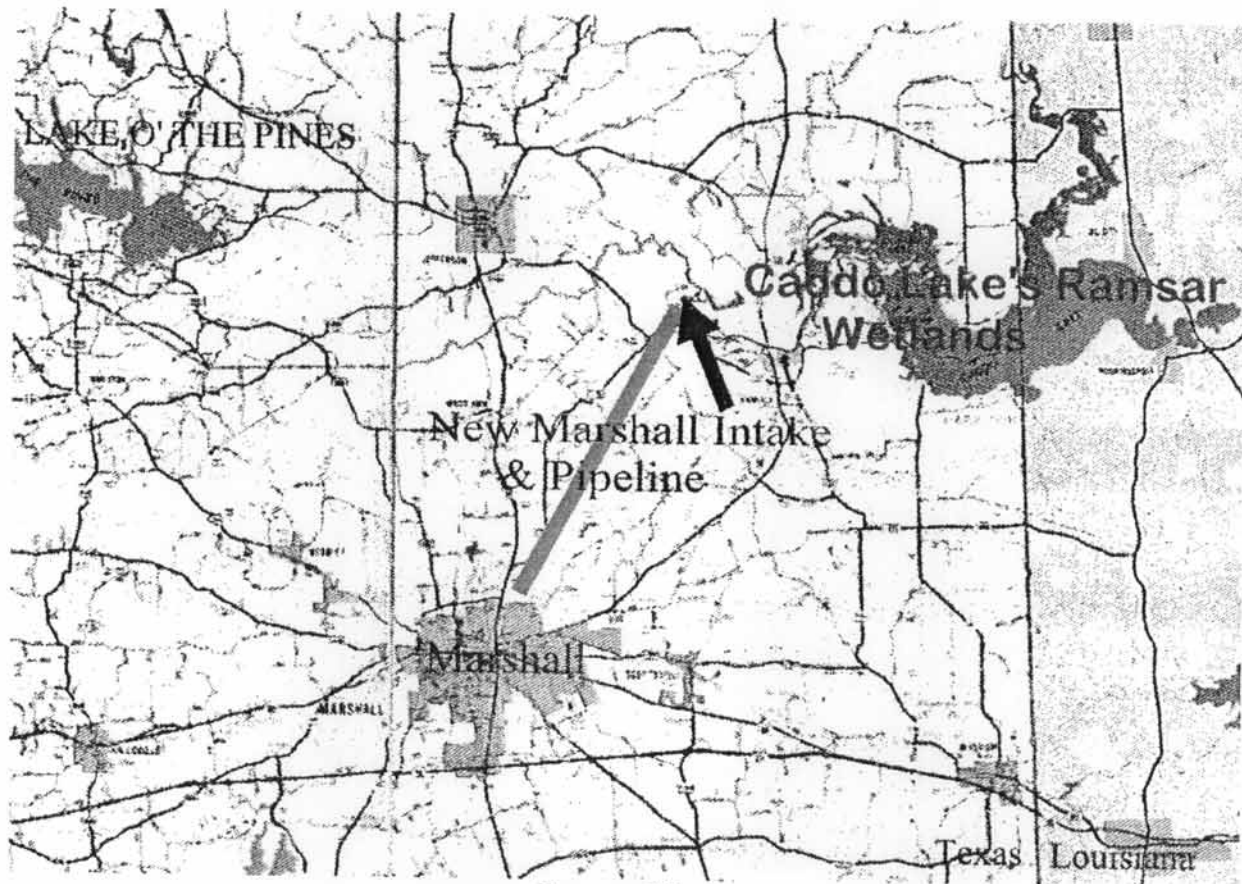


**CADDO LAKE
&
THE NEW MARSHALL WATER INTAKE**

An Evaluation of the U.S. Army Corps of Engineers Nationwide Permit Issued
To the City of Marshall, Texas in 1998
for Replacement of the City's Raw Water Intake and Pipeline
on Big Cypress Bayou



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EXECUTIVE SUMMARY

Marshall's 1998 Nationwide General Permit (NWP) for a new intake and pipeline in Big Cypress Bayou is void. NWP's may only be issued by the Corps for specific categories of activities whose "direct, indirect or cumulative" impacts on wetlands are "minimal", in order to comply with pre-existing federal categorical approvals under the federal regulations and the National Environmental Policy Act (NEPA). This project's undisclosed wetland impacts were not minimal. Therefore, the project could not be authorized under a NWP.

Marshall induced the Corps to issue this invalid NWP by failing to disclose known indirect and cumulative wetland impacts of the new intake's potential effect upon Caddo Lake and its associated "wetlands of international importance."

Marshall's representations of minimal wetlands impacts, which misled the Corps to find that an NWP was appropriate, included the following:

1. Marshall's 1998 Wetland Investigation report to the Corps misstated that the potential wetland impacts of the project would only occur, and would be restored, within the limited areas that would be disturbed by Marshall's construction activities. Marshall did not disclose that the 1998 project was situated within or immediately adjacent to the Caddo Lake's important and sensitive wetlands ecosystem. Aquatic life uses and other water quality concerns have resulted in inclusion of Caddo Lake in the list of "impaired waters" under Section 303(d) of the Clean Water Act. Caddo Lake (at spillway elevation 168.5' msl) and its "associated" wetlands (up to elevations under 175' msl) were officially delineated by the US Fish and Wildlife Service as *Resource Category 1 Habitat*. This delineated area included refuges and sensitive wetland areas owned by Texas and the U.S. government, as well as the 20,000 acre "Caddo Lake Ramsar Site" which had been designated as a "wetland of international importance" under the treaty called the Ramsar Convention.

2. Marshall represented that its intake was "above Caddo Lake". In fact, both the old and the new intakes were well below Caddo Lake's Spillway and RC-1 elevations:

New Intake's 153' msl distance Below (-) Old Intake's minimum pumping elev. (165' msl)	New Intake's 153' msl distance below (-) Caddo Lake Spillway elev. (168.5 msl)	New Intake's 153 msl distance Below (-) 1993 USFWS Resource Category 1 Habitat elev. (175.0' msl).
-12 feet below Old Intake	-15.5 feet below Spillway	-22 feet below RC-1 elev.

3. Marshall did not disclose that lowering the new Intake's "invert" elevation coupled with installation of increased pump capacity would implement a 20-year old plan to double Marshall's raw water withdrawals (from 10 MGD to 20MGD). This would substantially improve Marshall's ability to induce increased "reverse flows" from Caddo Lake during seasonal periods of low inflows. Marshall did not disclose that the new intake's increased capacity contemplated substantial changes and increases in water use, by contracts and water permit amendments allowing previously un-permitted raw water sales to industry. These changes could increase diversions to double or triple over past, and projected future, treated municipal water needs.

4. Marshall's new intake is unlawful. An individual permit application is required; it must comply with Corps and EPA regulations, NEPA, and public notice requirements. If Marshall's application can meet the "least damaging alternative test" (which is questioned) the Corps can issue an Individual Permit—with appropriate conditions to assure that the operation of the intake will not result in "significant degradation of wetlands".

I. INTRODUCTION

This report describes matters that were not disclosed by the City of Marshall, Texas that induced the U.S. Army Corps of Engineers to mistakenly verify the availability of Nationwide General Permit to permit Marshall to install a new raw water intake and pipeline to "replace" the predecessor installations.

On October 22, 1998, the U.S. Army Corps of Engineers, Fort Worth District (Corps) verified Department of the Army nationwide general permit authorization for the proposed reconstruction of the City of Marshall's water intake structure in Big Cypress Bayou, Harrison County, Texas. The Corps determined that the proposed reconstruction project required a Department of the Army permit under both Section 404 of the Clean Water and Section 10 of the Rivers and Harbors Act of 1899. According to the Corp's October 22, 1998 letter to Advanced Ecology, Inc., the Town of Marshall's agent, the project was authorized by nationwide general permit number 12 provided the work was in compliance with the specifications and conditions listed for the nationwide permits (NWP) (Corps 1998).

Upon receipt of this NWP approval, Marshall installed the new municipal intake --- about 12 feet below the old intake's minimum pumping elevation---and a new pipeline to its treatment facilities. These improvements had the undisclosed effect of doubling Marshall's daily pumping capacity. This realized an undisclosed 1979 water supply plan to substantially increase Marshall's capacity to enlarge its capacity for "reverse flow" pumping of water stored in Caddo Lake's "wetlands of international importance".

The Marshall NWP is inapplicable and void as a Federal Permit authorization for this installation. Marshall's non-disclosures resulted in the Corps' understandable failure to comply with the mandatory requirements of its own permitting regulations, the Corps permitting agreements with U.S EPA, and the mandatory provisions of the National Environmental Policy Act (NEPA).

This report addresses the permit processes that apply to this type of project, the Corps Federal regulations that should be applied to this project, potential remedies the Corps could pursue to rectify the matter, and the potential impacts the new water diversion capability authorized by the nationwide permit could have on the Caddo Lake ecosystem. This report will document that the Corps was not aware of the change in diversion capability at the time it authorized the project, and once aware, that the Corps is required to consider the secondary impacts to the aquatic ecosystem through the individual Department of the Army permit process.

II. BACKGROUND

1) Caddo Lake

Caddo Lake straddles the Texas-Louisiana border and was originally formed by a backwater event on Big Cypress Creek caused by a natural logjam on the Red River in Louisiana. The lake is fed by the Cypress River Basin, which has a drainage area of approximately 2,812 square miles with one major stream, Big Cypress Creek, which is joined above Caddo Lake by two principle tributaries, Black Cypress Bayou and Little Cypress Bayou (KSA 2001). Caddo Lake is said to be the only naturally formed

Lake in Texas. To aid navigation, the Corps removed the log jam in the 1800's which changed the nature of the lake system until 1913 when a dam was placed on the outlet for flood control and to recreate the lake backwater to facilitate oil exploration. The current dam was placed in 1971. Bald cypress (**Taxodium distichum**) is the dominant tree in the diverse wetland community within and surrounding the lake. The lake and wetlands are very shallow, especially within the Texas portions, with an average depth of 6 feet and a maximum depth of 20 feet, primarily on the Louisiana portions of the lake. Due to the structure provided by the cypress trees, the lake supports an excellent sport fishery with good numbers of trophy largemouth bass (Texas Parks & Wildlife 2002). The lake has been characterized as the epitome of fish habitat supporting high populations of largemouth bass, black and white crappie, channel catfish, and other species (U.S. Fish and Wildlife Service 1993). This sport fishery is important to the local economy accounting for over half of the tourism income for the area (Caddo Lake Chamber of Commerce 2002 – personal communication).

In October 1993, approximately 8,000 acres of the Caddo Lake wetlands system were designated by the Texas Parks and Wildlife Department and the United States Department of Interior as the 13th Ramsar wetland site in the United States. The Ramsar Convention is an international treaty which has been signed by the United States and more than 100 other nations. Its purpose is to designate and provide for conservation and wise sustainable use of wetlands of international importance. By designating Caddo Lake as a Ramsar wetland, the U.S. commits to working for the "conservation and wise use" of the Caddo wetland ecosystem. The 1993 Ramsar designation was enlarged in 1996 to include over 20,000 acres of submerged and emergent lands on the Texas portions of Caddo Lake, including wetlands owned by the state of Texas and the U.S. government.

The 1993 and 1996 Ramsar designations were based in part upon the special ecological attributes recognized in 1993 by U.S. Fish and Wildlife Service's Resource Category 1 designation.

In mid-1993, the U. S. Fish and Wildlife Service (USFWS) designated Caddo Lake and its associated wetlands up to 175' msl in Texas and Louisiana as a Resource Category 1 Wetland under its Mitigation Policy (USFWS 1993). This delineation took special notice of the importance of the extensive biodiversity of these wetlands; their high quality sports fishery, as well as their rich assemblages of habitat important to migratory waterfowl and neo-tropical songbirds.

The USFWS's Mitigation Policy is an effort to provide consistent recommendation nationwide for the protection of fish and wildlife habitats. Resource Category 1 is the highest level of protection effort the USFWS designates for an area. Caddo Lake received this designation due to the unique fish and wildlife attributes of this ecosystem. The area so delineated in the Caddo Lake Resource Category 1 designation extends from the spillway at elevation 168.5 feet upstream on Big Cypress Bayou to the vicinity of Stumpy Lake on Highway 43 and includes "associated backwaters, sloughs, cypress swamps, and bottomland hardwood forests to approximate elevation 175.0 ft. above msl". (USFWS 1993).

The Ramsar and the Resource Category 1 designations exemplify the unique and diverse ecological attributes of the Caddo Lake aquatic ecosystem. This report does not attempt to document the importance of the Caddo Lake ecosystem, others have documented that fact well; however, the uniqueness and quality of the system elucidates the need for careful review of projects that impact Caddo Lake including the project which is subject of this report.

2) History of the City of Marshall Water Project

The City of Marshall (the City) historically used the intake at Big Cypress Bayou since 1949, diverting an average of 5,614 acre-feet annually over a 50-year period (1949 to 1999). Marshall is located in the Sabine River watershed and thus municipal return flows do not reach Caddo Lake.

The historic Marshall intake structure is located on the Big Cypress Bayou 3 miles easterly of the Highway 43 Bridge crossing of Caddo Lake. The historic intake was only capable of pumping down to 165.0' msl (about 3.5 feet below the Caddo Lake Spillway) and then only up to its maximum capacity of 10 Million Gallons Per Day (MGD). (KSA, 1979, p. I and pp. II-21-22) Pumping water from Caddo Lake was not expressly authorized by the language of Marshall's water rights permit from the State of Texas.

In 1970, Marshall petitioned the Texas Water Rights Commission to amend its so-called run-of-the-river "flow" water rights permit, so as to also authorize the use of storage water in Caddo Lake, up to 25,000 acre-feet (City of Marshall 1970). The City was concerned that Big Cypress Bayou flows were seasonally insufficient to meet projected future water needs during low flow periods, and desired to use Caddo Lake storage by pumping Caddo Lake water back to the existing diversion point. *The City's 1970 request for a storage water right amendment was not granted.*

3) KSA 1979 Water Supply Study; the Caddo Lake Compact "alternative".

Since 1979 the City had planned the new infrastructure additions that were constructed after the Corps nationwide permit was issued in 1998. In 1979 the City obtained the Kendall, Stone & Associates (KSA) engineering study entitled "Marshall Water Supply Study" (KSA, 1979).¹ The KSA study showed that by 1979 the City's pumping activities had periodically induced "reverse flows" of water from Caddo Lake:

"While there is normally a sufficient flow in the Bayou to meet the water demands of the City of Marshall, it is not uncommon for 'reverse flow' from Caddo Lake to the City's intake structure to occur during periods of low flow in the Bayou. As will be described in Section III of Part II of this report, it is unclear as to whether the City of Marshall has a right to this "reverse flow" of water from Caddo Lake since the City's permit makes no mention of the use of stored water from Caddo Lake, or the right to store water from the Bayou for deferred use." (Emphasis added.)

¹ The KSA 1979 "Marshall Water Supply" study is attached as an Appendix.

"A resolution of this problem has recently become necessary, as the City's demand for water increases and the City of Shreveport negotiates rights to a portion of the storage in Caddo Lake." (KSA 1979, P I-V, Section IV, "Existing System".)

After reviewing several alternatives and options² to improve the reliability of raw water supply sources, the 1979 KSA report recommended the Caddo Lake Compact alternative. Under this recommended alternative the City would participate in raising the dam at Caddo Lake in exchange for the right to pump the additional storage that would be so created. In order to realize this additional storage, KSA noted the need for new intake and pipeline facilities to increase diversion capacity from 10 MGD to 20 MGD. This doubling of diversion capacity—albeit without the assumed Caddo Lake Compact's increased storage levels—was what Marshall actually installed upon receipt of the 1998 NWP approval, as demonstrated by the following KSA language.

"With this [Caddo Lake Compact] alternative, the City could continue to depend on Cypress Bayou (Caddo Lake) for its total water supply needs. Raising the level of Caddo Lake by two feet, as recommended by the Caddo Lake Compact, will increase its firm yield to approximately 48 mgd, of which one-half, or 24 mgd, would belong to the state of Texas. (With this increase in firm yield of the Lake and by virtue of the fact that the City's present intake structure is at an elevation well below the maximum draw-down allowable in the lake under the terms of the Compact (elevation 167.5), the City of Marshall would be assured a supply of 20 mgd from the Bayou that should meet their water supply needs to the year 2000.) (Emphasis added.)

"In order to utilize the available storage in the lake, a new intake structure and pipe station, with a capacity of 10 mgd would be constructed to supplement the present pump station, which has a capacity of approximately 10 mgd. An additional 30" transmission line would parallel the route of the existing 24" line

² In general, this 1979 KSA study considered three alternatives to provide additional water supply sources for Marshall, with several options under each alternative. Alternative 1, Options 1 and 2 are the most relevant to this report (Page I-2), and this alternative comports with the proposed Caddo Lake Compact described on Page II-16-18 of the KSA report. The Caddo Lake Compact involved a proposed agreement between Texas, Louisiana and the Federal Government over the use of water available in Caddo Lake and was designed to augment the Red River Compact (KSA 1979). Among other items, the Caddo Lake Compact called for increasing storage in Caddo Lake by raising the spillway elevation two feet with each state sharing in both the construction costs and additional water made available proportionally based on each states contribution to construction. The Compact held that a minimum recreational and navigation pool of 167.5 msl would be maintained and that if any user of water purchased water for delivery to Caddo Lake from another source, that water would be available to that user minus transportation and storage losses. The U.S. Congress never ratified the Caddo Lake Compact and therefore the agreement was never implemented. Alternative 1, Option 1 in the KSA study, described in more detail on pages III 19-24, calls for the City to participate in raising the spillway elevation of Caddo Lake by 2 feet in accordance with the Caddo Lake Compact (KSA 1979). This would increase firm yield to 48 Million gallons per day (MGD) of which 24 MGD would belong to Texas. The City would assume most of the cost of construction for Texas as the City desired to use as much of the available storage as possible (KSA 1979). On page III-21, KSA describes the additional work the City should undertake to utilize the water made available by spillway modifications: "In order to utilize the available storage in the Lake, a new intake structure and pump station with a capacity of 10 MGD would be constructed to supplement the present pump station which has a capacity of approximately 10 MGD. An additional 30-inch transmission line would parallel the route of the existing 24-inch line to the raw water storage reservoir" (KSA 1979). The new intake structure, the additional pumping capacity and the new water line (20" parallel to the existing line are substantially what the City constructed under the Corps 1998 NWP authorization.

to the new raw water storage reservoir." (KSA, 1979, p II-21-22) (Emphasis added)

The Caddo Lake Compact was never ratified. The level of Caddo Lake's dam was never raised. In spite of this, Marshall simply installed the doubled intake and pipeline capacity after receiving the 1998 NWP.

4) Corps 1997-1998 NWP record.

In 1997, 18 years after the KSA's 1979 Marshall Water Supply recommendations, the City's agents contacted the Corps to discuss NWP authorization to "replace" the existing intake and pipeline. This was to occur by constructing a new intake structure, constructing a new pipeline to the City, and building a pumphouse (KSA 1997). According to the application submitted by Advanced Ecology, Inc., the pumphouse would be in uplands, the pipeline would impact jurisdictional areas, including both wetlands and stream channels, at 27 locations, and the proposed intake structure would extend into Big Cypress Bayou 40 feet (Advanced Ecology Inc. 1998). Approximately 250 feet of the pipeline from the intake to the pumphouse would impact a cypress slough adjacent to the bayou, but the slough as well as all impacts for the entire length of the pipeline would be returned to pre-construction contours and revegetated.

It is quite clear from the Corps file (abstracted next) that the NWP request was to "replace the existing intake and pipeline", and that disclosure of wetlands impacts was limited to areas to be damaged by construction activities.

Abstract of Ft. Worth District (FTW) Corps file for Marshall NWP

10/29/97 Letter: John Ringler of KSA to Mary Flores FTW Corps re: "City of Marshall Raw Water Intake, KSA Project MQ-077"

"The City of Marshall has initiated renovations to their existing raw water intake. The intake is located on the Big Cypress Bayou above Caddo Lake. We are completing a preliminary engineering report and several options are available for replacing the existing intake. [The letter requests a meeting 11/4/97 to discuss] (Emphasis added)

11/4/97 FTW Corps Conversation Record form filled in with handwritten notes by Walker summarized a conversation with Joncie Young of KSA and Cecil Forester of the City of Marshall. This note confirmed that the project was a replacement project of both the intake and the pipeline, with the most emphasis on the pipeline Right Of Way (ROW):

"We discussed their plans to replace the existing raw water intake structure and pipeline ASAP. Project is 77,000' long & the existing ROW is 30'. They will have some temporary impacts outside the ROW during construction. We excluded NW3, since maintenance dredging will be needed. However, the new line is going in the same ROW while the old line continues to be used. The [sic] are still finalizing plans for the new intake, which may extend into the waterway. They seemed willing to alter the plan to stay within a general permit

if needed. It appears RGP2 and/or NW12 & LOP2 are the likely permit options. I told them forested wetlands impacted by temporary construction would need replanted. They agreed to do a delineation so exact impacts could be tabulated." (Emphasis added)

The Corps file suggests that on 11/4/97 Walker was led to believe that the most significant feature of the Project was the new pipeline.

See the foldout USGS QuadMap copy near the above letter and the Conversation record. This foldout shows the new pipeline alignment as a dark line annotated with engineering stations (110+00, etc) extending southeasterly from "Pump Station Rd" (near Cypress Bayou). The new alignment is superimposed upon or is adjacent to the USGS mapped Marshall "aqueduct" alignment. This line is labeled "Project Location", with the label pointing to the middle of the pipeline (Emphasis added).

Marginal notes, perhaps by Walker, inserted on the Map near Cypress Bayou, state: "Intake structure" and "Cypress Slough".

3/6/98 Walker appended a note to above Conversation Record:

"Terry Anderson called to say they are doing the wetland delineation. 409-598-9588. I sent him the LOP2 & RGP2."

As noted by the next item, this phone number was that of KSA's wetland subcontractor, Advanced Ecology, Inc. (AEI) of Center, Texas.

9/16/98 (COE date stamp) 6 page **Report by Advanced Ecology, Inc.**, Center Texas (409.598.9588) entitled "**Wetlands Investigation for City of Marshall**" (etc.) KSA Project MA-082, USACE Project 199700699. This report stated that it used USACE methods to delineate and assess the impacts upon 28 "jurisdictional wetlands" along the pipeline ROW by survey stations noted in the above "Project map". **Section VIII "Impacts"** addresses only the "Pipeline Corridor", the "Pump Station" and the "Intake Pipe and Structure". Findings "no long-term negative impacts to wetlands" are limited to these areas:

Appendices to AEI's report included the following:

- Topographical Maps of the pipeline corridor labeled "Caddo Jr Project" (referring to the Marshall reservoir at the end of the pipeline that is used to hold raw water prior to treatment)
- Plan/Profile for Raw Water Supply Headwall Intake 10 (KSA 7/28/98 rev) Section B/B Elevations are shown as follows (Note that all these elevations are below the spillway elevation of Caddo Lake (168.5 MSL).
- Features of Marshall's drawings reflected in Plan elevation & Distance relative to Caddo Lake Spillway 168.5' MSL:

Footer bottom of new intake in streambed:	151'-0"	-17.5'
Top of Footer/Bottom of 60" new intake pipe	153'-0"	-15.5'
Center of new intake pipe:	_____	156'-0' -12.5'
Top of new Intake Pipe (est)	_____	159'-0' -9.5'
Top of restored Cypress Bayou stream bank	171'-0"	+2.5'

9/24/98: Walker, Conversation Record form noting a conversation with Lance Jones (Advance Ecology Inc, or AEI), stating that Walker requested "data sheets and maps with stations for each (stream) crossing" along the pipeline.

10/6/89. Letter from Lance Jones of AEI to Walker transmitting an Addendum for the "Caddo Jr. Project", such as maps with stations for each crossing, specific delineations sheets, grading plans for the raw water pumping station and intake structure, and historical commission clearance letter.

"At this time, AEI feels that submittal of this additional information meets the requirements of the Nationwide Permit 12 guidelines." (Emphasis added)

10/22/98: Stan Walker's **Regulatory Decision Sheet** reflects completion of USACE 404/10 processing with a recommendation for a NWP 12 based upon the continued understanding that the project was a replacement project with impacts limited to the areas directly disturbed by construction:

"Based upon . . . information provided by the applicant, we have determined that the intake construction and pipeline replacement, with mitigation offered by the applicant (restoration of impacted areas) would have minimal adverse impact on the aquatic ecosystem." (Emphasis added.)

10/22/98 Letter, Wayne Lea, Chief Regulatory Branch, FTW Corps to Lance Jones AEI, thanking Jones of October 6, 1998 letter. Lea's letter states, *inter alia*;

*"Based upon your description of the proposed work and other information available to us, we have determined that the project will involve activities subject to the requirements of both Section 404 and Section 10. * * * Failure to comply with these specifications and conditions invalidates the authorization and may result in a violation of the Clean Water Act."* (Emphasis added.)

* * *

"We have determined that this project is authorized under nationwide permit 12 for Utility Line Discharges. To use this permit, the persons responsible for the project must insure that the work is in compliance with the specifications and conditions listed in the enclosures." (Emphasis added.)

The Lea letter enclosed NWP12 form (showing language prior to recent amendments) as well as a form entitled **Permit Compliance Certification**, which the letter states

must be completed and returned to the Corps "within 30 days of the completion of the work."³

Thus, on the surface, the project presented to the Corps could be authorized by nationwide permit 12, as the project involved a utility line and intake structure replacement, and all contours in jurisdictional areas would be returned to pre-construction elevations. This was possible because there was no disclosure in the application or file that the project would substantially increase the City's diversion capability, or that this could indirectly or directly impact Caddo Lake and its associated wetlands beyond the areas to be disturbed by actual construction.

III. DISCUSSION OF UNDISCLOSED IMPACTS.

1) Undisclosed increased diversion and "reverse flow" impacts.

A review of the 1998 NWP permit application that was submitted and the Corp's file on this project reveals that the only impacts discussed by the applicant's agent or considered by the Corps were the direct impacts of pipeline and intake construction. The Corps considered the project a simple replacement of the existing intake structure and pipeline. This is evident in the Corps conversation record by Stan Walker (Project Manager with Corps) documenting his conversation with a Mr. John Ringler of KSA Engineering, Inc. (Corps permit file).

According to the record, they discussed plans to replace an existing raw water intake structure and pipeline. They "excluded NWP 3 since maintenance dredging will be needed." The fact that Mr. Walker considered using nationwide permit 3 for Maintenance indicates the Corps was not aware of the intent of the intake reconstruction project. Nationwide permit 3, which is the appropriate permit for repair, rehabilitation or replacement of any previously authorized, currently serviceable, structure or fill, *provided that the structure or fill is not put to uses differing from those uses originally contemplated in the original permit or most recently authorized modification*. It will be demonstrated below that the intake structure would be put to different uses, but the fact that the Corps official considered using NWP 3 indicates the Corps was not aware of that intent. Nationwide permit (NWP) 3 was excluded because maintenance dredging was required for this project, and NWP 3 cannot be used to authorize projects with maintenance dredging (33 CFR Vol. 61, No. 241, pg 65914).

A telephone conversation with Mr. Stan Walker (Corps) on 3/12/02 confirmed that the Corps did not consider impacts from this project other than the direct impacts due to construction. The Corps has become aware of the new intake structure's diversion capability and now is considering its regulatory responsibilities on this project (Walker 2002).

³ We note, parenthetically, that the improvements were completed in 2000. This Certification of completion was not completed or filed with the Corps within the time specified in the NWP, which has technically lapsed for non-compliance.

The basic intent of the old and new intake structures remained the same, to divert raw water; however, the amount of water these intakes were capable of diverting changed and the purpose of the diversion changed substantially. In addition to substantially increased pump capacity, the new intake was lowered to enable the City to divert more water during low flow periods. The invert elevation of the new intake pipe was placed 15.5 feet below the spillway elevation on Caddo Lake (spillway at 168.5 msl, invert elevation on plans at 153 msl.) This is significant because at low flow periods each year, very little, if any, water flows in Big Cypress Bayou. Review of the U.S. Geological Survey (USGS) historical stream gauge records reveal that zero cfs passes the upstream gauges on Big Cypress, Black Cypress and Little Cypress Bayous from mid June to mid September. In fact, the gauges read 0 cfs at times. During these months, the bayou is a linear extension of Caddo Lake providing no inflow into the lake. Once the lake level drops below the spillway elevation, there is no flow over the spillway from Caddo Lake, known in Caddo Lake management as "no spill days". The lake has a static water level for part of each year and this period is extended during drought conditions. By increasing pump capacity and lowering the invert elevation of the new intake pipe farther below the spillway elevation, the City is better able to increase its use of Caddo Lake as a storage reservoir, pumping larger quantities of water from the reservoir than the old intake would have permitted -- especially during periods of seasonal low flows and drought. This clearly increased the ability to induce the "reverse flow" conditions described in the KSA report (KSA 1979).

2) Undisclosed Industrial raw water sales; water permit amendments.

A significant non-disclosure was the fact that "indirect and cumulative impact" of the new intake would include major increases in water use--through new Industrial raw water sales. Marshall's historic sales of treated "municipal" water were not projected to significantly increase in the future. The new intake, however, would permit Marshall to double or triple future raw water diversions and sales, for the new purpose of delivering raw water to industry.

The City has since publicly acknowledged that the new lowered intake now allows Marshall to divert the targeted 20 MGD to supply new industrial raw water sales, as well as historic treated municipal water sales. One such acknowledgment appeared in a Marshall News Messenger report of the Marshall City Manager's statements at a meeting of the Marshall City Commission in July 2001. Headlined as "**Water sales will not affect city's supply**", Rebecca Hopkins, reporter, stated that

"A proposal by the city to sell 5.5 million gallons of raw water daily to a power plant south of town will not impact the water supply to Marshall residents city officials say. * * * Residents have expressed the concern that drought, coupled with heavy industrial use could leave customers high and dry. * * * City Manager Frank Johnson said that a lower intake valve installed last year allows the city to use up to 20 million gallons of water a day."

Non-disclosure by Marshall of its intentions--to lower the new intake for the purpose of doubling its water diversions to 20 MGD, and to sell increased diversions for large new industrial raw water users--were highly relevant to the NWP request.

Had this intended new industrial use been disclosed in 1998, the Corps would have required an individual permit application. Moreover, an individual application would have precipitated (as it did when later disclosed in 2001) widespread public concern to support Corps permit decision-making to avoid the potential impacts of industrial water diversions on Caddo Lake and its associated wetlands.

Marshall's pre-existing, but undisclosed, industrial water sale strategy only became apparent in 2001 --after the new intake and pipeline were already in operation. In mid-2001 Marshall announced it had contracted to sell an additional 5.5 MGD of untreated "industrial" water to a new power plant. This proposed sale was, in turn, used as justification for a Texas water right amendment, to add "industrial" raw water sales to the City's municipal water permit, up to 16,000 acre feet per year. Marshall's historic and projected future treated "municipal" water sales are estimated to be between 5,000 and 6,000 acre feet per year. Thus, it can be seen that the NWP had the effect of not only creating an intake capacity that would double instantaneous pumping capacity, but also the basis for "bootstrapping" changes in annual water sales to support water permit amendments to cumulatively triple Marshall's historic and projected Municipal water sales!

The water permit amendment filings show that the new intake project changed the City's probable diversion capability --from the historic 6000 acre-feet per year to 16,000 acre-feet. The instantaneous diversion rate changed from 15 cfs to 50 cfs (TNRCC Permit Amendment Filings, 2002).

Although not disclosed to the Corps in 1998, the City apparently planned to use the 1998 NWP enlargements to support industrial water rights amendments, to be satisfied in low flow periods by increased "reverse flow" pumping of Caddo Lake's wetlands. The legal questions about whether the City's water permit allowed use of Caddo Lake as a storage reservoir, by reverse flow pumping water in the lake during low flow periods in Big Cypress Bayou, is documented in the 1979 KSA report. KSA states " While there is normally a sufficient flow in the bayou to meet the water demands of the City of Marshall, it is not uncommon for "reverse flow" from Caddo Lake to the City's intake structure to occur during periods of low flow in the Bayou. An intention to claim the right to do this --to be premised on the intake and pipeline enlargements-- is both an indirect and cumulative impact on Caddo Lake's wetlands. Had Marshall disclosed this objective, the question could and should have been addressed under NEPA and through Corps regulatory oversight. The increased "reverse flow" potential of lowering the new intake's elevation below the elevation of the old intake and farther below Caddo Lake's spillway elevation had been well understood since 1979.⁴

⁴ KSA's 1979 report explained that the City was able to physically use Caddo Lake as a storage reservoir because the City's intake structure is seasonally lower than the lake level (KSA 1979 pg. II-15). KSA's report also raised the question that the City's water rights permit "makes no mention of the use of stored water from Caddo Lake or the right to impound water" (KSA 1979 Pg. II-13)], "nor the right to store water from the Bayou for deferred use" (KSA 1979 page I-5-6)

This KSA report stated that although "reverse flow" withdrawals have created little or no effect on the lake level (in 1979), with the future demand of the City, plus the City of Shreveport's withdrawals, "lake elevations could be substantially reduced during the summer" (KSA pg. II-16). According to KSA, it was this possibility of increased pumping of Caddo Lake that led to the development of the "Caddo Lake Compact Alternative" discussed above. Even the Caddo Lake Compact, although calling for increased storage in the Lake, established a "conservation pool" elevation limitation on pumping withdrawals at 167.5 feet above msl. As is discussed next, this limitation was one foot below the spillway, rather than the 15.5-foot draw down which Marshall's new intake and water rights claims now reflect!

Thus, in 1998 the City moved ahead with the new improvement to increase water diversions and reverse flows, but without first satisfying the Caddo Lake Compact Alternative's pre-conditions --of increased storage, minimum conservation pool levels or supplemental flows.

Recent filings in the City's TNRCC water permit amendment filings included the City's approved Water Conservation Plan. This was developed to satisfy the Texas Natural Resource Conservation Commission's requirement that such plans accompany Water Rights Permit amendments. (City of Marshall 2001). This plan documents the City's complete indifference to the potential effects of the new Intake's increased diversion capacity on the Caddo Lake aquatic ecosystem. According to the City's plan, the City will not even start water conservation measures until the water level drops to 1 to 3 feet above the new intake pipe (City of Marshall 2001). Since the invert elevation of the new intake pipe is at an elevation of 153 feet above msl, this means that the City proposes to draw down Caddo Lake to between 154 and 156 feet above msl, before commencing conservation measures.

This means that the City plans to only start water conservation measures after Caddo Lake levels had fallen to between 12.5 and 14.5 feet below the spillway elevation (168.5' msl). Caddo Lake is very shallow on the Texas side. When depths on both the Louisiana and Texas sides are averaged, the average overall depth is 6 feet and the maximum depth is 20 feet on the Louisiana side. The fact that the entire "associated wetlands" that were included in the RC-1 designation range in elevation from 168.5 feet at the spillway to an approximate elevation of 175 feet above msl (USFWS 1993), a variance of only 6.5 feet, documents the low topography landscape over this 30,000 plus acre system. The change in water elevations, 12.5 to 14.5 feet, of more than twice the relief present in the system that is allowed by the new diversion and planned by the City during drought emergencies should be enough to demonstrate clearly the potential impacts of the City's project.

Prior to construction of the new intake, the invert elevation of the old intake structure was 160 feet above msl; however, due to pump capacity restrictions, the maximum they could pump the lake down to was approximately 165 feet above msl (KSA 1979 page I-6). If the City claims water conservation measures will not start until the lake is down to 154 to 156 feet above msl, then one must assume they have the pump capacity to affect withdrawals to that lower level. This means the City can now lower lake levels down 10 feet lower on the average than their original capacity. Since Caddo Lake is a very shallow lake (avg. depth 6 feet) and the wetland landscape is

very level, an average decrease in water levels by 10 feet is a significant impact, which will drastically change the aquatic environment. Although this would have significant impacts to the aquatic ecosystem of Caddo Lake in both Texas and Louisiana, it could also impact water supplies to the State of Louisiana, which would seem to require assessment of impacts upon Louisiana water users and the Red River Compact.

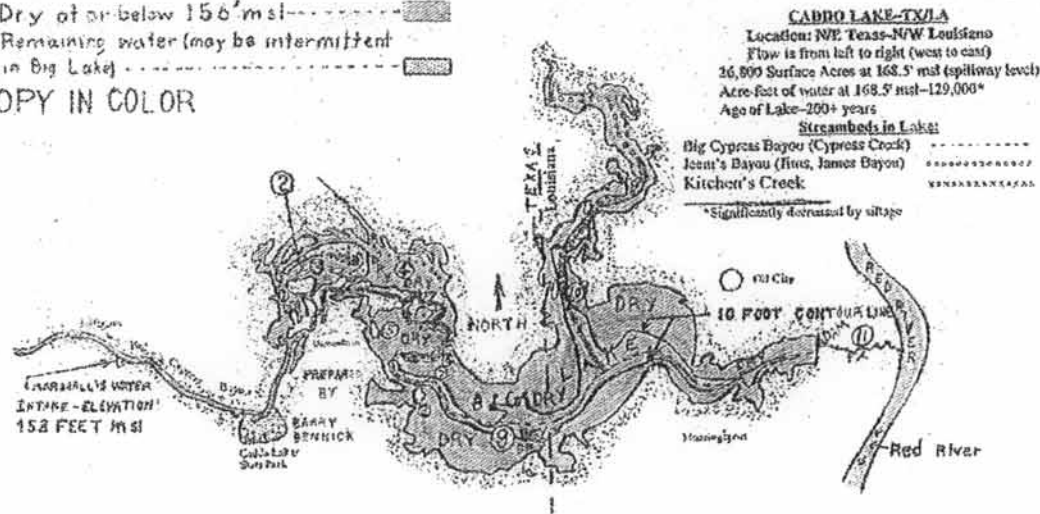
This potential water level variation would severely impact the aquatic ecosystem of Caddo Lake by degrading water quality in an impaired waterway (303d list), potentially devastating an important sport fishery and thousands of acres of migratory bird and other wildlife habitat, as well as severely limiting navigation on the Lakes waterways. The Bennick bathymetric analysis (2002), based upon mapped water depths, is a non-technical precursor of the type of NEPA analysis that would have been required if Marshall had disclosed its true intentions to the Corps in 1998. Even this rudimentary analysis discloses the potential impacts of this conservation plan and they appear "significant". Bennick is an outfitter and host of canoe visitors to Caddo Lake's wetlands, and very familiar with Caddo Lake. Using the state's A.I.D. and navigation maps of lake bottom elevation soundings, his analysis provides maps of lake level at varying elevations. The following map compares Caddo Lake's 30,000-acre wetlands surface configuration at spillway water level with Bennick's estimation of lake configuration at 156' msl.

CADDO LAKE - DRY at elevation

MAP 3 color 156' msl

- Dry at or below 156' msl -----
- Remaining water (may be intermittent in Big Lake) -----

COPY IN COLOR



Locations of Major Lake Areas

(Flow is from left to right (west to east))

- Caddo Lake is a collective name for the following representative areas of water in Texas and Louisiana:
- | | |
|----------------------|---|
| 1. Carter's Lake | 7. Dragover |
| 2. Carter's Chute | 8. Old Folke Playground |
| 3. Back Lake | 9. Big Lake |
| 4. Clinton Lake | 10. Jean's Bayou |
| 5. Uncertain Area | 11. 42 mile Bayou (stream below Big Lake emptying into the Red River) |
| 6. Ames Spring Basin | |

In short, Bennick's analysis shows that, during a drought emergency, Marshall intends to continue to divert historic municipal and new industrial water from Caddo Lake, an internationally recognized wetland system and important recreational fishery. Marshall will do so even after Caddo Lake becomes a string of stagnant pools at the deepest parts of the lake and even as throughout most of the area, mudflats would dominate, although they would eventually be colonized by invasive weeds present in the system. Caddo Lake and Big Cypress Creek, at least below the diversion point, would seasonally or permanently cease to be navigable waters. And as noted above, Marshall's conservation plan would not comply with the conservation provisions of even the defunct Caddo Lake Compact, which prohibited withdrawals (absent special approvals) whenever the lake levels were at or below 167.5' msl.

The impacts created by implementation of the new intake and pipeline, when considered with this conservation plan obviously require the detailed evaluation afforded by Federal law through the National Environmental Policy Act (NEPA), the Clean Water Act and the Rivers and Harbors Act. The conservation plan represents the City's bypass flow or minimum flow intentions under state regulations. The Corps must evaluate the impacts of the increased diversion rate including the worst case scenario, the conservation plan, and varying levels of flow rate created by the new diversion capacity, to be authorized by the Federal permit action. This is, in fact, what the Coalition requests – that the Corps implement its' own regulations through the Clean Water Act and Rivers and Harbors Act, and abide by NEPA regulations.

IV. NATIONWIDE PERMITS; LIMITATIONS ON ISSUANCE

The nationwide general permit program administered by the Corps was designed to handle the large volume of permit requests the Corps receives for projects, that have minimal impact on the aquatic environment. Nationwide permits are developed for categories of activities. In deciding to authorize a project under nationwide permit authority, the Corps determines "whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest" (33 CFR Parts 330, C. Vol. 61, No.241, December 13, 1996). As described in Section IV, Nationwide General Permits do not require compliance with the rigorous disclosure and assessment requirements of NEPA. NWPs have essentially been pre-authorized through past determinations under NEPA, due in large measure to the minimal nature or the activities covered. The City's project does not abide by this "minimal impact" requirement. This project's environmental effects are neither individually nor cumulatively minimal. As a result the new increased diversion capability cannot be authorized by the NWP. Rather, such diversion activities would require an individual permit, after required NEPA assessments, and public hearings, and if granted would likely include conditions to "mitigate" unacceptable impacts on the Caddo Lake wetlands ecosystem.

The nationwide permit regulations do allow an applicant to mitigate adverse impacts to create net environmental impacts, when they are minimal. The Corps approves mitigated nationwide permits where the applicant offers to mitigate the effects of their project to reduce the impacts to what the Corps would consider minimal. For this project, the City mitigated the direct impacts by agreeing to revegetate areas disturbed

by pipeline construction; however, since the Corps was not aware of the potential adverse effects of the change in diversion capability, efforts to mitigate the downstream effects were not considered.

The project does not satisfy General Condition 11 of the nationwide permits. Condition 11 states that "No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species, or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to adversely modify critical habitat for such species". The alligator snapping turtle (**Macroclemys temminckii**) is proposed for Federal listing and sightings of this species are not uncommon in Caddo Lake (Information Sheet on Ramsar Wetlands). It is certain the City's water conservation plan levels for Caddo Lake will affect this species as it will significantly degrade the entire ecosystem, but even lesser diversion amounts could affect certain aspects of this turtle's life stages. The Corps did not consider the potential impacts to this species, as they were not aware of the increased diversion capability proposed. There is no information in the Corps file to indicate that anyone satisfied the requirement to conference with the U.S. Fish and Wildlife Service as required for species proposed for listing. Nationwide permit Condition 11 precludes authorization of any project that would jeopardize even a species proposed for Federal listing,

The project as constructed does not meet the intent of the nationwide permit program. There was not any analysis performed by the applicant to demonstrate that the effects of the increased diversion rate create only minimal effects on Caddo Lake and the wetlands system. The project by its very nature has more than minimal impacts on the aquatic ecosystem; and, those impacts should be disclosed to the public and evaluated through the Corp's individual permit process. This is the appropriate permit process because it allows for public notice, and requires more detailed review of potential impacts, careful consideration of the City's water conservation plan, and Corps compliance with applicable regulations, EPA agreements and NEPA, subject to judicial oversight.

V. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The National Environmental Policy Act (NEPA) is a blanket Federal law requiring disclosure of environmental impacts that are the result of a Federal action and the consideration of public comments on that disclosure. In this case, the Federal action is the Corps permit action. The method of disclosure for a Federal agency is the Environmental Assessment (EA) for actions that do not create a significant effect on the environment, and the Environmental Impact Statement (EIS) for larger actions. Nationally, the Corps has developed a programmatic NEPA document for the nationwide permit program and disclosed the types of actions that would be authorized by nationwide permits. Each Corps District relies on this programmatic NEPA disclosure when authorizing projects under nationwide permit.

The Corps approval of the City's intake and pipeline project does not comply with NEPA. It can only be authorized by a nationwide permit that can be shown to comply with the original NEPA documentation for the nationwide permit program, by showing

project impacts whose individual and cumulative effects are minimal. The Corps could not and did not address the potential effects of the increased diversion capability on the Caddo Lake ecosystem.

The individual permit process would satisfy NEPA requirements, because that process calls for Corps disclosure of all secondary and cumulative impacts to the public through a public notice, and requires the Corps to prepare an EA to support the permit decision. If the City insists on the conservation plan as the minimum flow or bypass flow that the Corps must include in a permit decision, it is doubtful the Corps could issue a FONSI (Finding of No Significant Impact) under NEPA, which allows for disclosure with an Environmental Assessment. Without a FONSI and an EA, an Environmental Impact Statement would be required.

VI. SCOPE OF ANALYSIS

The increased diversion capability creates potential downstream impacts to the Caddo Lake ecosystem due to a reduction of Caddo Lake in-flows and "reverse flows" of water stored in the lake and its associated wetlands, especially during critical low flow periods. This type of impact is referred to as a secondary or indirect impact. A direct impact is the actual footprint of the disturbance in a jurisdictional area. Secondary impacts are impacts created by the project or by the discharge of fill material into waters of the United States, but the secondary impacts occur at a different location or later in time. The scope of analysis refers to the issues or impacts that the Corps will consider in a permit decision on a project. For the Scope of Analysis, the Corps considers what is the Federal action area and how they will evaluate secondary or indirect adverse environmental effects. The Scope of Analysis is critical for this project because this determines whether the Corps considers the downstream impacts from the diversion. The following sections demonstrate that the Corps is required to include the downstream impacts in the Scope of Analysis by regulations, by the Corps own Standard Operating Procedures, and by a brief look at other Corps decisions on raw water diversion projects.

1) Federal Action Area: The Corps must first determine the Federal action area for a permit decision and must abide by 33 CFR 325 Appendix B and C in making that determination. Appendix C concerns Procedures for Protection of Historic Properties and will not be discussed further in this report. Appendix B sets the Corps' responsibilities under NEPA.

The question being asked is how much should the project be Federalized or how much Federal control should be exerted over an otherwise private action. In many cases, the Corps is deciding whether to exert control over non-jurisdictional areas when it is clear that the environmental impacts within non-jurisdictional areas are the result of the Corps permit action. In the instant case at Caddo Lake, the environmental impacts are all restricted to waters of the United States including wetlands, which are clearly jurisdictional areas although they are removed from the physical location of the area for which a permit was requested.

Appendix B is clear at Section 7. b. 2., "The district engineer is considered to have control and responsibility for portions of the project beyond the limits of Corps

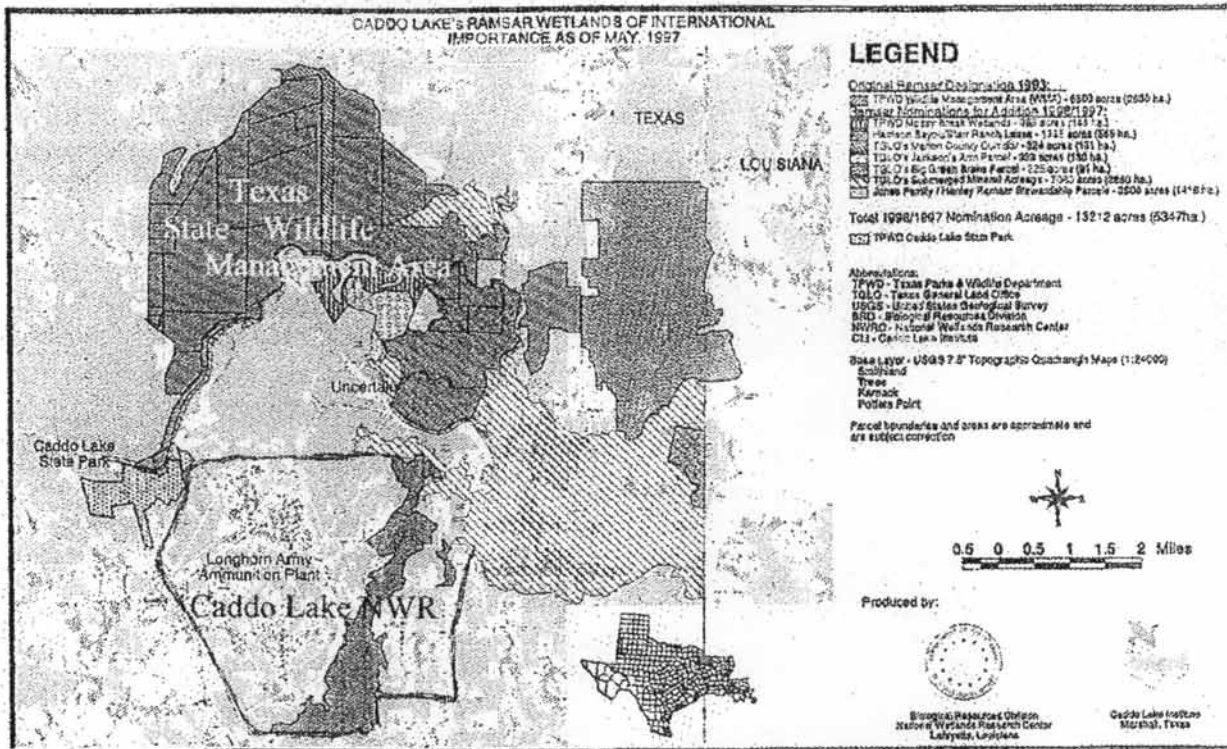
jurisdiction where the federal involvement is sufficient to turn an essentially private action into a federal action. These are cases where the environmental consequences are essentially products of the Corps permit action." The City's intake structure is a perfect example of such a case. The reconstruction of the intake structure was made possible by the Corp's permit action, there is not any other legal method to reconstruct the intake structure; and, that intake structure creates the environmental consequences in question. Those environmental consequences include impacts to water quality, wetlands, and the aquatic environment in general created by the increased diversion capability of the new intake structure.

The Corps' Standard Operating Procedures (SOP) include an example that is almost directly on point to this project. In the SOP, Part 1, 1., "Another example would be habitat and/or fisheries impacts downstream of the dam associated with hydroperiod changes. Both direct and indirect impacts of the permitted activity (e.g. road crossing to access uplands or the entire residential community in the examples above) must be evaluated within site specific and cumulative impact contexts. It is appropriate for the Corps to evaluate these impacts and render final permit decisions based on its evaluation." In this case, the permitted activity is a diversion structure rather than a dam; nevertheless, the diversion structure requires Corps authorization and creates the same hydroperiod changes discussed in the SOP. Clearly, the Corp's own SOP requires the Corps to include Caddo Lake and its' wetlands downstream of the diversion in the Federal Action area, and once included in the action area, the SOP requires the Corps to assess the indirect or secondary impacts of the diversion. The fact that Caddo Lake crosses state lines and is a navigable waterway should be enough to Federalize the project, particularly considering the potential for the City's water conservation plan to materially reduce the quantity of water that flow into or is stored in the portions of Caddo Lake that are located in, and used by Louisiana.

Although the above referenced discussion of Appendix B and the SOP should be sufficient for the Corps to determine that Caddo Lake and its' wetlands are within the Federal action area for this project, Appendix B provides additional guidance under 7.b.2.iv.A.and B. According to Appendix B, the extent of Federal cumulative control and responsibility is another factor the Corps should consider. The determination should consider whether other Federal agencies are required to take action under various other Federal laws.

For Caddo Lake and its' wetlands there is a substantial amount of Federal cumulative control and responsibility. The United States designated the Caddo Lake wetlands as a wetland protected by the Ramsar international treaty. The United States government has recognized the importance and significance of these wetlands to such a degree to list them as a wetland of international importance. The U. S. Fish and Wildlife Service is charged with Administrative Authority to administer the treaty in this country. Since this diversion will affect Caddo Lake and its' wetlands, and Caddo Lake and its' wetlands have been designated a Ramsar wetland, and the U.S. is a member of the Ramsar convention, there must be sufficient cumulative Federal control and responsibility for the Corps to consider that Caddo Lake and its' wetlands are within the Federal action area. The United States government has pledged through its' membership in the Ramsar convention to protect wetlands listed by the

Ramsar convention. This alone appears to constitute sufficient Federal responsibility for Caddo Lake and its' wetlands.



The fact that the U.S. Fish and Wildlife Service designated Caddo Lake and its wetlands a Resource Category 1 site provides additional support to exert Federal control over the project's downstream impacts, as well as delineating the mean sea level elevations of the high quality wetlands to be protected, namely 168.5' for the lake itself and 175.0' msl for associated wetlands. If the Federal government's main fish and wildlife agency determines that a wetland system deserves the highest ranking possible as wildlife habitat, the same Federal government should consider impacts to that system in any project it approves or decides to undertake. In 1993 the Corps decided to abandon plans for the Shreveport to Daingerfield Reach Barge Canal project due to, among other reasons, environmental impacts to Caddo Lake (Corps 1994).

A final consideration on the level of Federal control and responsibility for Caddo Lake is its status as a Corps lake--managed by the Corps at both the spillway and by environmental releases from Lake O' the Pines, an upstream Corps Reservoir. Notwithstanding the regulatory requirements and the international treaty requirements referred to above, it would seem that the fact that this is a Corps managed lake would be sufficient to consider that adequate Federal control and responsibility exists to include Caddo Lake in the federal action area. Quite apart from explicit requirements of Corps permitting regulations as to navigation and wetlands, it would be quite inconsistent for the Corps to approve new diversion facilities that would potentially interfere with special treaty and habitat designations by other responsible federal agencies.

2) Indirect or secondary effects: The Corps SOP is clear on which indirect or secondary effects will be considered in a permit decision. "The Corps analyzes all adverse effects within the action area. In addition, the Corps is responsible for analyzing the direct and indirect impacts of its permit decisions, within the action area once the scope of analysis (which defines the corresponding action area) is properly determined." (SOP Part 1, 1.) If the regulations require inclusion of Caddo Lake and its wetlands within the action area, then a review of the secondary effects, within the action area, that are created by the authorized activity is required. The secondary effects of the increased diversion of water are the direct result of the Federal action, the Corps permit, and therefore should have been considered by the Corps. However, in 1998 the Corps was not aware of the increased diversion capability the permit decision would create, and therefore did not consider the secondary effects. Federal regulations at 40 CFR 230.11(h)(1)(2) require the information about secondary effects to be considered prior to making a final permit decision.

3) Corps Decisions on Similar Projects: Although the Corps is a highly decentralized organization, a look at what another District has considered in similar cases is warranted as the Corps strives for consistency in the implementation of its Regulatory Program (see Introduction to SOP). This author was employed as a biologist in the Corps Regulatory Program for 15 years including 10 years in the Sacramento District's Western Colorado Regulatory Office. The author managed three permit actions in Colorado that involved basically the same issues as Marshall's diversion from Caddo Lake, except that the resources impacted in Colorado were high elevation trout streams instead of a cypress swamp and bass fishery.

Analogous permit actions in other districts included the following: **Snowmass Water & Sanitation District** in Pitkin County, **Arapahoe Basin Ski Area** in Summit County and **Keystone Ski Area Snowmaking Diversion** in Summit County. In all three cases, the diversion of raw water created secondary impacts to downstream aquatic environment, and the Sacramento District considered the downstream aquatic environment within the action area and assessed the secondary impacts of the removal of water from the aquatic ecosystem. The District consulted Appendix B and the SOP for guidance, and in each case the Regulatory Branch Chief, Office of Counsel, and the District Engineer approved of the permit actions.

For the Snowmass case, the permit action is very similar in that a permit had been issued previously in 1979, and the permit was modified to include conditions to protect the aquatic environment in 1996. The latest petition by environmental groups to modify the Snowmass permit based on new information is still pending, but the Corps continues to evaluate the downstream effects of the diversion; and, that decision was routed through Washington Headquarters due to the political scrutiny expected.

The Keystone Ski area permit action was a modification of an existing permit to authorize an increased withdrawal of water for snowmaking. This is also similar to the Caddo Lake case except that the City of Marshall never informed the Fort Worth District of the Corps that they intended to withdraw more water with the reconstruction of the intake structure.

The Corps recently issued the Arapahoe Basin permit for a ski area expansion to include a snowmaking diversion on the North Fork of the Snake River. The permit included special conditions to protect the downstream aquatic environment. The diversion for the North fork would remove dilution flows to the main stem of the Snake River, which is on the EPA's 303(d) list for contamination by heavy metals. Historic silver and gold mining in the 19th century in the headwaters of the Snake created heavy metal contamination but the North Fork was spared that mining, and it provides clean water to the main stem. The snowmaking diversion would increase heavy metal concentrations in the main stem by approximately 4 % due to the removal of dilution flows. The permit required the applicant to participate financially in a water quality improvement project in the headwaters of the Snake River, designed to reduce metal loading, to mitigate the increased heavy metal concentrations the diversion creates. This is similar to the Caddo Lake situation in that Caddo Lake is also on the 303(d) list for non-attainment, and the City's increased diversion will degrade water quality.

It should be noted that in each case the applicants vehemently objected to the Corps position, were represented by expert counsel on 404 issues and water rights, and the State of Colorado objected to the Corps' position. In each case, the Corps' position remained steadfast, and to this date, the applicant's have not brought litigation against the Corps. This last point is relevant as to the regulatory issue stated above and the same application of those regulatory issues in each of the Colorado permit actions. In Colorado, people litigate over water issues quite easily, and the fact that the applicant's attorneys in each case did not litigate indicates, among other things, they found some merit in the Corps' application of the regulations.

On the front range of Colorado, the Omaha District issued a permit for the controversial Two Forks Dam on the South Platte River to supply water for the Denver metropolitan area. EPA vetoed that decision, but the Corps permit included conditions to mitigate recreational fishery losses upstream and downstream of the discharge.

4) Legal Cases: The following are some previous court decisions related to the subject with which the author is familiar. In *United States v. Mango*, 1999 F.3d 85,93, the court held that the Corps could impose conditions if the conditions are reasonably related to the discharge, either directly or indirectly. In the *Oklahoma Wildlife Federation v. U.S. Army Corps of Engineers*, 681 F. Supp., 1470,1480-81. (N.D. Okla. 1988), the Corps imposed conditions to protect a fishery in a reservoir that would have been impacted by a permit action to approve a pipeline to transfer water from the reservoir, and the court upheld that decision.

In *Riverside Irrigation v. Andrews*, 758 F. 2d 508, 513 (10th Cir. 1985), the Corps' consideration of the downstream secondary impacts to endangered species from an irrigation reservoir diversions was upheld by the court. The Corps' decision to mitigate secondary impacts from a dredging project for riverboat gambling was upheld in *Hoosier Environmental Council v. U.S. Army Corp of Engineers*, 105 f. supp. 2d 953 (S.D. Ind. 2000). In *Water Work & Sewer Board v. United States Army Corps of Engineers*, 983 f. Supp. 1052 (N.D. Ala. 1997), the court held that the Corps' authority to issue a permit for an intake structure did not give the Corps authority over the entire treatment plant; however, the court did find that it was appropriate for the Corps to "consider the direct, indirect and cumulative impacts of the proposed activity." Finally,

in a 401 certification case in Washington, the courts found that consideration of increased pollution levels caused by a depletion of flows was valid (*PUD No. 1 Jefferson County v. Washington Department of Ecology*, 511 US 700 (1994)).

VII. EVALUATION OF DOWNSTREAM SECONDARY IMPACTS

The purpose of this report is not to provide an analysis of the secondary impacts but rather to illuminate the Corps permitting regulations affecting this project. Fortunately, there is a wealth of information on Caddo Lake, including information within the Corps own files due to the proposed Red River Project, Shreveport, Louisiana to Daingerfield Texas Reach, a barge canal project the Corps evaluated and rejected due to environmental impacts, including impacts to Caddo Lake.

The designation of Caddo Lake as a Ramsar wetland also engendered a good deal of work on Caddo Lake. The Caddo Lake Institute supports research by Universities. The Texas Parks and Wildlife Department and USFWS can provide data on fish and wildlife resources.

Impacts to water quality in Caddo Lake due to the City's new diversion capability would be a prime concern. Water quality issues affect the other resources to be evaluated, and it appears that water quality, at least under the City's conservation plan, could be drastically degraded. Water quality impacts under various flow regimes should be evaluated. [Note: the *PUD No. 1 Jefferson County v. Washington Department of Ecology* provides the legal framework to review how depletion of flows affect water quality]. Caddo Lake is already on the 303(d) list for low pH, low dissolved oxygen and high nitrogen. Due to mercury pollution levels, the state has an advisory on human consumption of fish.

The lake is becoming more eutrophic over time and contaminant levels are on the rise (Information Sheet on Ramsar Wetlands). Existing 5-year water quality monitoring data disclose that during low flow periods Caddo Lake and its associated wetlands experience statistically significant reductions of dissolved oxygen and increases in nitrogen nutrient levels that reinforce biological oxygen consumption. (Darville, 2002) Increased diversions at Marshall's new intake structure in excess of historic diversion levels, or even diversions that are well below those contemplated in Marshall's conservation plan, could significantly contribute to documented water quality degradation of Caddo Lake and its associated wetlands.

The impact of the project on other resources should be assessed including wildlife habitat, endangered species, fish habitat, wetlands, invasive weeds, and the effects of the degradation of these resources on the recreation based economy of the local communities. Scoping by the Corps will determine which secondary effects to address, and the level of analysis needed.

The Corps and EPA regulations at 33 CFR Parts 320 and 40 CFR Parts 230, respectively, provide a detailed framework of the resources the agencies should evaluate in making a permit decision or providing recommendations on a permit.

The potential impacts created by the diversion will be evaluated by both agencies under 40 CFR Subpart B, 230.10 (c) Significant Degradation. The Corps must find that a project satisfies 40 CFR Subpart B in making a decision to issue a permit. It would be difficult to find that the project, including the City's conservation plan as a minimum flow, would meet the requirements of 230.10 (c) and the Corps would have to make a finding of significant degradation, thus denying the permit. However, a careful evaluation of various flow regimes and alternatives, including the purchase of supplemental water by the City from Lake O' the Pines to mitigate withdrawals, and the City exercising its' senior water right status (calling out or canceling upstream users), may enable the Corps and EPA to approve the project.

If the Corps issues a permit with a flow regime from the diversion that creates significant degradation, two likely scenarios could occur. The EPA could elevate the decision under the 404 (q) Memorandum of Agreement (404 q MOA) between the two agencies. Elevation procedures call for a higher level of review than the Corps District office, and based on the author's past experience with an elevation case of a permit action that the author was involved with, Corps headquarters and the Assistant Secretary of the Army would likely agree with the EPA and remand the decision back to the District and Corps Division for further evaluation. If the EPA does not elevate, or even if they do and the time frame for a decision occurs during summer drought conditions, the Caddo Lake Coalition members and other interested parties could initiate legal action against the Corps to protect the lake.

Under some circumstances, an injunction could be sought in Federal court to require the Corps to require Marshall to suspend or restrict use of the new improvements until a new permit is granted under the above regulations, and to require the Corps and EPA to place conditions on any future Marshall permit prohibiting diversions in excess of historic levels.

VIII. REMEDIES.

Marshall's failure to disclose the true impacts of this project precluded the Corps from implementing its regulations found at 33CFR Parts 320. Under an individual Department of the Army permit, the Corps would have reviewed the project under the EPA's 404 (b) (1) Guidelines at 40 CFR Part 230.10 (Guidelines) and Corps regulations, which include a public interest determination. The Guidelines would have required an assessment of least damaging practicable alternatives and a consideration of "significant degradation".

The Corps now must process the individual permit as an "after-the-fact" permit application. Under the after-the-fact process both the Corps and the EPA will review the project as if the discharge of fill material had not occurred to avoid the preclusion of considering least damaging practicable alternatives. Alternatives to consider have already been identified in the KSA (1979) report. Other alternatives were proposed during the TNRCC amendment process, e.g: limiting industrial raw water sales to reuse of Marshall's waste water, and the purchase of increased industrial raw water from Lake O' the Pines, under the rationale stated in Texas Water Development Board's 1997 *Water for Texas* report:

“ . . . environmental impacts from potential significant lowering of Caddo Lake levels through expanded water supply use, especially during dry weather periods, should preclude it from being a viable site for additional water supplies. Further, potential industrial needs in Harrison County could also be met with water from Lake O’ the Pines.” (Texas Water Development Board, 1997)

The Corps and EPA will require a detailed analysis of why these or other alternatives are not practicable. Practicability includes costs, logistics and the project purpose and the Corps must consider these issues to determine if a particular alternative is practicable. To make this determination, the Corps may require preliminary engineering reports on each alternative. Furthermore, the project purpose for the intake structure would need to be defined by the Corps to ensure an accurate evaluation of alternatives. The sale of industrial water would need to be considered as a project purpose along with the current and projected municipal needs.

The Marshall Conservation Plan would appear to create “significant degradation” to the aquatic ecosystem of Caddo Lake and the Corps and EPA would make a finding of significant degradation. Under the 40 CFR 230.10(c), the Corps cannot issue a permit that would create significant degradation to waters of the United States. In the author’s experience with the Corps, the Marshall Conservation Plan, which is made possible by the authorized activity, the new intake structure, is the clearest example of “significant degradation” encountered by the author in 15 years of regulatory experience.

Although mitigation measures cannot be considered in the practicable alternatives analysis discussed above, measures to reduce impacts can be considered to avoid a significant degradation finding. Fortunately, there are mitigation measures available that could be incorporated into permit conditions by the Corps. Some of these conditions include:

- Restrictions on diversions during low flow periods
- Prohibiting “reverse flow” pumping during low flow periods
- Requiring independent technical oversight to assure compliance
- Requiring the submission of stream gauge and pumping records
- Requiring the purchase of water from Lake O’ the Pines for release into Big Cypress Creek when Caddo Lake water levels are below the spillway (168.5’ msl).

IX. CONCLUSION

The nationwide permit 12 issued for the City’s project is not valid due to the more than minimal adverse secondary impacts created by the project. The Corps regulations require consideration of those secondary impacts and there is no evidence that either the Corps or the applicant made any determination as to the secondary impacts of this increased diversion capability on the Caddo Lake ecosystem.

There is little question that Caddo Lake's officially delineated and designated wetlands comprise and include "special aquatic sites" that are subject to special permit review procedures under Corps and EPA regulations, including even denial of permits in certain cases. Such areas found at Caddo Lake include state and federal wildlife sanctuaries, refuges, recreational fisheries, water related recreational areas, research sites and officially delineated or designated wetland conservation areas, like those created by Ramsar and RC-1 designations.

It is also clear that Marshall's non-disclosures and mischaracterizations of its new intake and pipeline induced the Corps' failure to perform its regulatory duties as to the true nature of the project and its impacts on Caddo Lake's wetlands.

The Corps should revoke the nationwide permit and require the City to cease diversions that would exceed the pre-1998 levels until a proper permit application is made and approved --after determination of impacts is made under NEPA, applicable regulations and EPA agreements. These permit determinations should be made through the individual permit process.

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