Jordan Lake. Also, the Commission finds that to be consistent with the use of Jordan Lake as a regional water supply Cary/Apex are required to provide access through their intake with other Jordan Lake Water Allocation Holders that need access to their allocation. The cost associated with getting any necessary permits, engineering design, and associated construction costs are not the responsibility of Cary/Apex.

(7) **Other Considerations**

The Commission finds that to protect the source basin during drought conditions, to mitigate the future need for allocations of the limited resources of this basin, and as authorized by G.S. § 143-215.22I(h), a drought management plan is appropriate. The plan should describe the actions that the Towns of Cary, Apex, Morrisville and Wake County (for RTP South) will take to protect the Cape Fear River Basin during drought conditions.

The Commission notes that future developments may prove the projections and predictions in the EIS to be incorrect and new information may become available that shows that there are substantial environmental impacts associated with this transfer. Therefore, to protect water quality and availability and associated benefits, modification of the terms and conditions of the certificate may be necessary at a later date.

Decision

Based on the hearing record and the recommendation of the hearing officers, the Commission, on May 10, 2001, by duly made motions concludes that by a preponderance of the evidence based upon the Findings of Fact stated above that (1) the benefits of the proposed transfer outweigh the detriments of the proposed transfer, and (2) the detriments of the proposed transfer will be mitigated to a reasonable degree. Therefore, and by duly made motions, the Commission grants the petition of the Towns of Cary, Apex, Morrisville, and Wake County (with modification) to increase their transfer of water from the Haw River basin to the Neuse River basin. The permitted transfer amount shall be 24 million gallons per day (mgd) on a maximum day basis from the effective date. This certificate supercedes any other transfer certificates held by the Towns of Cary and Apex under G.S. § 143-215.22I and any other laws. This certificate is effective immediately. The certificate is subject to the following conditions, imposed under the authority of G.S. § 143-215.22I:

1. Facilities to return reclaimed water to the Cape Fear River basin shall be operational and returning water to the basin by January 1, 2010. If the holders of this certificate fail to have facilities operational and returning reclaimed water to the Cape Fear River basin operational by January 1, 2010, that will result in the termination of this certificate.
2. The holders of this certificate shall not increase their Neuse River basin wastewater discharge above their current permitted capacities as a result of this transfer.
3. The holders of this certificate shall manage the authorized transfer amount in such a way that none of the individual petitioners (Towns of Cary, Apex, Morrisville, and Wake County (for RTP South)) are prevented from fully using their respective Jordan Lake water supply allocations.
4. If the holders of this certificate discontinue their cooperative service agreement with each other, the maximum day permitted transfer will be adjusted by the Division of Water Resources based on the 2030 projected transfer of each applicant at that time.
5. Prior to transferring water under this certificate, The holders of this certificate shall work with the Division of Water Resources to develop a compliance and monitoring plan subject to approval by the Division. The plan shall include methodologies and reporting schedules for reporting the following information: maximum daily transfer amounts, compliance with permit conditions, progress on mitigation measures, drought management, and reporting. A copy of the approved plan shall be kept on file with the Division for public inspection. The Division of Water Resources shall have the authority to make modifications to the compliance and monitoring plan as necessary to assess compliance with the certificate.
6. If either the EIS is found at a later date to be incorrect or new information becomes available such that the environmental impacts associated with this transfer are substantially different from those projected impacts that formed the basis for the above Findings of Fact and this certificate, the Commission may reopen the certificate to adjust the existing conditions or require new conditions to ensure that the detriments continue to be mitigated to a reasonable mitigate degree.

7. The Towns of Cary and Apex will be required to provide access at their existing intake site to other Jordan Lake water allocation holders that need access to utilize their allocation to the extent that this additional use is determined to be feasible by the Division of Water Resources. The cost associated with getting any necessary permits, engineering design, and associated construction costs are the responsibility of the allocation holder(s) requesting the access and not Cary and Apex.
8. Prior to transferring water under this certificate, the Towns of Cary, Apex, and Morrisville, and Wake County (for RTP South) shall develop individual water shortage response plans subject to approval by the Division. The holders of this certificate shall develop a drought management plan for the interbasin transfer, incorporating the individual water shortage response plans and subject to approval by the Division. The plans shall tie specific water conservation actions to the percent storage remaining in each of the petitioners' Jordan Lake water supply accounts. A copy of the approved plans shall be kept on file with the Division for public inspection. The Division of Water Resources shall have the authority to approve modifications to the drought management plan as necessary.
9. Within six months from the effective date of this certificate, the Towns of Cary, Apex and Morrisville and Wake County (for RTP South) shall enact ordinances similar to or more protective than the Neuse River buffer rules (15 A NCAC 2B.0233) for the parts of their jurisdictions that are within the Jordan Lake watershed. These buffer requirements shall be subject to approval by the Division of Water Resources after consultation with the Division of Water Quality and shall be adopted as local ordinances.

NOTICE: The holders of this certificate are jointly and severally responsible for compliance with the terms, conditions and requirements stated herein, and are therefore jointly and severally liable for all penalties assessed to enforce such terms, conditions and requirements as provided in G.S. §143-215.6A.

This is the _____ day of _____, 2001.

David H. Moreau, Chairman