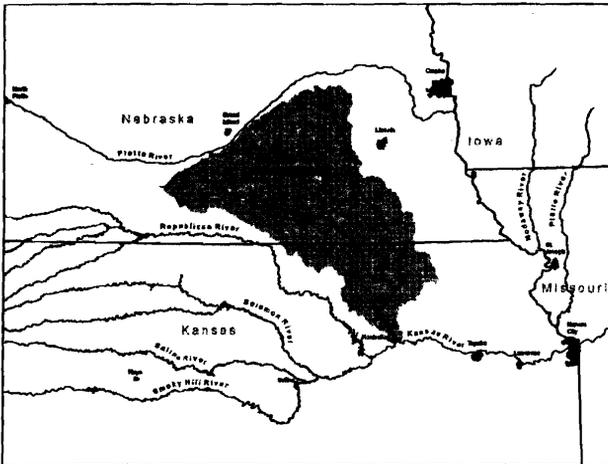


KANSAS-NEBRASKA BIG BLUE RIVER COMPACT

THIRTY-SECOND ANNUAL REPORT



FISCAL 2005

**BEATRICE, NEBRASKA
MAY 12, 2005**

**KANSAS-NEBRASKA BIG BLUE RIVER
COMPACT ADMINISTRATION**

The Honorable George W. Bush
President of the United States

The Honorable Kathleen Sebelius
Governor of Kansas

The Honorable Dave Heineman
Governor of Nebraska

Pursuant to Article VIII, Section 1 of the Rules and Regulations of the Kansas-Nebraska Big Blue River Compact Administration, I submit the Thirty-Second Annual Report. The report covers activities of the Administration for Fiscal Year 2005.

Respectfully,

A handwritten signature in cursive script, appearing to read "Gary Mitchell".

Gary Mitchell
Compact Chairman

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**KANSAS – NEBRASKA BIG BLUE RIVER
COMPACT ADMINISTRATION
32ND ANNUAL MEETING**

May 12, 2005
9:30 a.m.

Lower Big Blue Natural Resources District Office
805 Dorsey Street
Beatrice, Nebraska

1. Call to Order
2. Introductions
3. Approval of Minutes from 31st Annual Meeting
4. Chairman's Report
5. Nebraska Report
6. Kansas Report
7. Federal Agencies Reports
8. Secretary's Report
9. Treasurer/Budget Report
10. Legal Committee Report
11. Engineering Committee Report
12. Water Quality Report
13. Old Business
14. New Business
15. Adjourn

2004-2005 MEMBERSHIP

Representative of the United States

Gary Mitchell

Kansas Representatives

David L. Pope, Topeka ¹

Sharon Schwartz, Washington ²

Nebraska Representatives

Roger K. Patterson, Lincoln ¹

Kenneth Regier, Aurora ³

2004-2005 OFFICERS

Gary Mitchell, Chairman

Debra Mendez, Secretary

Jeff Shafer, Treasurer

2004-2005 COMMITTEES

Budget Committee

Jeff Shafer, Chairperson

Bob Lytle

Engineering Committee

Jeff Shafer, Chairperson

Keith Paulsen

Bob Lytle

Iona Branscum

Legal Committee

Leland Rolfs, Chairperson

TBA

Water Quality Committee

Dale Lambley, Chairperson

Tom Stiles

TBA

Annette Kovar

Rich Reiman

Pat Rice

1 Term continuous but coincides with duties of the state official who administers water law.

2 Term expires April 5, 2008.

3 Term expires September 19, 2006.

**MINUTES OF
KANSAS-NEBRASKA BIG BLUE RIVER COMPACT ADMINISTRATION
THIRTY-FIRST ANNUAL MEETING**

Call to Order

The Kansas-Nebraska Big Blue River Compact Administration annual meeting was held May 12, 2005, at the Lower Big Blue Natural Resources District Office in Beatrice, Nebraska. Gary Mitchell, Compact Chairman, called the meeting to order at 9:37 a.m.

Introductions

Introductions of attendees were made. Those in attendance were:

Gary Mitchell	Federal Representative, Compact Chair
Ken Regier	Compact Citizen Advisor from Nebraska
Roger Patterson	Compact Commissioner from Nebraska; Director, Nebraska Dept. of Natural Resources
Ann Diers	Legal Counsel, Nebraska Dept. of Natural Resources
Jeff Shafer	Nebraska Dept. of Natural Resources; Compact Engineering Committee, Budget Committee, and Compact Treasurer
Keith Paulsen	Nebraska Dept. Natural Resources, Lincoln Field Office
Dave Clabaugh	Manager, Lower Big Blue NRD
David Pope	Compact Commissioner from Kansas; Chief Engineer, Kansas Division of Water Resources
Debra Mendez	Compact Secretary; Kansas Division of Water Resources
Bob Lytle	Kansas Division of Water Resources; Compact Engineering Committee and Budget Committee
Dale Lambley	Kansas Dept. of Agriculture; Chair of the Compact Water Quality Committee
Tom Stiles	Kansas Dept. of Health and Environment; Compact Water Quality Committee
Phil Soenksen	U.S. Geological Survey
Craig Romary	Nebraska Dept. of Agriculture
Mike Onnen	Manager, Little Blue Natural Resources District
Rod DeBuhr	Upper Big Blue Natural Resources District
Harold Stokebrand	Director, Lower Big Blue Natural Resources District
Norman Stokebrand	Director, Lower Big Blue Natural Resources District
Dick Jiskra	Director, Lower Big Blue Natural Resources District; Nebraska Natural Resources Commission
Fred Rogge	Kansas River Water Assurance District
Representative Sharon Schwartz	Compact Citizen Advisor from Kansas

Minutes of the 2005 Meeting

Chairman Mitchell asked for approval of the minutes of last year's annual meeting. It was noted that on page 9 of the Thirty-First Annual Report, under the heading of Little Blue NRD, the reference to the Loup basin was misspelled as Deluth.

There was a misspelled name under **Introductions and Announcements**, on page 2. Dick Eastman should be Dick Jiskra.

Minutes were approved with corrections noted as discussed.

Report of the Chairman

Chairman Mitchell had no report.

Nebraska Report

Commissioner Patterson gave the Nebraska report.

Last year there was no administration for the Compact on the Big Blue River. There had been administration during the previous two years. There was administration for the Compact on the Little Blue from September 13 – September 23. It was the fourth time it occurred, with the previous years being 1988, 1991 and 2002.

There are two USDA initiatives under way. One of them is the Conservation Reserve Enhancement Program (CREP). Nebraska submitted an application to USDA for 100,000 acres for the principal purpose to conserve water. The focus areas are in the Platte River basin, west of Elk Creek and in the Republican River basin. The goal is to have a reduction of overall water use. In the Republican, particular interested is in reducing use to stay in compliance with the Republican River Compact with Kansas and Colorado. In the Platte River the focus is to reduce usage to alleviate a general water short situation, but also it is compatible with a program Nebraska is working on with Colorado and Wyoming and the U.S. Dept. of Interior for endangered species. Approval was received, and the announcement was made, with sign-ups beginning on April 4, 2005. There is enough money available to sign up 15,000 acres. There was a good response, with an initial 41,000 acres applied for. About 2/3 of the 41,000 was in the Republican River basin. Most of the applications in the Platte River basin are upstream from Lake McConaughy.

Another initiative is Nebraska's work with NRCS on a "customized" EQIP program used to sign up land, only in the Republican basin, for four-year contracts. With this program landowners can dry land farm while they're in this four-year contract, unlike the CREP program. Nebraska has money to sign up 10,000 acres this year, and there are that many applications. The partnership is that the State is putting an extra \$100 an acre into the contract on top of the normal payments from NRCS. A year ago, without the \$100 there were 500 acres interested. With the extra incentive, it went over 10,000 immediately. The EQIP program was advertised first and people had to apply by the end of January, but no contracts were signed. Then once the CREP

announcement came out the first of April, a lot of people switched to it. There were still about 10,000 acres that signed up for the EQIP program. If the State and NRCS still have money the EQIP may be ran again next year. Both of the programs are all voluntary, and are mostly federally funded. The CREP program is estimated to cost \$168 million, and the State has to put up \$5 million.

The drought continues in a lot of the areas – the Republican and the Platte for Nebraska, and the Missouri River for both Nebraska and Kansas. The Missouri River area is on its 6th year of drought.

At last year's meeting the passage of Nebraska's new water law, LB 962, was reported. It is basically an update of Nebraska's integrated management law. It went into effect on July 16th 2003. The law now requires an evaluation of the various river basins in the state to determine if they are fully appropriated, and once the river basin hits the point of being fully appropriated, there is a requirement to put a management plan in place to determine how to manage ground water and surface water. Two of the plans have been completed in the Republican River and adopted by the NRDs and the Nebraska DNR. The third one in the Republican River will have its hearing the week after this Compact meeting. The initial planning for the Platte River has been started. First a basin wide plan will be developed, and then individual plans from the NRDs will be developed. In addition, Nebraska DNR has to make a determination by the first of January for the other basins in the state, including the Blue River and any tributaries. Nebraska DNR is working on a rule making process to adopt criteria to use to make decisions in closed areas.

Legislation

There were primarily just budgetary issues with the Legislature this year in Nebraska. One of interest was regarding money needed for LB 962. It was estimated that \$4½ million a year to do the LB 962 activities, with 1/3 of it going for studies, evaluations, work contracts, etc., and about 2/3 of it for cost shares for conservation type programs. The Legislature is going to give \$7½ million next year, instead of \$4½ million, and zero the second year. DNR will be given all the money needed for the cost sharing on CREP, then DNR will present a recommendation that will be developed by DNR's Water Quality Task Force on how the State can generate money to finance these programs.

There was a major restructuring of the Nebraska dam safety statutes. This was done as a result of a peer review by National Association of Dam Safety.

Natural Resources Districts

Lower Big Blue NRD. Dave Clabaugh, Manager of the Lower Big Blue NRD submitted the report for the Lower Big Blue NRD (**Exhibit F**). The report is for the fiscal year, from July to July.

In the report it states that 958 wells have been sampled. This is since the program started in 1987.

Of all the 341 well permits issued since 1997, about 25% are for replacement wells. The Lower Big Blue NRD is not a heavily irrigated district, probably only 870 – 880 thousand acres.

There has always been a strong work ethic in soil conservation in the Lower Big Blue NRD. About 70% of the ground is treated with terraces, waterways, and conservation practices. As noted in the report, there were 203 applications, but there was only enough money for half of those to be approved. The demand is never met.

At the Water Quality Meeting the subject of no-till acres came up. In Gage County about 50% of the farm ground is no-till; Saline County is about 40% no-till.

Under the topic of stream flow augmentation it was reported that one of the watershed dams, near Turkey Creek, would be rehabbed as a public recreation area. One of the lakes was drained when the stream flow was augmented in 2003. It is clean now with very good water clarity.

The last page of the report shows a picture of a small dam near Blue Springs that broke last year on May 29th after receiving 8 inches of rain. According to DNR, this was the oldest dam in the state. It was an old power dam that was built in 1868.

Upper Big Blue NRD. Rod DeBuhr submitted the report for the Upper Big Blue NRD (Exhibit G) and the January 2005 and April 2005 Newsletter of the Upper Big Blue NRD were handed out (Exhibits H and I). The newsletters tell about some of the Upper Big Blue NRD's programs.

The Upper Big Blue NRD is the major irrigation part of the basin, so one of the main concerns is ground water management. There is over a million acres irrigated, so water is a big issue to the economics of the district.

The district did not reach the reporting or allocation triggers as described in LB 962. If the reporting trigger had been reached, certification of acres and annual water use reports would have been required. The allocation trigger would have been reached three feet below the reporting trigger. And with the new water law, the Upper Big Blue NRD is waiting for DNR to develop a management plan for fully appropriated basins in their basin.

There are also water quality concerns in the district. There are 12 townships, ten in York County and two in Hamilton County, which have nitrates exceeding 90 parts per million. The district is working with those producers on nutrient management training and annual reporting on their management practices as they relate to nitrogen and irrigation water management. There has been 100% compliance and over 400 producers have attended nutrient management training classes.

In the January 2005 newsletter there is an article on one of the districts educational project, Cornerstone Resources Observation Plot – Test Irrigation Project (CROP-TIP). Last year one of the local banks had about 20 acres of land that was available for sale for a commercial/industrial site. The bank hadn't had any interest in the land, so the bank decided to

use it for some type of educational activity. The bank and the Upper Big Blue NRD formed a partnership, and the ground is being used for an irrigation project. An irrigation well that was constructed in 1989 was revamped. Different techniques are being used to try to reduce water use to show farmers how to grow adequate corn with less water. Different types of irrigation scheduling equipment are being looked at, and the water quality side is being watched.

Little Blue NRD. Mike Onnen, Manager of the Little Blue NRD, submitted a written report for the Little Blue NRD (Exhibit J). The NeRAIN Web site is up and running. Volunteers log in and enter their data. The data is automatically updated on the map. The map shows the distribution and the intensity of the rain.

Water Administration

Keith Paulsen reported that the on-going drought continued in 2004 in the Blue Basins. Coming into the irrigation season the baseflow were running at about 1/2 of historic levels.

On the North Fork of the Big Blue River, administration started on August 3 and lasted through August 19. There are 91 permits in that reach and it was necessary to close all but 23. It was being watched closely a month prior. There were a few tiny rains that allowed postponement for a full month. The flows on the Big Blue were being watched downstream from its merger with Lincoln Creek, a major tributary. The flows of the Blue River were observed at zero several times in this reach. It's been about 20 years since administration has been required that far downstream to satisfy local demands. The flows at the state-line gages have been watched on a daily basis throughout the irrigation season. On the Big Blue the target flow was exceeded throughout the season. But the target flows could not be reached on the Little Blue throughout the whole year. As was mentioned earlier, the users were regulated on the Little Blue from September 13 – September 23. There are 191 junior irrigation permits and 126 storage permits in the basin that were closed. That left 161 senior permits running. Most of which were done irrigating already.

Despite the on-going drought, in particular in Southeastern Nebraska, crops were exceptional for the year.

Ken Reiger reported that spring planting season this year was an on again-off again affair. The temperature dropped to 25 – 26 degrees on the 2nd, 3rd, and 4th of May, and then all the recent rain is not very conducive to good planting. But most of the farmers have wrapped up their planting in the area. Corn is in the ground, most of the beans are planted, and the rain should help the crops get off to a good start.

Kansas Report

Commissioner Pope presented the Kansas Report.

Climate

The weather situation has improved the last year or two in terms of drought in much of Kansas. Although up until the recent rains, a lot of areas have been dry. Kansas is, however, dependent on what happens in Nebraska with the Republican. And that particular area is still way below normal, with continuous water administration since 2000 except maybe one year. The storage is pretty well exhausted including Harlan County that is shared between the two States (Kansas and Nebraska) for the Bostwick and Superior Irrigation Districts. The Blue is in better shape.

Litigation

The Kansas v. Colorado case is winding down. The Supreme Court reviewed and upheld the Fourth Report of the Special Master last December. There were issues in the Fourth Report that Kansas didn't agree with, but for the most part it was a positive report for Kansas, particularly as related to the water aspect of it. The stage is set now for the final issues to be resolved. One is monetary damages, and a second is future compliance. On the water damages, however, on or about April 29, 2004, Kansas did get a transfer of \$34.7 million from Colorado. There is a possibility some additional money may be awarded for Kansas litigation costs. The big picture with the Kansas v. Colorado case is to get the situation resolved, and have it resolved in a way where the two States (Kansas and Colorado) can live in peace in the future.

The issue being worked on now is preparation of the final court decree. That is the document that will set forth all the requirements and criteria in terms of data collection, monitoring, the compliance issues, and how it is all evaluated. The Special Master made it clear that he wanted it done by the end of the year. So this will be a busy calendar year for Kansas. There are still a number of issues unresolved; the court ruled on a number of issues, and now those will have to be translated into how it will be implemented through the hydrologic computer model that simulates river conditions and calculates groundwater depletions to river flows. The States are working on the model agreements, using a process that's in place to do that. The issues that the States can't agree upon between the technical experts and others will be arbitrated. There are also discussions on how the States will deal with the issues of litigation in the future. It will be most likely be initially through arbitration processes. Kansas recognizes that they will have a significant role in the future with monitoring, implementing, and trying to ensure that appropriate actions are taken.

On the Republican River, like Nebraska, Kansas is involved in activities related to the settlement reached a few years ago, such as collecting data and getting it ready to be input into the computer model that was agreed upon between the States (Kansas, Nebraska, and Colorado). The States have just recently exchanged the data for this year. There has been good cooperation between the States.

In other aspects of the Republican, Kansas has worked out an arrangement with the Northwest Kansas Groundwater Management District (GMD) #4 for mandatory metering of all the large wells. It will be phased in during a period of three or four years. There are a lot of wells involved, about 4,000. The goal is to just hold the line on Kansas' water use. If we don't

allow any additional consumptive use, our projections show we should be in good shape in that area. This region has been mostly closed for many years, and there are very limited new water rights being granted there. That's a part of the Republican River Compact settlement process as well.

Kansas continues to support some of the activities that have been agreed upon as far as the conservation study, and is supporting the feasibility study that was agreed to. The Legislature did appropriate the additional money that was requested for the Republican River, particularly for the feasibility study and some related items. The big issue as we move into this 2003 - 2007, the first five-year compliance period, is to make sure each state gets into compliance.

On the Missouri River, as was alluded to in the Nebraska report, this has been a very active year. David Pope was chosen to be President of the Missouri River Basin Association (MRBA). The executive director of MRBA resigned, so David has been very involved in the activities of the MRBA. There has been progress on various cooperative activities that are taking place amongst the basin states and others to implement some of the new Master Manual provisions and the Biological Opinion. MRBA is trying to get funding at the Federal level to avoid future conflicts. There is an ongoing basin wide facilitated process to deal with issues like the Spring Rise.

Legislation

This has not been an active year as far as policy legislation for water. There was one bill worthy of noting that did pass. It was House Bill 2018, which started out as a Rural Water District bill for merging and consolidating districts. A provision got added in to amend the base period in our law for "flex accounts" which allows multi year usage where more water can be used one year and less water used the next. The base period got changed from 1996 through 2000 to 1992 through 2002. This same bill included provisions related to the transferring of revenues from the Clean Water Drinking Fund to the State Water Plan Fund instead of the General Fund, starting in 2007. This will give another \$2½ million - \$3 million of additional revenues to the State Water Plan Fund in the future. The money is targeted for system improvement for public water supplies and some money to help with restoration of small lakes.

One item of particular interest to water agencies was an initiative that was supported by the administration to restore the full funding of the State Water Plan Fund which had several cuts in the past several years due to the budget problems. It was restored to the full \$6 million transfer of General Fund money to the State Water Plan Fund. There is always a lot of discussion of how to allocate spending from the State Water Plan Fund. One thing that was part of the new initiative was funding support for the Watershed Restoration and Protection Program (WRAP). The request was for about \$800,000, which would then be matched with about \$1.2 million of Federal money to give a total of \$2 million. This program would put more emphasis on preventing sediment from entering some of the major lakes in Kansas, particularly those used for public water supply.

There was also some money made available to the State Water Plan Fund for upgrade of dams when hazard classifications change due to development below dams. What was a low hazard structure becomes a significant or high hazard structure. Some of these dams need rehabilitation anyway. This will provide some funding so the State Conservation Commission (SCC) can start addressing some of these issues. The SCC was asked to develop criteria and some rules to deal with this issue. This is of interest to KDA and the Division of Water Resources (DWR) from a dam safety standpoint.

An item that did not get approved was described as the Irrigation Transition Assistance Program. There has been an existing water right purchase program on the books for years, but never funded or used, so there was a lot of interest in developing a voluntary incentive based program to help reduce water use in a number of the target areas in Kansas. There was a lot of discussion, but it never reached a consensus, and there were still some concerns by various groups especially in the agricultural area. There is certainly a lot of support from the water sector, and some agricultural groups, but others did not support it, so it was not funded.

Water Administration

In the Blue River basin, Kansas has been in good shape this past year. However, there are not a lot of regions in Kansas where new developments can occur.

Most of the focus has been on the High Plains Aquifer in Central and Western Kansas. There are issues there related to water levels and streamflow issues. DWR is working with the local GMDs to implement strategies to conserve water and deal with some of the water shortages.

A few years ago the Legislature enacted a statute that allowed water banks to be created. They can either be a groundwater bank, a surface water bank, or a groundwater/surface water combination. The Legislature authorized up to two banks to be created as a pilot program. The area with the most interest was in South Central Kansas in the Big Bend GMD #5 area, and there is bank on the verge of operation. It will allow an irrigator to go to the bank and deposit water they are willing to not use, and in turn someone who needs more water can lease water from the bank. It's a way of "marketing water" within hydrologic units. The bank then handles the financial aspect and the administration. Kansas DWR has a regulatory role. The bank will allow incentives for people to move water out of problem areas. There is a statutory requirement that it has to result in a 10% saving in consumptive use, so there is a combination of water saving mixed in with flexibility for the use of water.

Representative Sharon Schwartz continued the Kansas report. She reported that basically everything is planted in the Kansas Big Blue area. Water conservation, the cost of irrigation, fuel cost to put crops in, and soil conservation has led to 90% of the area moving to no-till. No-till is gaining popularity.

Regarding the Kansas v Colorado damage money, the Kansas Legislature found ways to insure that the money will go to the areas that suffered the damage along the Arkansas River.

There are specific funds set up for the dollars to go into. People are not getting direct payment, but there will be projects that would conserve water and better manage water in that area.

Water storage was another item discussed. There was a bill that looked at Tuttle Creek, Perry, and Milford Reservoir. There was an initiative for the State to buy water stored in those reservoirs, but it was not passed.

ITAP was another Legislative item that did not gain a lot of support. There had been a proviso in a bill last year to put the pilot program in place to match the Federal funds. The reason ITAP lacked the support, is because the Legislators would like to see a more comprehensive water plan for the State of Kansas.

Federal Agencies' Reports

Phil Soenksen, from the U.S. Geological Survey (USGS) distributed his report (**Exhibit K**). There is a summary page on top describing the procedures used for gaging the rivers, and the summary shows results of particular stations during the last water year (October 1, 2003 – September 30, 2004).

Secretary's Report

There was no report from the secretary.

Treasurer's/Budget Report

Jeff Shafer handed out the Report of the Treasurer (**Exhibit L**). The report shows that the Compact is in a good financial state for the year, with good carry over.

The Budget Analysis was also distributed (**Exhibit M**) and explained. It was reported that the Budget Committee visited with Bob Swanson of USGS on the qualifications of the state-line gages in the National Stream Flow Information Program, which is 100% funded by the USGS. The Republican gages our operated that way, and if the Big Blue state-line gages were operated the same way, that cost could be potentially removed from the Compact budget. The gages do qualify – they are interstate gages and they are for compact administration. There are other criteria, as well, but these two are important.

Roger Patterson moved adoption of the FY2006 budget as presented by the Committee. The budget was accepted with no objections.

Roger Patterson made a motion to submit a congressional letter on behalf of the Big Blue River Compact to Bob Hirsh and USGS, asking for the state-line gages to be considered for inclusion in the National Stream Flow Information Program. The motion was seconded by David Pope. Phil Soenksen indicated that if USGS were to fund these gages, two or three gages somewhere else in Nebraska would have to be cut. He suggested asking, instead, for increased funding for the state-line gages. Phil also encouraged support from State and local agencies that can lobby on behalf of USGS for continued funding for these types of programs. The motion

received unanimous acceptance. Jeff Shafer will draft the letter, and send copies to the delegations, and the States will work independently with their delegations.

The FY2007 budget was also accepted as presented.

Legal Committee Report

There were no assignments for the Legal Committee, and there was no report.

Engineering Committee Report

The Report of the Engineering Committee was distributed, with a signed copy given to Secretary Mendez to be included in the Compact's Annual Report (pg 13 and Exhibits A – E).

Water Quality Committee Report

Dale Lambley passed out the Water Quality Committee Report with two attachments (Exhibit N). The background information in the first part of the report is carried over year to year as a reminder to how the Committee started. There is an annual meeting annually, just prior to the Compact meeting.

Old Business

No old business to report.

New Business

Nebraska will host the annual meeting again next year. May 11, 2006, is the date chosen.

Committee membership for the upcoming year will be:

Budget Committee

Jeff Shafer, Chairperson
Bob Lytle

Legal Committee

Lee Rolfs, Chairperson
Ann Diers

Engineering Committee

Jeff Shafer, Chairperson
Keith Paulsen
Bob Lytle
Katie Tietsort

Water Quality Committee

Dale Lambley, Chairperson
Tom Stiles
Annette Kovar
Rich Reiman
Pat Rice

In regards to the Water Quality Committee, Bob Lytle said he had written a letter to the Kansas Water Office, on behalf of the Compact, indicating that they have not had a representative on the Water Quality Committee. The current director wasn't in a real hurry to assign anyone to the position. The director indicated that the Committee was doing a good.

Right now Dale and Tom will continue to represent Kansas on the Committee, and if the Kansas Water Office wants to assign someone, they can at a later time.

Chairman Mitchell extended a thank you to the Lower Big Blue on behalf of the Compact for hosting the annual meeting.

Represented Schwartz requested the e-mail addresses of the Compact members be made available for correspondence regarding the Big Blue. Debra Mendez said she would get those and make them available. Bob Lytle said he would help.

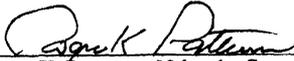
Chairman Mitchell declared the meeting adjourned at 12:00 p.m.



Gary Mitchell, Compact Chairman



David L. Pope, Kansas Commissioner



Roger K. Patterson, Nebraska Commissioner

**REPORT OF THE ENGINEERING COMMITTEE
TO THE
KANSAS-NEBRASKA BIG BLUE RIVER COMPACT ADMINISTRATION
May 12, 2005**

The 2004 data were collected in accordance with the agreements with the United States Geological Survey (USGS) and the Lower Big Blue Natural Resources District (LBBNRD).

REVIEW OF STREAMFLOW DATA

The Compact sets forth the following stream flow targets:

	Big Blue River	Little Blue River
May	45 cfs	45 cfs
June	45 cfs	45 cfs
July	80 cfs	75 cfs
August	90 cfs	80 cfs
September	65 cfs	60 cfs

During the 2004 water year (October 1, 2003 thru September 30, 2004) the mean daily streamflow at the Barneston gage on the Big Blue River (Exhibit A) did not fall below the targets and the Hollenberg gage on the Little Blue River (Exhibit B) fell below the target values a total of 16 days.

Recent and Historical Data for the two gages can be found at the following USGS websites:

Big Blue River - http://waterdata.usgs.gov/ne/nwis/uv/?site_no=06882000

Little Blue River - http://waterdata.usgs.gov/ne/nwis/uv/?site_no=06884025

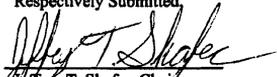
REVIEW OF GROUNDWATER DATA

The USGS provided the data for hydrographs for two wells in Gage and Jefferson Counties (Exhibit C). The LBBNRD provided the groundwater data for the portion of the Big Blue River near Beatrice listed in Exhibit D.

REVIEW OF WELLS IN REGULATORY REACHES

The lists of wells within the regulatory reaches are shown in Exhibit E. No new irrigation wells were drilled in the regulatory area in the last year.

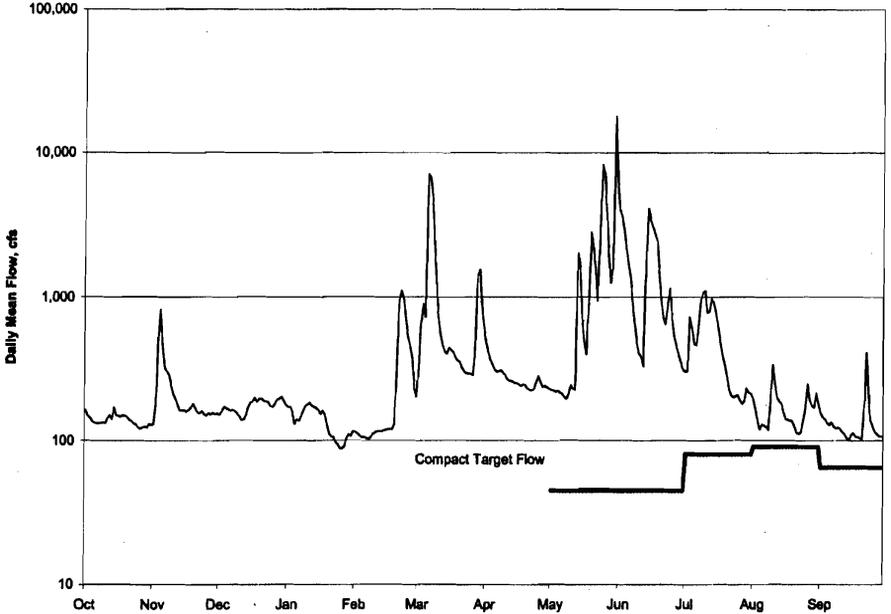
Respectively Submitted,


Jeffrey T. Shafer, Chair
Nebraska


Robert F. Lytle Jr.
Kansas

Exhibit A

BIG BLUE RIVER AT BARNESTON, NEBRASKA - 06882000

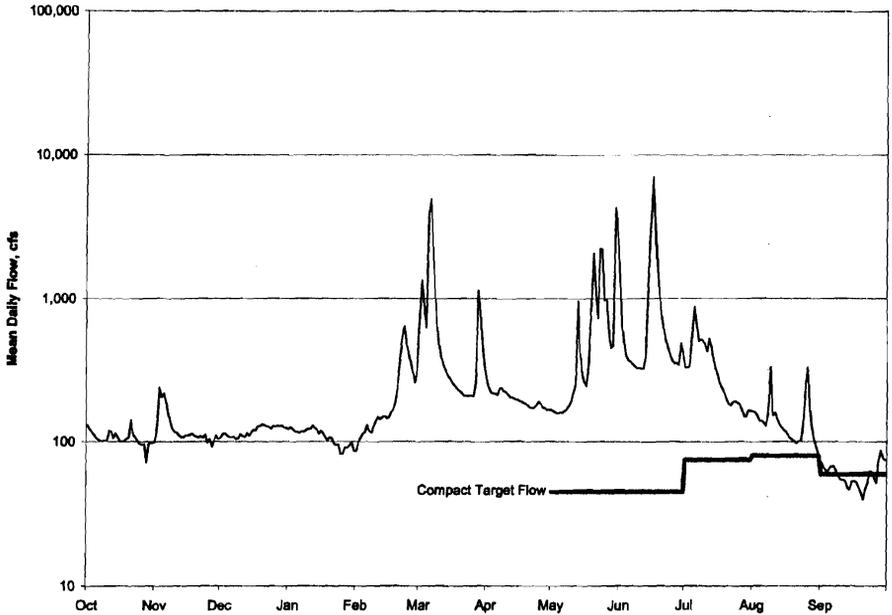


	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	4279	6661	5358	4221	8065	37189	8293	67257	45376	15172	5125	3961
MEAN	138	222	173	136	278	1200	276	2170	1513	489	165	132
MAX	169	809	201	182	1100	1760	486	17900	4170	1100	336	406
MIN	121	130	139	88	103	284	222	196	309	180	112	100
AC-FT	8490	13210	10630	8370	16000	73760	16450	133400	90000	30090	10170	7860

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1933 - 2004	
	ANNUAL TOTAL	136384	210957			855
ANNUAL MEAN	374	576			2781	1993
HIGHEST ANNUAL MEAN					115	1934
LOWEST ANNUAL MEAN					50000	Jun 9 1941
HIGHEST DAILY MEAN	7510	Jun 13	17900	May 30	1.0	Nov 30 1945
LOWEST DAILY MEAN	62	Jul 17	88	Jan 25	15	Aug 3 1934
ANNUAL SEVEN-DAY MINIMUM	72	Jul 15	95	Jan 22	57700	Jun 9 1941
MAXIMUM PEAK FLOW			22700	May 30	34.30	Jun 9 1941
MAXIMUM PEAK STAGE			22.80	May 30		
ANNUAL RUNOFF (AC-FT)	270500	418400	619200			
10 PERCENT EXCEEDS	601	1100	1760			
50 PERCENT EXCEEDS	194	193	277			
90 PERCENT EXCEEDS	111	115	105			

Exhibit B

LITTLE BLUE RIVER AT HOLLENBERG, KANSAS - 06884025

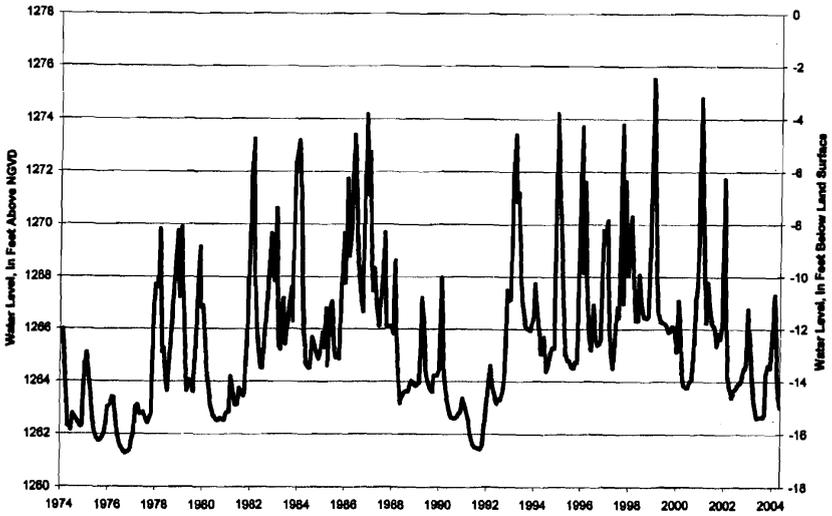


	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	3285	3751	3667	3369	6420	24377	5948	24779	28738	10242	4483	1790
MEAN	106	125	118	109	221	786	198	799	958	330	145	59.7
MAX	140	237	131	129	634	4940	276	4270	6990	872	331	87
MIN	72	92	104	82	86	206	164	156	321	149	83	40
AC-FT	6520	7440	7270	6680	12730	48350	11800	49150	57000	20320	8890	3550

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 1975 - 2004
ANNUAL TOTAL	151819	120849	
ANNUAL MEAN	416	330	516
HIGHEST ANNUAL MEAN			1891
LOWEST ANNUAL MEAN			195
HIGHEST DAILY MEAN	29100	6990	39300
LOWEST DAILY MEAN	56	40	26
ANNUAL SEVEN-DAY MINIMUM	66	40	27
MAXIMUM PEAK FLOW		10200	47800
MAXIMUM PEAK STAGE		11.64	21.21
ANNUAL RUNOFF (AC-FT)	301100	239700	373800
10 PERCENT EXCEEDS	435	559	849
50 PERCENT EXCEEDS	129	147	200
90 PERCENT EXCEEDS	101	90	105

Exhibit C

402155096523101 - Gage County



400813097112401 - Jefferson County

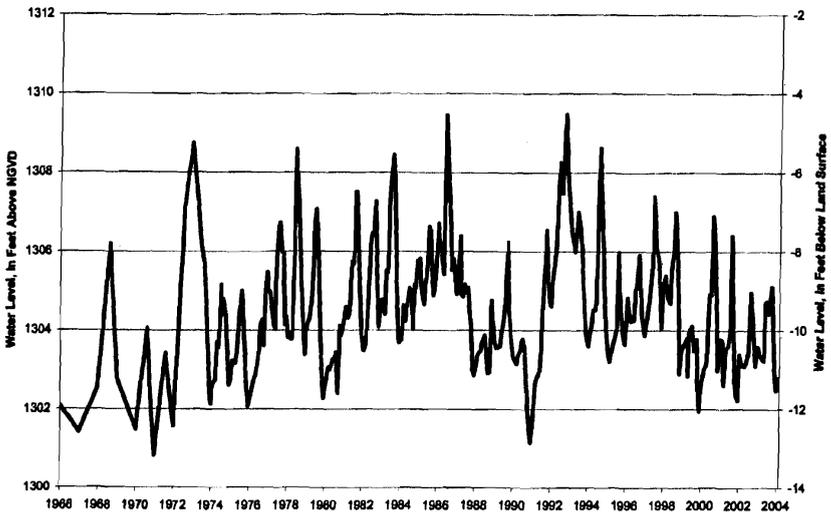


Exhibit D

BIG BLUE RIVER COMPACT STATIC WATER LEVELS 2004

LEGAL	SECTION	LOCATION	WELL	DEPTH SPRING	DEPTH IRRIGATION	DEPTH FALL
4N-5E	2	AAAA	OW	93.74	96.99	95.43
4N-5E	2	DDAA	IW	18.03		20.03
4N-5E	3	CDBC	IW	ABANDONED	ABANDONED	ABANDONED
4N-5E	3	DAAA	IW	19.31		21.24
4N-5E	4	AAAA	OW	15.10	17.63	16.47
4N-5E	4	BBBC	IW	21.27		23.11
4N-5E	7	BBAA	IW	86.42		88.14
4N-5E	9	CBCC	IW	74.20		75.83
4N-5E	10	DDAA	IW	29.80		30.64
4N-5E	11	DACA	IW	16.69		17.88
4N-5E	12	CCCD	OW	13.91	14.95	15.16
4N-5E	14	ABBB	IW	14.01		15.64
4N-5E	14	DDDD	OW	DRY	DRY	DRY
4N-5E	22	BCCC	IW	71.59		74.70
4N-5E	25	AACD	IW	20.63		20.88
4N-6E	6	CBBB	IW	93.57		95.17
4N-6E	8	AABB	IW	95.55		96.45
4N-6E	18	DDCC	OW	7.06	7.61	8.25
5N-4E	12	ABBA	IW	19.20		20.22
5N-4E	13	BADD	IW	16.84		17.00
5N-4E	15	DBBB	IW	18.00		19.04
5N-4E	22	DCCC	IW	50.85		51.62
5N-4E	23	BABB	IW	15.73		16.75
5N-4E	24	AACD	IW	18.96		19.39
5N-4E	25	DDAA	IW	51.06		52.46
5N-5E	7	CADD	IW	62.15		64.67
5N-5E	16	CBBA	IW	76.22		81.43
5N-5E	17	ABBB	IW	45.34		49.73
5N-5E	17	CDA	OW	67.50	84.47	72.26
5N-5E	20	BCCD	IW	19.80		20.70
5N-5E	21	DDBB	IW	54.83		58.23
5N-5E	29	CBBB	IW	15.09		16.51
5N-5E	33	AADD	IW	19.27		20.72
5N-5E	35	ABBB	IW	104.58		105.82

OW - OBSERVATION WELLS

IW - IRRIGATION WELLS

Exhibit E

BLUE RIVER BASIN
REGULATORY AREA WELLS

Big Blue River

Registration Number	Location	Completion Date	Depth (FT)	Registration Pumping Capacity (GPM)
G-36485	4N-5E-11BC	03-28-72	82	750
G-38314	4N-5E-02DD	01-16-73	188	1,300
G-47820	4N-5E-12BB	11-01-75	117	1,200
G-50086	5N-5E-33AC	05-26-76	123	800
G-54047	4N-5E-24BB	03-01-76	84	800
G-54260	4N-5E-14AA	06-01-74	70	800
G-54261	4N-5E-14AB	05-02-70	70	800
G-56152	4N-5E-04BB	04-14-77	91	1,000
G-59128	5N-5E-29AA	04-25-77	60	400
G-59727	5N-5E-33CB	04-19-78	91	1,200
G-81769	4N-5E-13CD	04-22-94	65	250
G-100788	5N-5E-29AB	03-19-99	65	500
G-110669	4N-5E-13CC	06-29-2001	64	375
G-110847	4N-5E-03DA	07-02-2001	82	800
G-110849	5N-5E-29DD	07-02-2001	102	800

Little Blue River

Registration Number	Location	Completion Date	Depth (FT)	Registration Pumping Capacity (GPM)
G-58158	2N-2E-16AA	08-15-77	29	650
G-66381A	2N-2E-26AB	04-10-81	40	175
G-66381B	2N-2E-23DC	04-10-81	42	175
G-66381C	2N-2E-26AB	04-10-81	42	175
G-66381D	2N-2E-23DC	04-10-81	41	175
G-66381E	2N-2E-26AB	04-10-81	39	175
G-66381F	2N-2E-26AB	04-10-81	38	175



Lower Big Blue Natural Resources District

Exhibit F

Established in 1972 for the Development and Conservation of Soil and Water Resources

Lower Big Blue NRD Highlights of 2004-2005

Water Quality & Quantity

- Decommissioned 26 wells last year.
- Average cost \$347/well – Average cost-share \$216/well
- 487 wells have been decommissioned since 1992
- Water quality sampling – 290 wells – nitrate/nitrogen 7.24 ppm average
- 958 of the 2200 irrigation wells have been sampled
- 49 Well Permits approved for wells pumping more that 50 gpm
- 341 Well Permits have been issued since 1997
- Groundwater levels – 59 wells measured
 - > Spring 2004 to Spring 2005 showed a decrease of 0.77 ft.
 - > Fall 2004 to Spring 2005 showed an increase of 2.02 ft.
- Blue River Compact Well Readings
 - > Fall 2003 to Fall 2004 averaged 1.68 ft lower.
 - > Spring 2004 to Spring 2005 averaged 0.36 ft. lower.
 - > Spring 2003 to Spring 2004 averaged 0.71 ft. lower.
 - > Fall 2004 to Spring 2005 increased 1.37 ft.

Land Treatment – 70% of NRD Treated

- NSWCP – NRD funds: \$100,000, State: \$105,915 \$205,915 total funds
- 203 applications requesting \$777,444
- Approved 100 applications for \$261,500
- In the last year :
 - > 170 miles of terraces
 - > 26 miles of tile outlets
 - > 80 acres grassed waterways

- Buffer Strips 194 contracts - 1,480 acres \$48,517 annual payments
- Small Dam Cost-Share Program
 - Initiated in 1997
 - Constructed 11 dams
 - 3 will be let for construction this fall

Environmental Quality Incentive Program

<u>COUNTY</u>	<u>GENERAL</u>		<u>GSWC</u>	
	<u>Number</u>	<u>DOLLARS</u>	<u>Number</u>	<u>DOLLARS</u>
GAGE	34	\$562,638	3	\$37,545
SALINE	10	90,525	4	58,644
PAWNEE	17	294,380		
JEFFERSON	13	104,090		
LANCASTER	2	25,797		
TOTAL	76	\$1,067,429	7	\$96,189

Saline also had 1 General EQIP contract in the UBBNRD for \$18,103. Due to the increase in total EQIP dollars this year, the number of approvals was much higher under the General fund than last year.

Flood Control

- 11 flood control projects control runoff from 34% of the district, or 157,000 acres.

Lower Turkey Creek Project

- The Lower Turkey Creek Project contains 131,200 acres of the 294,900 total Turkey Creek Watershed.
- The primary purpose of this project is flood control. The seven proposed flood control structures will control runoff from 43,600 acres, approximately 33% of the 131,200 acres located in Saline County.
- The seven structures will provide 490 surface acres of permanent pool and 1450 surface acres of flood pool.
- Annual damages will be reduced by 31% in the 16,700 acres in the 100 year flood plain.
- Average annual benefits will be \$400,000.

- Dollar damages – 100 year, \$1,836,706

Stream Flow Augmentation

- Turkey Creek flows improved through retained flows for releases over longer period of times (flood storage releases)
- Drains within structures providing some year-round flows into tributaries and Turkey Creek
- 3,500 acre feet of sediment storage would be available for release during extreme low flows.
- Erosion and Sediment Control
 - 7 structures have estimated 3500 acre feet of sediment storage (1.03" runoff from each acre of drainage area above structures)
 - Presently 75% of drainage area above 7 structures is treated with grass and terraced cropland. In addition, between 10-15% of the drainage area is on non HEL soil and requires no land treatment practices (Class I & II lands)

Other Purposes

- Surface Water Quality – 490 acres of surface water
- Wildlife Habitat – Upland birds, fisheries
- Wetland creations in upper reaches of permanent pools

Estimated Cost of Project

- \$3,540,000	Construction
TOTAL COST	\$5,992,000

- Request Natural Resources Development Grant

Timeline

NRDF - Submit in May 2005

NRDF Approval - DNR 6 Months to approve

Year One - Engineering, Design, Survey, Appraisals

Year Two - Land Rights

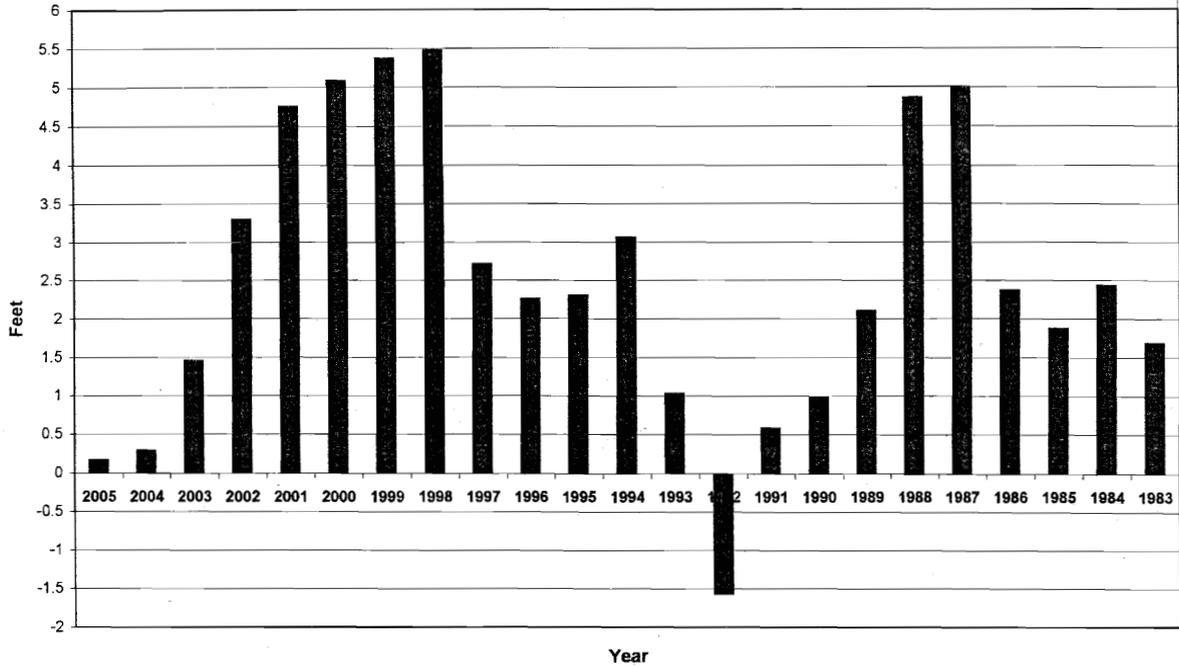
Year Three - Construction

Look at two structures at a time

Swan 5A Community Based Watershed Management Plan

- The Community Based Planning Process is a locally driven approach to solving water quality problems by involving local stakeholders
- The Swan Creek Reservoir Site 5, Willard L. Meyer Recreation Area, was planned and developed as multi-purpose flood control/public recreation area by the Lower Big Blue Natural Resources District
- The structure controls 4,590 acres of drainage, has a permanent pool of 95 acres, and has 774 acre-feet of sediment and recreational pool storage
- Construction of the reservoir was completed in 1988 and the lake was filled in 1994.
- Land Resources Inventory was completed for entire watershed and the advisory council came up with a list of needed cost share practices.
- Reservoir Enhancement – shoreline stabilization, fisheries renovation, and creation of island habitat. Includes two sediment ponds above the lake.
- NRD utilized 319 Grant, Nebraska Environmental Trust Grant, and Nebraska Game & Parks.

Spring 2005 Static Water Levels Compared to 1982





Well Drilling Activities

Two hundred fifty permits were issued for irrigation wells (177 new & 73 replacement) in 2004. At the end of 2004 there were 11,764 active irrigation wells in the District.

Ground Water Level Changes

The average groundwater level change for the District from Spring 2004 to Spring 2005 was a decline of 0.79 feet. This is the fifth consecutive year of declines totaling 10.34 feet. The attached map shows the area of greatest changes and the county averages. With this change, the average ground water level is 3.35 feet above the allocation trigger. Reporting of annual withdrawals would begin when the level is less than 3.00 feet above the allocation trigger.

Groundwater Nitrates

The district is divided into twelve management zones for ground water quality management. The primary ground water quality management concern is nitrate. In April 2003 a six township area in central York county (Zone 5) was designated a Phase II management area to address increased ground water nitrate levels. The median ground water nitrate level in Zone 5 is 9.5 ppm based on 2002 sampling. At their May meeting the NRD board will consider including 6 more townships (Zone 6) into a Phase II management area. Zone 6 had a median ground water nitrate level of 9.0 ppm based on 2003 sampling. The trigger level for phase II management is 9 ppm. Phase II management requires farm operators to attend a training session on best management practices related to fertilizer and irrigation management. It also requires deep (36") soil sampling, irrigation scheduling and annual BMP reports. The rest of the district remains in phase I management for groundwater nitrates. Under phase I management the application of anhydrous ammonia may not occur until November 1, while application of dry and liquid nitrogen fertilizers must wait until March 1. During the winters of 2003-2004 and 2004-2005 over 400 producers have attended nutrient management training classes. We have had 100 percent compliance with the reporting and training requirements.

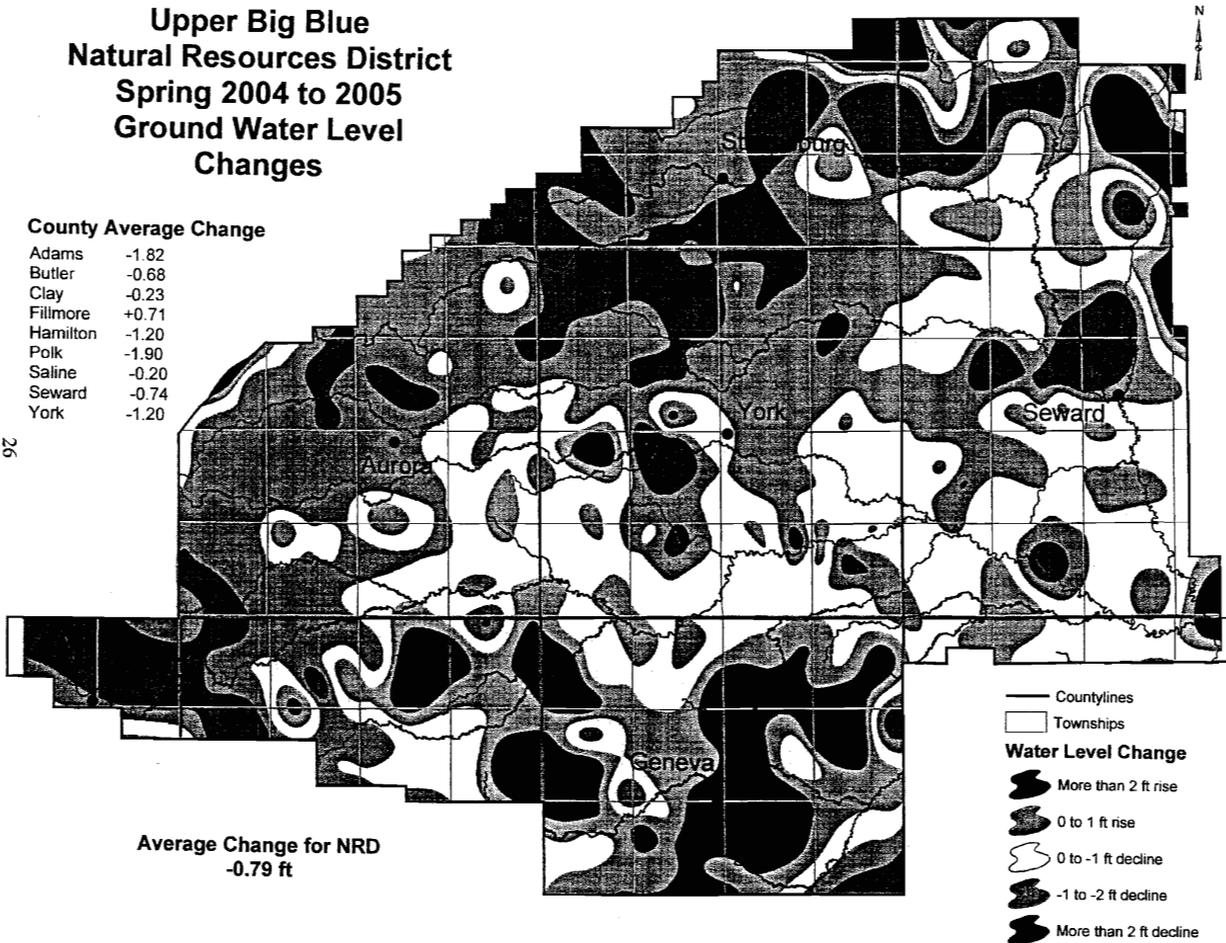
Upper Big Blue Natural Resources District Spring 2004 to 2005 Ground Water Level Changes

County Average Change

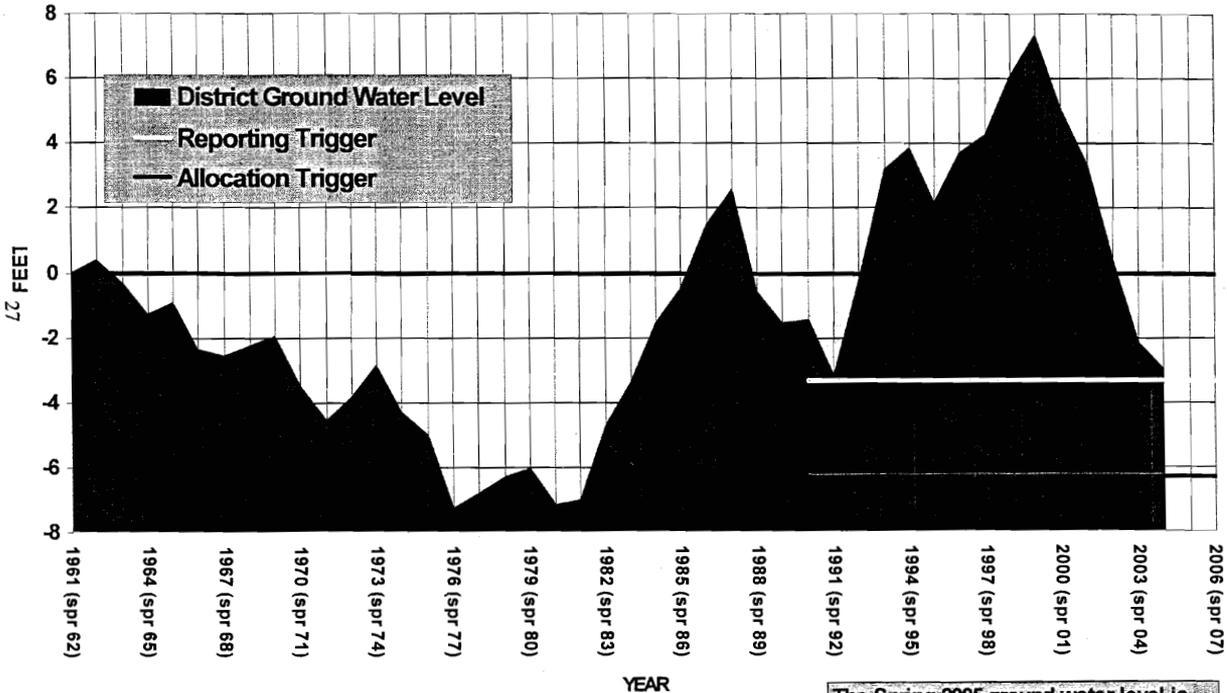
Adams	-1.82
Butler	-0.68
Clay	-0.23
Fillmore	+0.71
Hamilton	-1.20
Poik	-1.90
Saline	-0.20
Seward	-0.74
York	-1.20

26

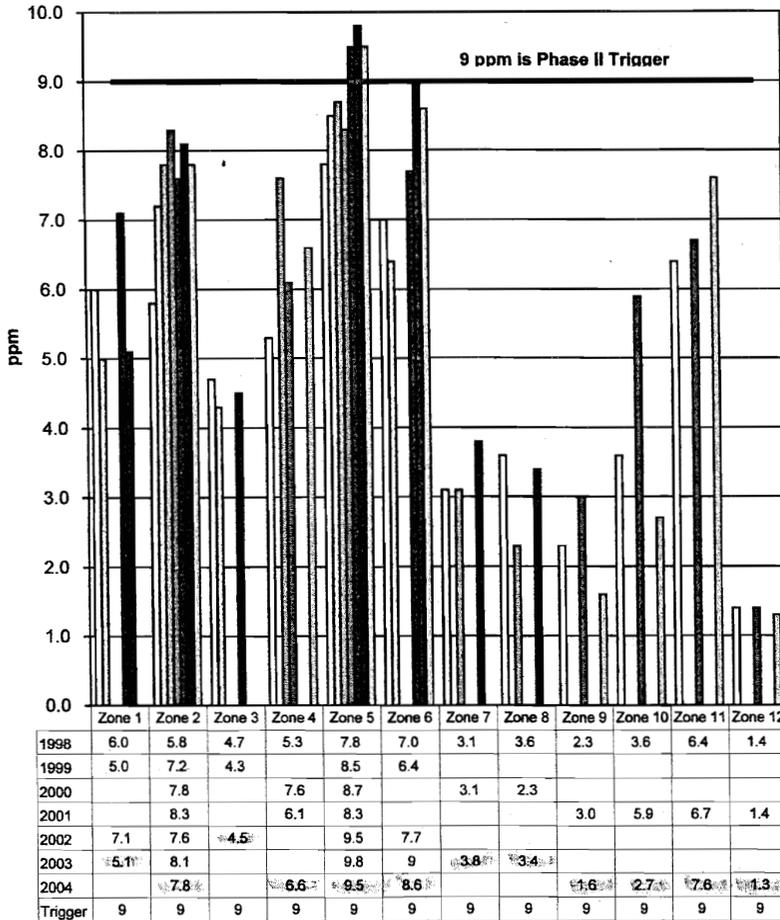
Average Change for NRD
-0.79 ft



UPPER BIG BLUE NRD - AVERAGE GROUND WATER LEVELS
TRIGGERS COMPARED TO HISTORIC LEVELS
SPRING 2005

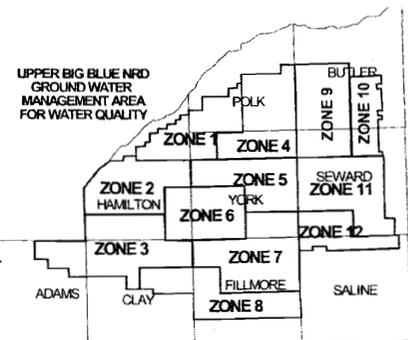
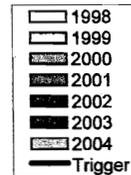


The Spring 2005 ground water level is 0.35 ft. above the reporting trigger and 3.35 ft. above the allocation trigger



UPPER BIG BLUE NRD

Median Nitrate Levels in parts per million Management Zones 1-12





Newsletter of the Upper Big Blue
Natural Resources District
Volume #98 • January 2005



BLUEPRINT

CROP-TIP Final Report (Year #1): Cornerstone Resources Observation Plot—Test Irrigation Project

A Recipe for Success:

25.0 lbs. Nitrogen + 16.06 average acre inches of water = 207.9 average bushels

The harvest at CROP-TIP was successful in many ways...from irrigation scheduling to limited nitrogen application. CROP-TIP also featured such devices as a water meter, surge irrigation valve, moisture blocks and an evapo-transpiration (ET) Atmometer gauge. It is the Upper Big Blue Natural Resources District's desire to implement new technology into the CROP-TIP operation and conduct research that is of value and can be applied in the fields of our constituents throughout our District and beyond...we look forward to the second year of CROP-TIP and the continued partnership we share with Cornerstone Bank. Below is a summary of how CROP-TIP came into being...



Dan Leininger, Water Conservationist of the Upper Big Blue NRD, shows how the surge valve equipment works in conjunction to the water meter. Roughly 650-700 gallons per minute can be pumped at CROP-TIP.

The beginning of a unique partnership:

Cornerstone representatives, Roger Burgess and Adam Thompson met with the Upper Big Blue NRD Water Department staff in early January 2004 to inquire if the NRD would be interested in forming a collaborative partnership sharing a 24-acre site that Cornerstone manages along Highway 81 (just north of the Moses Ford Motor Company in York, Nebraska) to be designated as an agricultural test and education site project.

The project called the "Cornerstone Resources Observation Plot — Test Irrigation Project" or "CROP—TIP" will aid producers through testing results.

Cornerstone and the Upper Big Blue NRD signed a three year agreement for the land to be used throughout three planting/harvesting seasons. Corn planting began in April 2004 with the cost of custom farming provided by Cornerstone Bank while the Upper Big Blue NRD handled all aspects of irrigation for the project. One of the most unique aspects of the project is that in the history of all the 23 Natural Resources Districts across the State of Nebraska, the scenario of creating a test plot of this magnitude has never been realized before.

Carrying out the plan:

The 24-acre site was divided into five "Stations". Each Station received varying amounts of irrigation, however all the stations received the same amount of nitrogen...a remarkable 25 pounds of nitrogen! After soil testing the site, it was found that the percent of Organic Matter was 2.9% with the average soil nitrate level of 8.5 parts per million (ppm). Because the previous crop for the last five years at the site was alfalfa, a nitrate-nitrogen credit for an alfalfa field over five years old can be calculated at 90 lbs./acre according to the University of Nebraska. With these



Dan takes a reading with an Atmometer, which simulates the evapo-transpiration of a corn leaf at CROP-TIP.

figures in mind and residual credits of nitrogen, Dan Leininger, Upper Big Blue NRD Water Conservationist, entered the soil sample

numbers into the University of Nebraska Cooperative Extension-Institute of Agricultural and Natural Resources formula to derive at a final product of adding just 25 lbs. of nitrogen.

(continued on page 2)

What's Inside BLUEPRINT:

CROP-TIP Final Report (Year #1)	Page 1 & 2
OUT OF THE BLUE	
NO-Till...Yes\$-Profit	Page 2
Wetland Reserve Program	Page 3
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TURNBULL'S TURN	
Lessons of CROP-TIP	Page 4 & 5
Is Sub-Surface Drip Tape Right for You?	Page 5
HUSKER F.A.R.M.	Page 6
Time to Order Tree & Shrub Seedlings for 2005	Page 6
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Conservation Tree Program	
Order Form	Page 8



CROP-TIP Final Report (continued from page one)

"At first, we were a little taken back by the results of the formula that showed only 25 lbs. of nitrogen was needed at CROP-TIP," muses Dan Leininger; "however, we knew that this was an opportunity to show what can be accomplished with applying a limited amount of nitrogen."

The next step was to stress the corn with limited irrigation. By using moisture blocks to keep track of soil moisture, the Upper Big Blue NRD planned to let part of the field drop below 50% of soil moisture capacity with some drought stress, while the other part of the field was not allowed to drop below 50% soil moisture capacity and have no associated stress.

When scheduling the watering for the stressed part of the field, irrigation was coordinated along with the critical stages of corn plant development, which was projected to have a major influence on the final yield. An E.T. (Evapo-Transpiration) gauge or "Atomometer" was used to simulate the evapo-transpiration of a corn leaf.

"We were able to actually see how much moisture was released from this device which gave us a clearer picture of what was happening to the plants. Using this information, coupled with rainfall readings at the site, we were able to then schedule the irrigating," states Leininger.

Water usage was monitored using a water meter mounted to a gravity irrigation system. The water meter determined how many gallons of water was being pumped, which in the case at CROP-TIP was 650-700 gallons a minute. Lastly, a surge valve was installed with a controller unit to switch water flow from one irrigation set to another enabling us to improve distribution of water and eliminate any run-off concerns.

Tackling the obstacles:

Gophers, dingy cutworms, black cutworms and Western bean cutworms proved to be a pernicious cartel of defiant opponents. Many battles were waged to keep these miscreants from damaging the hearty green corn that was growing across CROP-TIP. The gophers in particular had thrived in the alfalfa that had been previously growing at the site. As a result, they had created a vast network of tunnels that needed to be continually filled in when the water ran down the rows. At the beginning of irrigation, it was quite common to find water swirling down into a gopher hole like a whirlpool, which would sometimes hinder the flow to the end of field.

In the case of the cutworms, a hybrid variety with the herculix gene brand of seed was planted to extinguish the Western bean

and black cutworm population. When the cutworms began chewing on the plant, they would ingest the herculix agent and soon expire. (This type of seed corn was selected because it was too difficult for a spray pilot to fly across CROP-TIP with residential and business areas in such close proximity of the field). After a few skirmishes with these varmints, the Upper Big Blue NRD tasted victory and the project took shape.

And now for the most important part... The Results:

The corn at CROP-TIP was harvested on October 15th and produced an overall field average of 207.9 bushels per acre (at 15.5% moisture) which is 23 bushels per acre above our yield goal of 185 bushels per acre. This yield was achieved by applying only 25 pounds of nitrogen per acre as our soil tests called for. Also, an average of 16.06 acre inches of water was applied at CROP-TIP and there are plans to limit that even further in the second and third years. It should be noted that if the Upper Big Blue NRD has to allocate groundwater in the future, the amount available for producers will be a total of 48 inches per acre for three years, or an average of 16 acre inches a year. This was the amount that we averaged for our first year of CROP-TIP and we were still able to yield 207.9 bushels.

"We know these results prove that it pays to soil test and make use of residual nitrate-nitrogen in the soil," Leininger continues; "the irrigation water applications at CROP-TIP shows that timing of irrigation during critical growing periods produce approximately the same yields as applying more water over a longer period of time."

Looking forward to our second year at CROP-TIP:

For the crop year 2005, our goals are to limit the amount of irrigation water from 8" to 10" per acre and close the window of application to several critical growing periods in the corn plants life, and to continue soil testing and not to apply any fertilizer other than necessary to meet our yield goal. Further down the road we would like to introduce limited tillage at CROP-TIP as the best management tool to save soil moisture, improve soil structure and increase profitability.

If you would like to schedule a tour for you or your group/organization of the "CROP-TIP" operation, please call Dan Leininger, Upper Big Blue NRD Water Conservationist at (402) 362-6601. Also, if you would like the Upper Big Blue NRD staff to speak to your group, school, service club, association, etc., we would welcome that opportunity as well. Please call Scott Snell, Upper Big Blue NRD Public Relations office at (402) 362-6601 to schedule a time.

OUT OF THE BLUE

NO-Till YES-Profit

Mark your calendars and plan to attend a host of seminars featuring Speakers Paul Jasa, University of Nebraska Extension Engineer and Dan Gillespie, no-till farmer from Madison County. Both Jasa and Gillespie will share their knowledge and experiences using the no-till method to improve soil structure and increase yields.

The three locations and times are:

January 21, 2005, 9:00 a.m. - 12 noon
4-B Building, York County Fairgrounds (York, NE)

January 21, 2005, 1:30 p.m. - 4:30 p.m.
Ag Hall, Fillmore County Fairgrounds (Geneva, NE)

January 28, 2005, 9:00 a.m. - 12 noon
Exhibition Building, Polk County Fairgrounds (Osceola, NE)

The Upper Big Blue NRD is hosting the seminar, along with the University of Nebraska Cooperative Extension and the Natural Resources Conservation Service.

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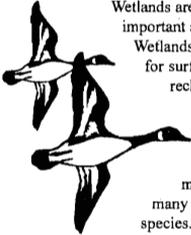
CROP-TIP FINAL REPORT (cont'd)

OUT OF THE BLUE:
No-Till Seminar dates

UPPER BIG BLUE NATURAL RESOURCES

Wetland Reserve Program

By Bryan Euse, District Conservationist
of the Natural Resources Conservation Service
- York, Nebraska

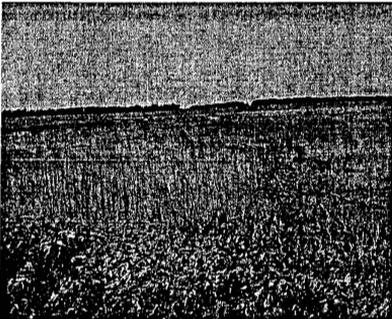


Wetlands are receiving recognition as an important asset in our global environment. Wetlands are crucial to our environment for surface water storage, groundwater recharge, surface water evaporation, and conditions that are needed for hydrophytic vegetation to flourish. Wetlands provide essential habitat for millions of migratory waterfowl, along with many other wetland and upland wildlife species.

The Wetland Reserve Program (WRP) is an excellent option to restore wetlands compared to cropping marginal croplands which are difficult to farm and produce a crop. Wetland Reserve Program can provide 100% of the appraised Ag land value and restoration expenses to the landowner for restoring degraded wetlands back to their natural condition. There are other options available through the Wetland Reserve Program.

The WRP application process is non-obligatory, and allows the landowner to make an informed "business decision" prior to acceptance into Wetland Reserve Program. The first "cut-off date" for landowners to apply for a Wetland Reserve Program contract has been set for January 31, 2005 for its rankings. There will be several "cut-off dates" throughout 2005.

Please contact your local NRCS office for more information on the Wetland Reserve Program (WRP). ↓



Pictured here is a wetland area restored through the Wetland Reserve Program in York County.

Ten Easy Ways To Boost Profit \$20/acre

By Gary Zoubek, University of Nebraska
Extension Educator—York, Nebraska



Ten Easy Ways to Boost Profit \$20/Acre is an educational program that will be offered at several locations in the Upper Big Blue NRD this winter. This effort has been developed by a team of Extension Educators and special-

ists from central Nebraska. The program focuses on efficient use of fertilizer, water and soil resources and integrated pest management (IPM) principles that are widely accepted. Cost of the program will be \$20.00 and will include a noon meal and a notebook of materials on over 20 different practices or recommendations that could save producers at least \$20/acre.

Seven meetings are planned for the following locations in the Upper Big Blue NRD. Dates and locations include: January 25-Osceola; February 9-Seward; February 22-York; February 23-Geneva; February 24-Aurora; March 1-Hastings; and March 16-Clay Center.

At each of these meetings, 10 of the 22 possible topics will be presented. Long established crop management practices like soil testing for nitrates and using a soil test analysis that credits organic matter in its recommendations, or crediting legumes for nitrogen are some examples of practices that are not as widely adopted as they should be. On-farm research has demonstrated these, as well as many of the other practices that will be presented at the various locations.

Chapters to be included in the 10/\$20 program include: Eliminate one field operation, no-till dryland, no-till for irrigation, credit soil nitrogen, credit organic matter, eliminate unnecessary PKS applications, utilizing manure resources, legume credit, rotation effects, eliminate soybean inoculants, realistic yield goals, bean size, generic products, IPM wireworm, wheat diseases, soybean disease, lease/sharing equipment, pump plant efficiency, repair leaky gates, fine tuning furrow irrigation, harvest 13% soybeans, and on-farm research to see what works for you.

For more information about any of the workshops, or to register, contact your local extension office. ↓



"Turnbull's Turn..."

By John Turnbull,
General Manager of the
Upper Big Blue NRD

What the lessons of CROP-TIP can teach us...or, How would you like to afford a new pick-up truck this year?:



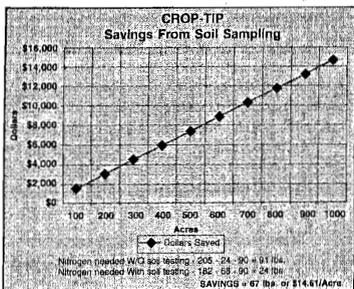
John Turnbull,
General Manager

If you have not read the article of "CROP-TIP Final Report (Year #1)" in this issue of *Blue-print*, I suggest that you do so.

If you have read the CROP-TIP Final Report article then you are most likely gaining an understanding of how important it is to soil sample before you begin planting this next season. Why? Because, the results that we found at the CROP-TIP site can be replicated on your acreage as well, and the results are indeed profound. In other words, you might just save enough money per acre in fuel and fertilizer costs to purchase yourself a new pick-up truck this coming harvest.

The "Savings From Soil Sampling" graph shows the cost savings of not applying more Nitrogen than is actually needed. In the spring, we soil sampled at three depths: 0-8" inches, 8"-36" inches and a vadose sample at 26 feet. It was determined that we had 2.9% organic matter at CROP-TIP. We also had an expected yield goal of 185 bushels of corn per acre. According to the University of Nebraska, if we did not soil sample to find nitrogen credits, we would have needed to apply 91 lbs. of nitrogen.

However, since we did sample, the University suggested that we need only apply 24 lbs. of nitrogen because of the credits found in the soil. (It should be noted that the previous crop for the last five years at CROP-TIP was alfalfa. A nitrate-nitrogen credit for an alfalfa field over five

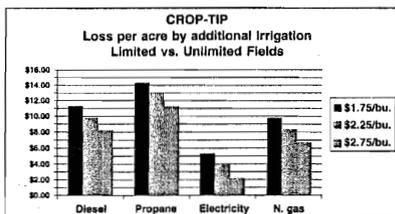


years old is 90 lbs/acre according to the University).

The difference between the 91 lbs. of nitrogen (without soil sampling) and the 24 lbs. (with soil sampling) is 67 lbs. of nitrogen saved. We figured that was a savings of \$14.61 per acre. Here's how we got the \$14.61 per acre savings: Fertilizer costs were \$0.23 cents per pound of nitrogen. By multiplying the 67 lbs. of nitrogen saved by 23 cents per pound, we get \$15.41. Our cost to soil sample per acre at CROP-TIP (labor costs/hourly wage and the cost for the laboratory to process our samples) average about \$0.80 cents per acre. We then subtract 80 cents from \$15.41 (because this is an additional production cost and not considered a savings) and we realize a \$14.61 per acre savings. Now, to understand the graph, we simply multiply our savings per acre of \$14.61 per the number of acres farmed. As an example, for a quarter section (160 acres) we would save \$2,337.60 by not applying more nitrogen than we needed because we soil sampled. If farming 500 acres, we would have saved \$7,305.00 and for 1,000 acres, we would save a total of \$14,610.00.

Now let's take a look at fuel costs to run our pump. At CROP-TIP we were pumping 650-700 gallons a minute according to our water meter. The pump ran on electricity; and as a result, we were able to gauge electrical use versus other fuel sources such as diesel, propane, and natural gas. Below is a graph depicting the loss in dollars per acre by applying one more additional irrigation. In reading this graph, we are calculating the additional application of 3.8 acre inches of water at CROP-TIP (which is the difference in acre inches between STATIONS 1 & 3 and STATIONS 2 & 4, or 19.1 minus 15.3 = 3.8 acre inches) and then show the net loss compared between the utilization of various fuel sources. The net loss then correlates to the three corn prices listed below.

For example, if you were to apply 3.8 acre inches of water and using propane with the price of a bushel of corn at \$1.75, you would lose a little over \$14.00 per acre. Multiplying \$14.00 per acre by 160 acres, we save \$2,240.00 by not applying one additional watering. At 500 and 1,000 acres the savings would be \$7,000.00 and \$14,000.00, respectively.



Obviously, results will vary at your farm depending on how much nitrogen you can credit and how much water you will need to apply in times of limited precipitation; however, it is

evident that some sort of savings can be realized, which contributes to having more income in your pockets.

With our 22.6 planted acres of corn at CROP-TIP we saved \$118.65 by not irrigating one additional time (Electricity as our fuel source using \$1.75 bushel price is \$5.25 on the bar graph. Multiply \$5.25 by 22.6 acres). Soil sample savings from the

previous graph at \$14.61 per acre multiplied by 22.6 acres is \$330.19. We saved a total of \$448.84 (\$118.65 plus \$330.19). If we had 1,000 acres at CROP-TIP, total savings would amount to over \$19,000. Also, we not only reached our yield goal, we surpassed it by 23 bushels an acre! Look for more updates on CROP-TIP (Year #2) throughout the coming 2005 Blueprint newsletters.

Is Sub-Surface Drip Tape Right for You?

By Marie Krausnick, Upper Big Blue NRD Lead Water Resources Technician

I remember my first summer with the Upper Big Blue NRD in 2000... besides having to learn a new geographical area of the state and new District Rules and Regulations, I discovered that there was a new irrigation system that was just beginning to gain momentum. It is called "Sub-Surface Drip Irrigation (SDI)". I am now currently starting my fourth year with the District and each successive year, I have been seeing that more and more acres are moving from gravity and center pivot irrigation towards Sub-Surface Drip Irrigation.

Installing a Sub-Surface Drip Irrigation system will lower pumping costs since the systems are working at a lower pressure, and applying less water than a gravity or center pivot system. Because the system applies water underground, there is no water loss due to evaporation and run-off. Using this system, in conjunction with a Chemigation Permit, allows producers to apply fertilizers at critical times in plant development, thereby decreasing fertilizer loss to leaching and volatilization.

Just like any irrigation system, Sub-Surface Drip Irrigation does require maintenance. For instance, burrowing animals can damage tape requiring the producer to patch holes. Chem-

icals need to be flushed through the system periodically to prevent mineral build-up in the lines. At times, filters will need to be rinsed to prevent clogging from sand and other particles pumped through the well.

Sub-Surface Drip Irrigation systems can also be cost prohibitive, however, if you are willing to help with the installation, some installers are more than happy to have an extra set of hands which can ultimately lower costs.

A major advantage of Sub-Surface Drip Irrigation systems is that they are ideal for irregular shaped fields where gravity and center pivot systems may not work as well.

There are two permits required to run a Sub-Surface Drip Irrigation system. First, the producer is required to file a one-time permit with the Nebraska Department of Environmental Quality, and second, a Chemigation Permit must be filed with the NRD.

The NRD does provide cost-share funds for converting a gravity irrigation system to a Sub-Surface Drip Irrigation system. You can apply for cost-share funds through your local Natural Resources Conservation Service office.

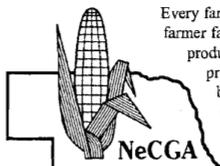


The crew of D&M Enterprises of Stromsburg, Nebraska, installs the mainline for a Subsurface Drip Irrigation System (SDI).



The picture above shows the filters and plumbing for the Subsurface Drip Irrigation System (SDI).

HUSKER F.A.R.M. (Farmers Advocating Resource Management)



Every farm is unique. Yet every farmer faces the same challenge: producing corn efficiently and profitably while using the best management practices (BMPs) that reduce the movement of crop protection products from fields into surface and groundwater.

The Nebraska Corn Growers Association, through the HUSKER F.A.R.M. Program, is helping producers identify those management practices that are best for their farm, and most effective in protecting our water resources.

These Best Management Practices Include:

- Improved tillage methods that reduce runoff, soil erosion and sedimentation.
- Irrigation scheduling to manage water runoff.
- Nutrient management: Applying plant food for efficient and safe use and reducing the possibility of its entry into surface water and groundwater.
- Conscientious pesticide management including scouting to determine threshold levels, plus understanding and following label directions.
- Buffer strips of grass and/or trees slow water runoff, trap sediment, and enhance water infiltration in the buffer.

- Proper storage and handling of ag inputs (plant food, fuel, pesticides).

FREE & CONFIDENTIAL CONSULTATION

When you enroll in the HUSKER F.A.R.M. Program, a consultant will join you in a review of your operation to help determine which management practices are best for your farm, with the future of your operation always in mind.

The consultant and review are free of any charge and are completely confidential. The review will include a free analysis of your home drinking water.

GETTING STARTED

Call the Nebraska Corn Growers Association at 888-267-6479 to arrange a confidential *Best Management Practices* review of your operation. A professional consultant will help you gather the necessary information and complete the review without charge or obligation. For more information, see the web site at www.necga.org



Time to Order Tree & Shrub Seedlings for 2005

Spruce up your garden area with a Norway Spruce...or any other part of your property with over 27 species of trees and 16 types of shrubs. The Upper Big Blue NRD is selling a wide variety of trees and shrubs to folks who want to plant them for windbreaks, wildlife areas, riparian buffer strips or for other conservation practices. The seedlings are one to two years old and come with a helpful set of instructions for their planting and care.

Seedlings are sold in bundles of 25 for 60 cents a tree/shrub. That's only \$15.00 for a bundle of 25 (price is subject to change due to increasing nursery costs). An order form is attached to this newsletter for you to fill out or you can call Linda Martindale at (402) 362-6601 to place orders. The Upper Big Blue NRD web-site also has order forms that are convenient to fill out at: www.upperbigblue.org or you can fill out the form on the back of this newsletter.

If you would like the NRD to plant trees/shrubs for you, then an order of 150 or more trees and shrubs is necessary. The NRD charges an additional 40 cents a tree and shrub for the planting service (price is subject to change due to increasing planting operation costs). To have a planting plan designed for you, please contact your local NRCS office or Ken Feather at the NRD office in York at (402) 362-6601.

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HUSKER F.A.R.M.

Time to order tree and shrub
seedlings for 2005

UPPER BIG BLUE NATURAL RESOURCES

A Turn to Environmental Health

By Jennifer Sundberg, Environmental Health Manager of Public Health Solutions—Crete, NE

Public Health Solutions, serving the counties of Fillmore, Saline, Jefferson, Thayer, and Gage, has recently brought an Environmental Health Manager on board. Public Health Solutions is your local health department, located in Crete. Four Corners Health Department in York, Central District Health Department in Grand Island, and South Heartland District Health Department in Hastings are our counterparts serving the remainder of the Upper Big Blue Natural Resources District. We are excited, here at Public Health Solutions, to offer the services of an environmental health division to the people of our district. However, the term "environmental health" may require a little further explanation.

As a public health department, our core functions are outlined as Assessment, Policy Development, and Assurance. Within each of these core functions lies the environmental aspect of the public's health. Assessing and investigating water, soil, and air quality, which could certainly include our "built" environment with issues such as lead, radon, asbestos, or carbon monoxide. Planning and developing policies that address priority health needs are also important when focusing on the environment in which we live. Providing assurances to the public through the implementation of programs that educate about possible sources of environmental hazards and help to alleviate these hazards before they cause harm to one's health.

As a society, we have learned that both long and short term exposures to a variety of materials in our environment can

make us ill, acutely or chronically. Nitrate contamination of groundwater is a good example of this and one that hits home in many communities across Nebraska.

Nitrogen fertilizer has proven to be a vital nutrient in growing superior crops, but we have also learned that proper management of this resource is equally vital for protecting our drinking water supplies. Lead poisoning, rabies, hazardous wastes, air pollution, environmental emergency response, and vector control are also examples of environmental health concerns that may at one time or another affect our communities. It is our goal as a public health department to work with appropriate entities, such as the NRD, to best serve, educate, and find solutions to the health needs of communities within our district.

Right now, we are in the beginning stages of building an environmental program at Public Health Solutions and are certainly interested in hearing from our constituents. Please feel free to contact us with questions or environmental concerns that you feel may need to be addressed. We look forward to working with you and your NRD!

Public Health Solutions district health department, 975 East Highway 33, Suite 1, Crete, NE 68333. Telephone: (402) 826-3880 or 888-310-0565.



Upper Big Blue NRD Staff

John Turnbull	General Manager
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Rodney DeBuhr	Water Dept. Manager
Ken Feather	Parks Dept. Manager
Nancy Brisk	Office Manager
Jeffrey Ball	Lead Engineering Technician
Randy Saathoff	Engineering Technician
Marie Krausnick	Lead Water Resources Technician
Russell Gierhart	Water Resources Technician
Dan Leininger	Water Conservativist
Nancy Chitwood	Aurora Field Office Clerk
Sylvia Jividen	Geneva Field Office Clerk
Delores Gray	Seward Field Office Clerk
Nancy Schuerman	York Field Office Clerk
Rita Hoblyn	Projects Dept. Secretary
Lori Hoemann	Water Dept. Secretary
Linda Martindale	Office Reception/Secretary
Scott Snell	Public Relations Specialist
Sam Keezer	Maintenance Worker

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BLUEPRINT

The BLUEPRINT newsletter is published quarterly by the Upper Big Blue Natural Resources District.

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BLUEPRINT

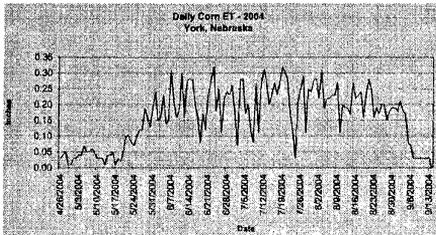
Daily Crop Water Use Helps Irrigators Save Money and the Environment

by Rod DeBuhr, Upper Big Blue NRD Water Dept. Manager

Understanding crop water needs is critical to efficient irrigation. Too little water will result in crop stress that will reduce yield. But over irrigating will also have negative impacts on the bottom line. For every inch of water in excess of crop needs, whether from irrigation or rain, will leach 5 lbs. of nitrogen out of the root zone. With anhydrous ammonia prices around \$400 per ton, the yield loss from lost nitrogen or the extra cost of over applying nitrogen to compensate can add up to a considerable amount of money. When you add the cost of the lost nitrogen to the cost of pumping every inch of extra irrigation water can add as much as \$8.00 per acre to the cost of production. The nitrogen leached out of the root zone of the crop is likely to eventually end up contaminating our ground water supply.

wind, humidity and solar radiation (sunlight).

The NRD and High Plains Climate Center at the University of Nebraska operate an automated weather station near York. The data collected from this station is used to determine crop ET for corn, soybeans and sorghum. It is available from a variety of sources. It is published in the York News-Times daily during the irrigation season. It is broadcast daily on KAWL Radio (1370 AM). Crop ET data is also posted on the NRD's web site: www.upperbigblue.org. Extension Educators in the area also have access to the data and distribute it through telephone hotlines and local papers. If a producer wants to customize crop water use for his or her specific fields and crops the High Plains Climate Center offers fee based access to their web site. For information on setting up your own account go to www.hprcc.unl.edu/online/charges.html.



Scheduling irrigation based on the known factors is key to avoiding over irrigation and being sure that the crop has an adequate water supply. There are several methods of irrigation scheduling. One of the most common is called the check book method. As the name implies it is similar to keeping a check book, only we are keeping track of water instead of money. To keep an accurate check book of available water for a crop the irrigator needs to know how much usable water is stored in the soil, how much water is being added by rainfall and each irrigation and the crop water use.

Crop water use, also called evapotranspiration (crop ET), is the amount of water that evaporates from the soil surface and transpires from the leaves of the plants. This is expressed in hundreds of an inch per day (0.23 in/day). Crop ET can vary greatly from day to day depending on weather factors including temperature,

The soil profile is the reservoir that a crop uses to supply its water and nutrient needs. Knowing how much water the soil can hold and has available to the crop at any given time will help the irrigator time irrigation for the most efficient water application. In the Upper Big Blue NRD most soils fall into the categories of silt loam and silty clay loams. These soil types will hold 2 to 2.5 inches of available water per foot of soil.

(cont'd on page 2)

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Daily Crop Water Use *(continued from page 1)*

Typically crops like corn and soybeans will root to depths of 4 feet under irrigation. The depth of the crop roots can be estimated by crop stage. For example: corn will have roots 2 feet deep at the 12 leaf stage and 3 feet deep at silking. The accompanying chart

Assumed root depth (ft.)	Corn	Grain Sorghum	Soybeans
1.0	Vegetative	Vegetative	Vegetative
2.0	12 leaf		Early bloom
2.5	Early tassel	Flag leaf	Full bloom
3.0	Silking	Boot	Pod elongation
3.5	Blister	Bloom	
4.0	Beginning Dent	Dough	Full seed fill

Source: UNL NebGuide - G85-752-A

shows root depths of the common irrigated crops in the Upper Big Blue NRD.

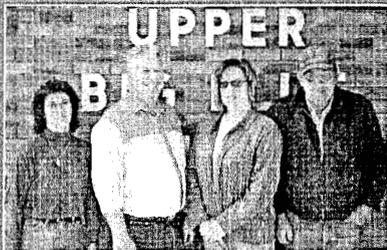
Effective rainfall is the amount of water actually stored in a soil profile. This will depend on several factors. If the rain comes too fast, some of it will runoff. A gentle rain that does not runoff will be nearly 100% effective if there is room for it in the root zone of the soil profile. If the soil profile is full, the rainfall will have the same affect as over irrigation, leaching nutrients below the root zone of the crop. When possible it is beneficial to leave some room in the soil for rainfall.

The University of Nebraska NebGuide G85-753-A - "Irrigation Scheduling Using Crop Water Use Data" is a good source of information on getting started with the check book method of irrigation scheduling. For more information about the Crop ET data from the NRD and High Plains Climate Center weather station contact Dan Leininger or Rod DeBuhr at the NRD - (402) 362-6601.

OUT OF THE BLUE

Five NRD employees and one Board of Director reach milestones:

The Upper Big Blue NRD has nineteen employees. Many have been with the NRD for several years.



Pictured left to right are: Lori Hoemann - Water Department Secretary (15 years), Russ Gierhart - Water Resources Technician (10 years), Rita Hoblyn - Secretary (10 years) and Sam Keizer - Maintenance Technician (10 years)

Also, John Turnbull - General Manager, was recently awarded the 2005 "NRD Outstanding Leadership Award" from the Nebraska Land Improvement Contractors Association. The award recognizes Mr. Turnbull for "Demonstrating Outstanding Leadership in the Management of the Direction of the Upper Big Blue

Natural Resources District and in the Promotion of Soil and Water Conservation".

Larry Moore is celebrating his 30th year as an Upper Big Blue NRD Board of Director. Mr. Moore is also the Chairman of the NRD Water & Regulations Committee. Mr. Moore has demonstrated outstanding leadership and knowledge in carrying out the workings of the board and respectfully representing constituents from all over the District. Congratulations to all



Larry K. Moore of Upper Big Blue received recognition for 30 years as a Board of Director

Nebraska Department of Environmental Quality



On another note, the City of Seward won second place at the Nebraska Community Improvement Program (NCIP) Conference for their project submission of the Plum Creek Hiking & Biking Trail. The Upper Big Blue NRD helped plan and design the 2.5 mile trail, which winds down from Plum Creek Park in northeast Seward, moves along the lower campus of Concordia University, and follows the creek to the south of Highway 34.

Seward was competing against the cities of Aurora, Central City, Gothenburg, Kimball, St. Paul, Sidney, Superior and Wayne and received a special plaque and \$300 from the NCIP (The NCIP Awards are sponsored by the Nebraska Department of Environmental Quality). Congratulations Seward!

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DAILY CROP WATER USE (cont'd)

OUT OF THE BLUE:
Milestones and Honors

UPPER BIG BLUE NATURAL RESOURCES

New Board of Directors are sworn in... Board Positions are established for 2005

At the beginning of the January 2005 Board meeting, John Turnbull, General Manager of the Upper Big Blue NRD held a swearing in of the following Board of Directors embarking on a new term:



*Pictured above, left to right are:
Gary E. Eberle of Bradshaw, William V. Kuehner of Doniphan,
Roger W. Houdersheldt of Shelby, Steve A. Buller of York,
Douglas Bruns of Waco, Merlin M. Volkmer of Shickley,
Curtis J. Friesen of Henderson and John Turnbull, General Manager.
These board members will serve for a term of four years.*

Yvonne C. Austin of Staplehurst is sworn in for another 4-year term as a member of the Board of Directors by General Manager John Turnbull.

In related news, **Board of Directors positions for the 2005 Executive Committee** are as follows:
Roger W. Houdersheldt of Shelby — **CHAIRMAN**
Curtis J. Friesen of Henderson — **VICE CHAIRMAN**
Douglas Bruns of Waco — **SECRETARY**
Augustus M. Brown, Jr. of York — **TREASURER**
Douglas L. Dickinson of Seward — **NARD (Nebraska Association of Resources Districts)**
REPRESENTATIVE
Yvonne C. Austin of Staplehurst — **NARD (Nebraska Association of Resources Districts)**
REPRESENTATIVE ALTERNATE

USDA Rural Development Grants Available

*By Marie Krausnick, Upper Big Blue
NRD Lead Water Resources Technician*



Twenty-two million dollars in grant funds will be available through the USDA Rural Development in 2005. The USDA is looking for farmers and business owners willing to increase their energy efficiency. Irrigators may use the funds for gear-head improvements, or converting high energy using gravity irrigation with more energy efficient alternatives such as Center Pivot and Sub-surface Drip irrigation.

The grant will cover up to 25% of the project's cost with a

maximum of \$250,000. In many cases, the fund can be paired with EQIP or NRD cost share programs. Currently, there is no application date set, but they hope to have funding by early spring.

The application process can seem quite daunting. There is a lot of legwork involved. You will need to acquire an energy audit, cost estimates, technical layout, and other such information for your application to be complete. Your local USDA Rural Development Specialist will be able to help get you off on the right foot. In our area, the closest Specialists are, Jan Knobel in Beatrice at (402) 223-3125 or (402) 446-7414; and Dan Laska in Columbus at (402) 564-0506. Feel free to contact either Specialist to find out more information about this program.

DISTRICT **BLUEPRINT** 2005 NEWSLETTER

NEW BOARD MEMBERS SWORN IN

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USDA RURAL DEVELOPMENT GRANTS AVAILABLE

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"Turnbull's Turn..."

By John Turnbull,
General Manager of the
Upper Big Blue NRD



John Turnbull,
General Manager

[The following Aurora News-Register news article covering John Turnbull's March 9, 2005 presentation in Aurora, Nebraska: "The Future of Irrigated Agriculture in Hamilton County and Surrounding Areas" is reprinted with permission from the Aurora News-Register and the article's author Laurie Pfeifer]

Irrigation Forecast Sobering

A stay on surface water and groundwater well permits.

Mandated certification of groundwater use acres.

Water allocation.

It's old hat in river basins in Western Nebraska, like the Republican River Basin, where irrigators have been under strict regulations for years. But it's unheard of in the Platte River Basin where the pool of water in the aquifer beneath has always been believed to be bottomless.

It's coming. Sooner rather than later.

Ag producers, city and business leaders got a 90-minute lesson on groundwater regulations in fully and over appropriated river basins last Wednesday [March 16, 2005] during an Aurora Area Chamber & Development (AACD) Agricultural Committee-sponsored meeting. Upper Big Blue Natural Resources District, General Manager, John Turnbull talked about the number of irrigation wells and irrigated acres in the state. He talked about groundwater levels, reporting and allocation triggers.

He traced the groundwater history of river basins in western Nebraska like the Republican River Basin where groundwater regulations are old hat. But he saved his most important comment for last and it came in the form of a prediction.

Turnbull predicted one third of the Platte River Basin within the Upper Big Blue NRD, an area once believed to be blessed with an endless supply of groundwater in the aquifer beneath it, will reach fully appropriated status by Jan. 1, 2006.

"I think what's going to happen by Jan. 1 is all of the Loup Basin and all the Elkhorn Basin is going to be fully appropriated. And I think probably about a third of this basin will have fully appropriated status on the same date. It's going to change the way we do business," he said.

The "we" he referred to included farmers and municipalities, as

well as Natural Resources Districts that regulate groundwater use and well expansion for agriculture and municipal purposes.

"If the Department of Natural Resources declares the Platte River Basin fully appropriated above Ashland to Columbus, it's going to impact about 40 percent of this Natural Resources District. We'll see restrictions on about 400,000 irrigated acres in our district and that will be because of instream flows in the lower Platte," he explained. And, he added, the impact will reach far beyond agriculture. "It's going to affect the City of York as they look for new well fields and it's going to affect Aurora as you look at future water supplies," he said.

A number of Upper Big Blue NRD groundwater regulations already are in place. Well permits are required for wells pumping greater than 50 gallons per minute. There is a required 1000 feet of space between wells of different ownership. Water meters are required on all new wells. Turnbull said if groundwater drops another 1.14 feet, every ag producer will be required to certify acres and submit water use reports.

And, if groundwater drops 4.14 feet from last spring's level, meters will be required on all wells and the NRD will go to allocation, limiting the amount of water irrigators can pump during a three-year water use period to 48 acre inches for each certified groundwater use acre.

"It doesn't matter how many wells you have, we're regulating water use per acre, not per well," he said.

There currently is no moratorium on well drilling in the Upper Big Blue NRD where groundwater use is regulated by the Correlative Rights Doctrine that says groundwater users will share and share alike in times of shortage, unlike the Appropriative Doctrine that governs surface water use with the "first in time, first in right" philosophy.

"The Correlative Rights Doctrine says we share in good times and we share in times of shortage and that's why our board hasn't put a moratorium on well drilling or expanding acres," he said.

That could change if the Platte River Basin reaches fully appropriated status. Under that status, LB962 requires a balance be maintained between water use and supply. There would be a stay on surface water and groundwater well permits, new surface water development would be restricted and NRDs that allow expansion of water use acres would be required to regulate existing users as well.

"If we become fully appropriated here, the NRD has to decide if we allow expansion and then as a result, put restrictions on everyone," Turnbull said. "My advice to the board is not to allow expansion if we become fully appropriated. I'd rather have one person mad at me because we won't allow expansion, than 500 mad at me

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"TURNBULL'S TURN"
Irrigation Forecast Sobering

UPPER BIG BLUE NATURAL RESOURCES



John Turnbull explains the implications of a possible fully appropriated basin. Photo by Laurie Pfeifer, Aurora-News Register

because we have to restrict existing users because we allowed expansion."

Turnbull's presentation drew questions from the estimated 90 people in attendance, including Aurora's Jayne Mann who questioned how communities could continue to attract new development if water restrictions were in effect.

Turnbull said the concern is valid. "How do you keep communities alive and growing and still take care of agriculture? We don't want a huge conflict between city and agriculture and the 250 gallon per capita limit that would be imposed for municipalities allows room to grow. "York, Aurora, Stromsburg and other communities like them will not have a problem with that limit," he said. "There's still room for communities to provide water for new industry coming in."

Upper Big Blue NRD board member Ken Regier said the Wednesday morning irrigation meeting served an important function in that it educated people on water issues. "A lot of people didn't know what was going on and appreciated the update on water issues," he said. "They said they didn't know we were going to be faced with issues like we have on the plate right now."

And the biggest issue, Regier added, is the possibility the area will be designated fully appropriated. "That's the big issue we're going to face. I don't know 100 percent that it's going to happen, but it looks like that's the direction it's going and it's going to drive the agricultural economy," he said.

AACD Agriculture Committee Chairman, Reid Hagstrom, said he was happy to see a large number of producers, business people and city leaders present at the meeting. "If it comes to the point where this area is fully appropriated, we'll have to deal with issues that have never hit this area," Hagstrom said. "They're issues everyone will have to deal with. It will affect the city, businesses relocating and producers. I'm just glad the NRD is looking out for our interest now instead of having it sprung on us like it was out west."

- by Laurie Pfeifer, Aurora News-Register (Aurora, Nebraska)

SPECIAL NOTE

from John Turnbull,

General Manager, Upper Big Blue NRD.

In 1990, the Upper Big Blue NRD Board of Directors established the level for which groundwater readings will be delineated and at what point certain triggers will become active.

At the January 2004 Upper Big Blue NRD Board of Directors meeting, the board made changes to the District's Rule #5 pertaining to groundwater regulations and management.

The spring of 2004 groundwater level reading was 1.14 feet above the reporting trigger and 4.14 feet above the allocation trigger. The 2005 groundwater level readings will be recorded throughout March and April. By June of 2005, the average groundwater level will be determined.

Check Your County Assessor's Records:

If the reporting trigger is hit, producers will need to certify their irrigated acres and report crop water use. It would be a good start for a producer to visit with his/her county assessor, view their tax rolls and make certain of the number of irrigated acres on those tax rolls. REMEMBER - Land classified as dryland by the assessor will not get an allocation.

The regulations mandate that producers will be responsible for installing flow meters on existing wells if the groundwater level hits the allocation trigger. If the allocation trigger is hit, producers must install meters. If the allocation trigger is reached and producers and other users have not installed flow meters by the next calendar year, then they will not be able to pump any amount of water until a flow meter is installed. Since March 1, 2004, all new wells and replacement wells require a flow meter.

It is important to note that the basis for determining allocation in the Upper Big Blue NRD was founded in the existing regulations that have been in place in this District since 1979 and not because of the creation of LB962.

The biggest challenge will be faced if the Nebraska Department of Natural Resources (state government) designates any part of the Upper Big Blue NRD (sub-division of local government) as a "Fully Appropriated Basin"...then the NRD will have to determine how to regulate water use.

CROP TIP

CROP-TIP 2005 Forecast...

By Dan Leininger, Upper Big Blue NRD Water Conservationist



Dan Leininger, Water Conservationist at the Upper Big Blue NRD inspects gravity irrigation pipe at CROP-TIP.

Planting season will be here before we know it and with that in mind, here are some strategies that we plan to implement at CROP-TIP in 2005:

We hired a contractor to build up the east end of the field with dirt from several high spots on the west end of the field. There is a high area in the center of the field, but we decided not to use dirt from this spot as it would damage the

fertility of the soil and uneven ground is common to gravity irrigation. Therefore, we want CROP-TIP to be as realistic as possible.

We plan on raising our yield goal from 185 bushels per acre to 200 bushels per acre and to plant the same hybrid as last year so that we have an accurate comparison to results from 2004.

Soil tests were taken last fall and we will take more this spring to get a current picture of the farms fertility. As we did in 2004, we will use the University of Nebraska's equation to calculate the amount of nitrogen required to meet our yield goal of 200 bushels per acre.

With the moisture we have received last fall and this winter, we will have a decent soil moisture profile to start the growing season. Moisture blocks will be used to measure soil moisture and an atmometer will measure evapo-transpiration and will help in the scheduling of irrigation.

In the limited irrigation fields for 2005, we are planning to close the window of applying irrigation water to the critical water use periods of the corn plant's life. This window of application starts at the emergence of the tassel through early ear development.

Our goals for 2005 at CROP-TIP are to use soil tests to apply only the amount of nitrogen necessary to meet our yield goal and to demonstrate that limiting irrigation water to critical soil moisture stages in the corn plant's life will produce yields similar to continuous irrigation. This will be accomplished by keeping track of soil moisture with moisture blocks and the use of an atmometer that will measure evapo-transpiration to schedule the irrigation periods.

NOTICE TO IRRIGATORS IN THE UPPER BIG BLUE NRD:



Illegal irrigation run-off is detrimental to conservation efforts.

State law prohibits the occurrence of uncontrolled irrigation runoff. Therefore, it is illegal to operate an irrigation system that causes water to run on to a second party's land, thereby causing detriment to the second party. The Upper Big Blue NRD is responsible for the enforcement of this law. The NRD encourages all irrigators to voluntarily control irrigation runoff. It is also illegal to operate an irrigation system that contributes to wasting groundwater.

As part of the NRD Land Treatment Program, the board of directors have budgeted cost-share funds for installation of irrigation water reuse pits and surge valves. Cost-share funds for reuse pits may also be available from state or federal sources.

Technical assistance is available from the NRCS for solving runoff problems. For more information, contact your county NRCS office or the Upper Big Blue NRD at (402) 362-6601.

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CROP-TIP 2005 FORECAST
NOTICE TO IRRIGATORS
IN THE UPPER BIG BLUE NRD

UPPER BIG BLUE NATURAL RESOURCES



**"Blue"
says...**

Have You Checked Out NeRAIN?

By Marie Krausnick,
Upper Big Blue NRD

Lead Water Resources Technician & NeRAIN Coordinator

If you have not checked out NeRAIN—"Nebraska Rainfall Assessment and Information Network"—you are missing out on the most up-to-date rainfall readings in our area.

What makes NeRAIN so effective are the volunteers and their rain gauges. Volunteers read their rain gauges at the same time each day ensuring the information they are submitting is for the same time period

all across the state. And, the rain gauges are National Weather Service approved so that all the volunteers are reading from the same scale for accurate rainfall measurement.

Volunteers are still needed in most counties in our district. If you live in one of the Townships below, and would be interested in becoming a NeRAIN volunteer, please give Marie Krausnick a call at (402) 362-6601.



Butler County:

Center
Olive
Plum Creek
Summit
Ulysses

Clay County:

Eldorado
Harvard
Lewis
School Creek
Sutton

Fillmore County:

Bennett
Chelsea
Exeter
Glengary
Grafton
Liberty
Madison
Mormone
Stanton
West Blue

Hamilton County:

Deep Well
Farmers Valley
Hamilton
Phillips
Orville
Otis
Scoville
Union

York County:

Baker
Bradshaw
Hays
Henderson

Seward County Township Letters:

B, C, E, F, K, M and N

<http://dnrdata.dnr.state.ne.us/NeRAIN>



BLUEPRINT

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DISTRICT

BLUEPRINT

2005
NEWSLETTER

HAVE YOU CHECKED OUT NeRAIN?

DIRECTORS & STAFF

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"Aurora's GIS system aids decision making and long range planning"

City of Aurora cooperates with NPPD, Upper Big Blue Natural Resources District, and Hamilton County to develop GIS system at reasonable cost

By Mike Bair, City Administrator—City of Aurora, Nebraska

[This article is reprinted with permission from Mike Bair-author, and the University of Nebraska - Lincoln Cooperative Extension "Technologies Across Nebraska" Newsletter, where it was first published].

In 2002, the City of Aurora applied for and received a Nebraska Information Technologies Commission (NITC) grant to assist with implementing a Geographic Information Systems (GIS) project for the City's utilities and planning operations. Using the NITC grant and City matching funds, the City contracted with GIS Workshop, Inc. to construct the basic computer/data infrastructure necessary for the development of an ongoing GIS effort. Under the direction of GIS Workshop, Inc. personnel, City employees collected data on the size, age, material, condition and other data regarding the utility infrastructure of the city's water, sewer and street systems. GIS Workshop, Inc. and the City of Aurora employees teamed up to locate and collect physical data regarding manholes, sewer cleanouts, water valves, fire hydrants, depth to flow lines, direction of flow information, size of pipe data and integrated the Global Positioning System (GPS) data along with the text data into the City's base GIS project.

A major requirement of the NITC grant application was to partner and share data and information from other public and private agencies working in and around the City. The City was able to obtain an aerial photo from Nebraska Public Power District (NPPD). At the time of the City of Aurora's GIS project, NPPD was working on a model electrical GIS project involving the community of Aurora. An aspect of the NPPD project included a recent, colored aerial photograph of Aurora, which was of exceptional detail. The City's consulting engineering firm also had considerable GPS information available on Aurora. When surveying the community for projects in the past, the firm would occasionally expand their survey area for the purpose of constructing a digital base map for the City, noting the location of street centerlines, storm sewer inlets, and water and sewer mains; as a result, much of the infrastructure was already available in digital format.

The City also entered into a joint venture project with the Upper Big Blue Natural Resources District (NRD) to develop a detailed, digital terrain model of the City and adjacent areas. The area covered by the project included approximately 26 square miles, geo-referenced to vertical and horizontal datum. Approximately 9 square miles, including the City and adjacent areas of the project area were contoured on a 2-foot contour



Aerial view of the city of Aurora. The mapping was produced through the partnership between the city and the NRD.

interval accurate to within ½ foot. From this data, the NRD will provide the City with a Master Drainage Plan, which will determine hydraulic capacities of streams and drainage ways for use to calculate culvert capacities, sizing of future storm water collection sewers and the future location of storm water detention areas. The information will also be used in formulating the City's Wellhead Protection Area. The City has already realized benefits from the terrain modeling in that the topographic data was used to design a recently installed waterline project eliminating the expense for land surveying. The terrain modeling project is

expected to pay for itself by reducing the cost of preliminary engineering design for water, sewer, street, walking trail and other City projects. The NRD has also provided competent staff assistance for training in the use of GIS software.

Additional GIS information has been provided to the City of Aurora by Hamilton County. The Hamilton County Assessor has been very active in the adoption of GIS technology and has provided total cooperation in working with the City in the development of our GIS project. The City was recently provided GIS files containing the digital property lines of all the tracts of land in Hamilton County, including within the City of Aurora. The County Assessor's staff has become proficient in the use of GIS software and provides technical assistance to City staff in its use.

The Aurora City Council, Aurora Planning Commission and numerous committees have come to depend upon GIS information for their meetings. A recent meeting of the Mayor's Walking Trail Advisory Committee used Aurora's GIS to determine the optimum path for a half mile expansion of the Lincoln Creek Walking Trail. Using the contour data developed in partnership with the NRD, overlain on the NPPD air photo, the Committee determined the route for the trail expansion along a localized waterway, which contained the least change in grade. Using the property boundary overlays provided by Hamilton County, the Committee was able to determine a route located totally on publicly owned land for the Trail expansion. Three additional residential neighborhoods are now served by the trail system as a result of this expansion.

In summary, The City of Aurora has found the use of GIS to be an indispensable tool for day-to-day decision making, as well as long range planning. Through cooperation with other units of governments and others, the City has been able to develop a functioning GIS system at reasonable cost.

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CITY OF AURORA, NPPD &
UPPER BIG BLUE NRD DEVELOP
GIS SYSTEM

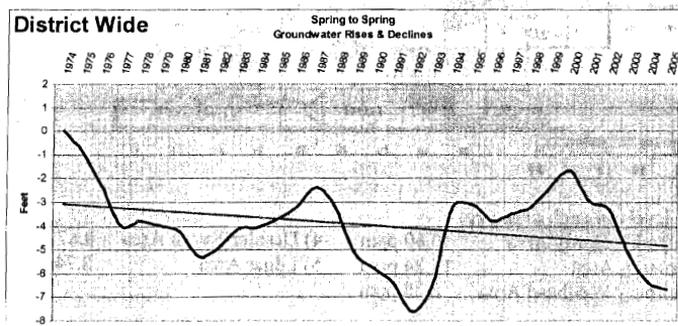
BLUEPRINT 2005
NEWSLETTER

Little Blue Natural Resources District Report to the Blue River Compact

May 12, 2005

Groundwater Level Changes

The Little Blue NRD measured 343 irrigation wells in April, 2005 and results indicated a water level decline which averaged 0.33 feet lower than levels recorded in April, 2004. The water levels reflect a 5 year declining trend, fostered by the ongoing drought conditions. Over those 5 years, the average water level has declined by 5.65 feet. Even with these drought impacts, the water level is still approximately 1 foot higher than our lowest levels of record which were recorded in 1992. Sixty-nine of the 343 monitored wells have declined below their lowest recorded level. Approximately 55% of those wells are in the headlands of the watershed in Adams and Webster Counties. The others with "lowest levels" are scattered throughout the district and dependent on the formation into which the well is drilled. Spring 2005 water levels in the middle section of the Basin, including Clay, Nuckolls, Fillmore and Thayer Counties, showed average rises in nearly every township. The charts below show the trend lines since the NRD started recording levels in 1975.



Well Construction

The Little Blue NRD has 5,797 registered irrigation wells and 31 industrial/commercial wells. No restrictions exist on high capacity well development at this time and the drought has brought additional drilling activities. Through 2004, there were 143 new high capacity wells registered in 2004, 29 of which were replacement wells. Fifteen of these wells were actually drilled in the previous year but registered in 2004.

Water Quality Activities

The Little Blue recently established a water quality management sub-area which includes a 186 square mile area of Nuckolls and Clay Counties. One hundred sixteen wells were sampled with average nitrate levels at 8.74. One of the criteria for our designation is that 60% of the wells must be over our 7.0 ppm trigger level before we move to a higher level of management. The staff conducted training this winter for about 180 operators.

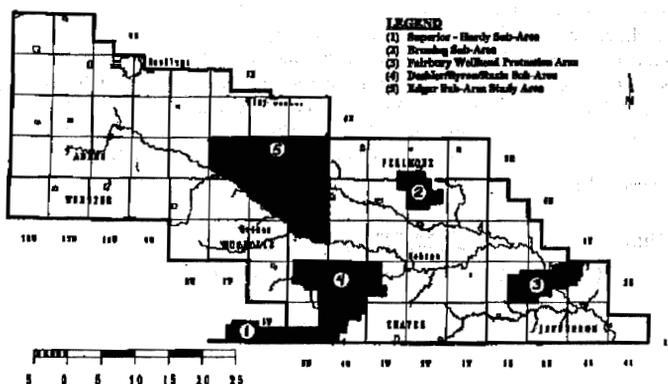
Water Quality Activities, Con't

Other mandates will be the establishment of a "private demonstration field" where the operator will be required to conduct required management activities (soil sampling, nitrogen BMPs, irrigation scheduling, etc.) to compare with other fields and operations. The goal is that after seeing the benefits and economic returns of doing the "right things" on the demo field, those practices will be applied throughout the operation.

The NRD now has five such designated areas covering portions of our District where groundwater nitrates exceed acceptable levels as shown below.

WATER QUALITY SUB-AREAS

NOTE: Level 1 Groundwater Management Area outside throughout entire District.



The nitrate levels in each area are:

1) Superior-Hardy Area	10.60 ppm	4) Deshler/Byron Area	9.87 ppm
2) Bruning Area	15.24 ppm	5) Edgar Area	8.74 ppm
3) Fairbury Wellhead Area	8.38 ppm		

Changes in Ground Water Management Plan

Revisions are being made to our Groundwater Management Plan and associated rules and regulations. Some key changes are to prohibit fall fertilizing before November 1st, allow the district to move more quickly than normal triggers allow in evolving "hot spots", (whether quality or quantity) increase well spacing requirements, restrict water transfers, provide for well moratoriums if needed, and development of water allocation restrictions.

Little Sandy Creek Watershed

The Little Sandy Creek Watershed development has been on hold most of the past year as we awaited approval of our storage permit for one key dam. The permit was signed in February, and we are now making plans for summer construction of the project. We have also started engineering for the next project, Dam Site 40, which will control a 14,500 acre drainage, providing significant flood control and groundwater recharge benefits in the Thayer and Jefferson County areas. This structure may be large enough to offer stream flow augmentation for the Little Blue River.

KANSAS-NEBRASKA BIG BLUE RIVER COMPACT REPORT
U.S. Geological Survey—Water Year 2004

The U.S. Geological Survey (USGS) continues to operate two streamflow gaging stations for the Compact Administration—Big Blue River at Barneston, NE (06882000), and Little Blue River at Hollenberg, KS (06884025). An electronic data logger (EDL) at each station automatically records streamflow stage every 30 minutes. These instantaneous values are transmitted via GOES satellite, to USGS offices where they are used to compute preliminary values of instantaneous and daily discharge. Before the data are finalized, updates and revisions are made as needed, based on a series of quality checks and reviews. Finalized values of daily discharge and summary statistics are published in the USGS annual water-resources data report for Nebraska.

During water year 2004 (October 1, 2003 to September 30, 2004), periodic visits were made to the stations to maintain and calibrate the sensing and recording equipment, make discharge measurements, and download the data directly from the EDLs, as a backup to the satellite data. The discharge measurements were used to determine shifts from the stage-discharge relations (rating curves) that were then used to convert stage values to corresponding values of discharge.

For the **Big Blue River at Barneston**, eleven discharge measurements ranging from 116 ft³/s at a stage of 3.48 ft to 4,450 ft³/s at a stage of 9.58 ft were made. The 2004 WY annual mean discharge of 576 ft³/s was more than the 397 ft³/s for WY 2003, but less than the 859 ft³/s mean discharge for the prior period of record (1933–2003 WYs). The maximum and minimum daily discharges during WY 2004 were 17,900 ft³/s on May 30 and 88 ft³/s on January 25. A new record daily maximum was set for May 30. The largest runoff events occurred during March, and May–June.

For the **Little Blue River at Hollenberg**, nine discharge measurements ranging from 69.7 ft³/s at a stage of 1.98 ft to 1,445 ft³/s at a stage of 4.64 ft were made. The 2004 WY annual mean discharge of 330 ft³/s was less than the 441 ft³/s for WY 2003 and the 525 ft³/s mean discharge for the prior period of record (1975–2003 WYs). The maximum and minimum daily discharges during WY 2004 were 6,990 ft³/s on June 16 and 40 ft³/s on September 20. Record daily minimums were set for January 24–29 and January 31–February 1. The largest runoff events occurred during March, and May–June.

For each station copies of the WY 2004 graphical summary, manuscript, and daily-values table/statistics pages from Water-Data Report NE-04-01 (online only at <http://water.usgs.gov/pubs/wdr/>) are attached. Also attached are plots of the annual mean discharges for the periods of record, and plots of the daily discharges for WY 2004 compared to those for the lowest and highest years on record and to the historic minimum, median, and maximum values for each day of the year. Data were provided to Jeff Shafer of the Nebraska Department of Natural Resources, as requested, along with proposed costs for continued operation of the stations.

Current (real-time) and historic data on surface-water, ground-water, and water-quality for the Nation can be accessed online via the general Water Resources website (<http://water.usgs.gov/>) or from the National Water Information System Web (NWISWeb) site (<http://waterdata.usgs.gov/nwis/>). Daily, monthly, and annual streamflow statistics are also available from NWISWeb. Real-time data—up to 31 days of unit values or 18 months of daily values—for Nebraska and nearby sites (including both Compact stateline streamflow sites) can also be accessed from the USGS Nebraska Water Science Center (formerly Nebraska District) website (<http://ne.water.usgs.gov/>).

Phil Soenksen
Chief, Hydrologic Data Section
May 11, 2005



2004 Water Year
KANSAS RIVER BASIN

06882000 BIG BLUE R AT BARNESTON NEBR

Latitude: 40° 02' 40"

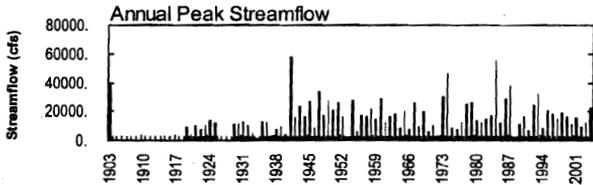
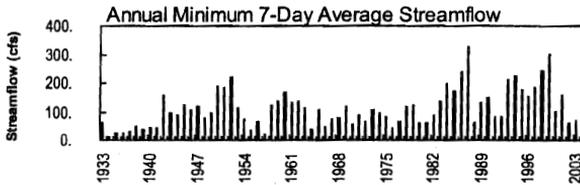
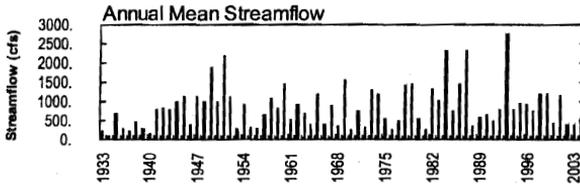
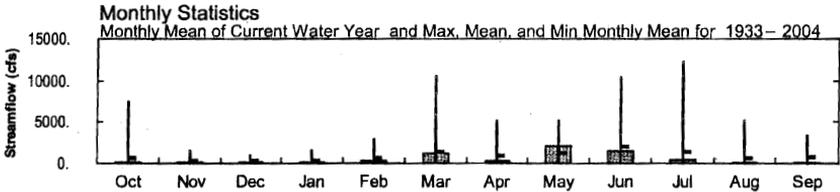
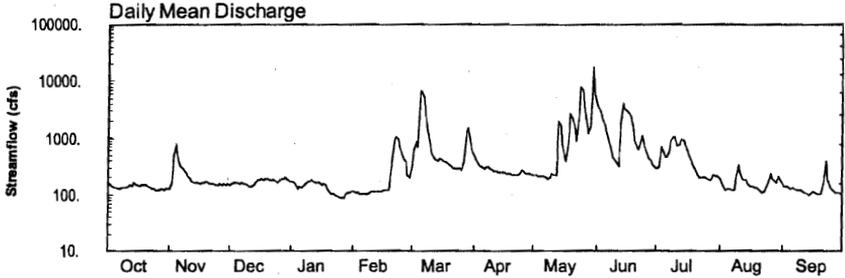
Longitude: 096° 35' 14"

Hydrologic Unit Code: 10270205

Gage County

Datum: 1162.20 feet

Drainage Area: 4447. mi²



KANSAS RIVER BASIN

06882000 BIG BLUE RIVER AT BARNESTON, NE

LOCATION—Lat 40°02'40", long 96°35'12", in NE 1/4 NW 1/4 sec.24, T.1 N., R.7 E., Gage County, Hydrologic Unit 10270205, on right bank at right downstream end of bridge on State Highway 8, 0.6 mi southwest of Barneston, 1.3 mi upstream from Plum Creek, and 4.3 mi upstream from Nebraska-Kansas State line.

DRAINAGE AREA—4,447 mi², of which about 4,370 mi² contributes directly to surface runoff.

PERIOD OF RECORD—May 1932 to current year.

REVISED RECORDS—WSP 896: 1932, 1935. WSP 1919: Drainage area.

GAGE—Water-stage recorder. Datum of gage is 1,162.2 ft above sea level. Prior to June 9, 1941, water-stage recorder at site 0.3 mi downstream at datum 1.56 ft higher. June 9 to Nov. 17, 1941, non-recording gage and Nov. 18, 1941 to Sept. 30, 1979, water-stage recorder at site 0.7 mi upstream at datum 2.0 ft higher. Data collection platform at station.

REMARKS—Records good except for estimated daily discharges, which are poor. Low flow regulated by dam at unused power plant 0.7 mi upstream. No large tributaries between station and Nebraska-Kansas State line. Some pump diversions for irrigation above station. Natural flow of stream affected by ground-water withdrawals for irrigation and return flow from irrigated areas.

KANSAS RIVER BASIN

06882000 BIG BLUE RIVER AT BARNESTON, NE—Continued

Discharge, cubic feet per second
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163	130	150	171	e115	320	486	225	4050	e300	195	156
2	149	176	159	170	e112	646	415	222	3670	e307	165	e145
3	145	488	170	e159	e108	887	368	218	2870	717	136	140
4	136	809	167	e130	e105	724	335	221	2200	611	120	132
5	133	470	164	e139	e106	7160	312	215	1710	466	129	128
6	131	319	160	e137	e104	6810	300	211	1360	460	127	134
7	131	302	163	e147	e103	5160	304	201	933	606	124	125
8	132	286	e159	e160	e105	2520	307	196	655	928	119	121
9	133	240	e154	e172	e111	1340	293	208	477	1080	208	123
10	132	211	e147	e177	e113	763	283	242	404	1100	336	120
11	143	194	e139	182	e116	554	265	228	383	769	249	115
12	149	179	e140	174	e116	456	259	225	330	789	198	110
13	140	162	e150	170	e116	414	258	2030	1830	970	187	104
14	169	162	e170	167	e117	400	252	1700	4170	911	180	100
15	149	163	183	162	e118	438	250	780	3480	774	158	109
16	148	158	185	152	e120	426	246	496	e3120	623	141	113
17	145	163	197	160	e120	407	239	400	2780	484	139	107
18	149	169	185	e151	e120	380	245	877	2430	399	138	106
19	148	179	194	e128	e131	357	242	2820	1460	340	137	104
20	146	167	194	e110	e367	351	230	2220	945	279	125	103
21	139	156	187	e106	e973	318	224	1580	710	229	113	162
22	136	154	186	e105	e1100	301	222	942	645	207	112	406
23	131	160	183	e97	e973	292	227	2540	893	200	115	194
24	129	151	172	e94	e720	291	254	8250	1150	203	137	139
25	123	148	e170	e88	e524	288	281	7120	702	207	165	125.
26	121	154	e180	e88	e451	284	257	3830	524	190	245	115
27	123	151	191	e90	e373	411	236	1930	446	180	192	110
28	125	155	194	e103	e226	1420	239	1260	394	188	174	107
29	123	151	201	e110	e202	1560	235	1670	346	230	168	107
30	130	154	188	e107	---	891	222	17900	309	214	212	101
31	128	---	176	e116	---	620	---	6300	---	211	181	---
TOTAL	4279	6661	5358	4221	8065	37189	8293	67257	45376	15172	5125	3961
MEAN	138	222	173	136	278	1200	276	2170	1513	489	165	132
MAX	169	809	201	182	1100	7160	486	17900	4170	1100	336	406
MIN	121	130	139	88	103	284	222	196	309	180	112	100
AC-FT	8490	13210	10630	8370	16000	73760	16450	133400	90000	30090	10170	7860

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2004, BY WATER YEAR (WY)

	MEAN	538	309	239	286	634	1351	847	1298	2046	1317	687	701
MAX	7451	1526	851	1596	2876	10560	5280	5207	10460	12270	5227	3420	
(WY)	1974	1999	1998	1973	1984	1979	1984	1995	1951	1993	1954	1969	
MIN	61.5	77.5	87.4	67.6	116	137	96.0	69.3	30.7	21.1	50.6		
(WY)	1941	1937	1977	1937	1940	1968	1934	1934	1934	1934	1934	1939	

SUMMARY STATISTICS

	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 1933 - 2004	
ANNUAL TOTAL	136384	210957		
ANNUAL MEAN	374	576	855	
HIGHEST ANNUAL MEAN			2781	1993
LOWEST ANNUAL MEAN			115	1934
HIGHEST DAILY MEAN	7510	Jun 13	17900	May 30
LOWEST DAILY MEAN	62	Jul 17	88	Jan 25
ANNUAL SEVEN-DAY MINIMUM	72	Jul 15	95	Jan 22
MAXIMUM PEAK FLOW			22700	May 30
MAXIMUM PEAK STAGE			22.80	May 30
ANNUAL RUNOFF (AC-FT)	2705000		4184000	6192000
10 PERCENT EXCEEDS	601		11600	1760
50 PERCENT EXCEEDS	194		193	277
90 PERCENT EXCEEDS	111		115	105

e Estimated



2004 Water Year
KANSAS RIVER BASIN

06884025 LITTLE BLUE R AT HOLLENBERG, KS

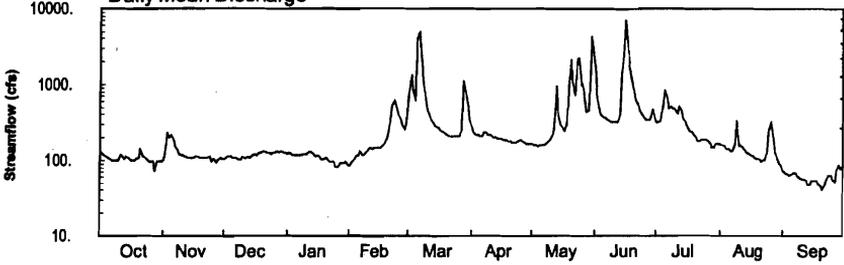
Latitude: 39° 58' 49"
Washington County

Longitude: 097° 00' 16"

Datum: 1216.10 feet

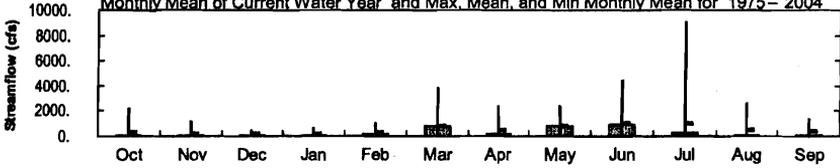
Hydrologic Unit Code: 10270207
Drainage Area: 2752. mi²

Daily Mean Discharge

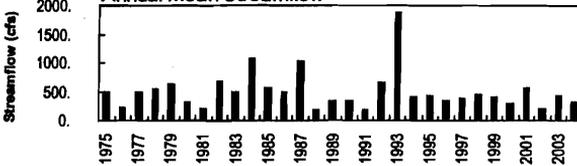


Monthly Statistics

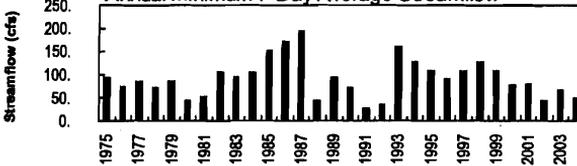
Monthly Mean of Current Water Year and Max, Mean, and Min Monthly Mean for 1975-2004



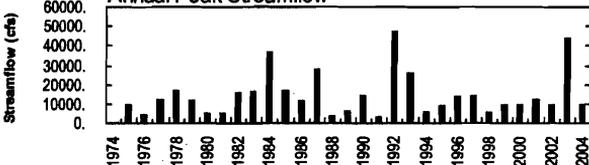
Annual Mean Streamflow



Annual Minimum 7-Day Average Streamflow



Annual Peak Streamflow



KANSAS RIVER BASIN

06884025 LITTLE BLUE RIVER AT HOLLENBERG, KS

LOCATION—Lat 39°58'48", long 97°00'16", NE 1/4 SW 1/4 sec.8, T.1 S., R.4 E., Washington County, Hydrologic Unit 10270207, on right bank 2 ft downstream from bridge on county road, 0.6 mi west of Hollenberg, 1.75 mi downstream from Nebraska-Kansas State line, and at mile 43.1.

DRAINAGE AREA—2,752 mi².

PERIOD OF RECORD—March 1973 to February 1974 (discharge measurements only), March 1974 to current year.

GAGE—Water-stage recorder. Datum of gage is 1,216.10 ft above sea level. Data collection platform at station.

REMARKS—Records good except for estimated daily discharges, which are poor. Discharge measurements made prior to 1974 water year are published in table of miscellaneous sites in WDR NE-73.

KANSAS RIVER BASIN

06884025 LITTLE BLUE RIVER AT HOLLENBERG, KS—Continued

Discharge, cubic feet per second
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

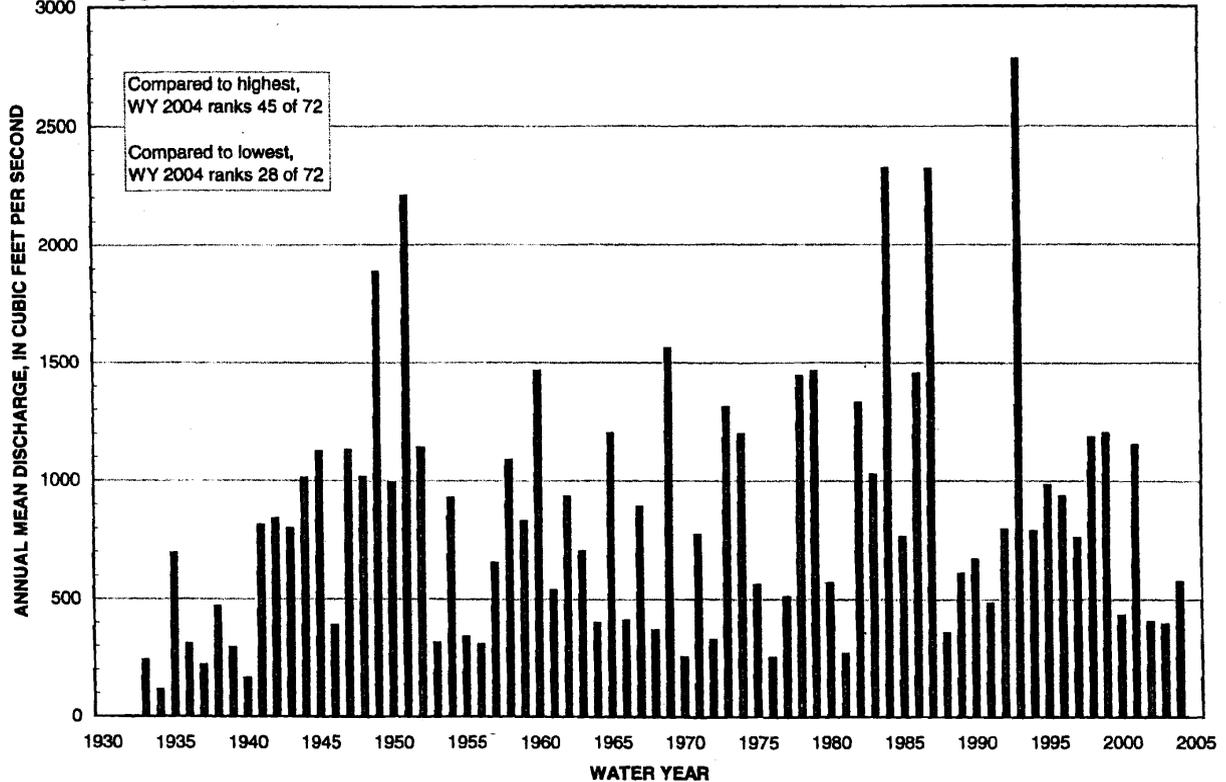
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	100	106	122	e86	773	276	164	1560	328	161	73
2	122	123	113	126	e98	1340	239	161	700	328	160	68
3	117	237	114	121	e104	852	218	157	494	333	151	64
4	112	204	111	e117	e113	621	216	156	401	547	140	63
5	107	216	107	e117	e115	3930	213	158	370	872	140	66
6	104	188	107	e115	e130	4940	210	157	362	666	134	68
7	101	155	108	e118	e118	2660	234	161	346	501	129	68
8	101	136	104	e117	e115	1090	235	166	335	516	163	63
9	101	123	e105	e120	e127	627	222	177	324	505	331	58
10	101	117	e113	e123	e140	472	218	190	325	474	153	55
11	118	116	e109	e122	e147	390	210	218	321	428	159	55
12	117	111	e107	e129	e142	345	202	251	322	521	146	54
13	106	108	e114	e124	e147	316	201	953	402	452	134	48
14	114	108	e110	e122	e149	290	197	424	1410	366	127	47
15	108	110	e116	e113	e145	276	195	295	3300	321	121	53
16	100	110	e121	e119	e147	260	192	261	6990	285	118	54
17	100	112	e119	e114	e159	248	188	241	2890	250	113	53
18	101	113	e127	e106	e169	236	186	341	1700	234	107	49
19	105	110	e128	e102	e193	227	183	889	1090	219	104	45
20	107	109	e131	e107	e239	222	179	2070	761	199	102	40
21	140	108	e130	e105	e369	213	172	1100	631	182	98	47
22	112	109	128	e96	e546	206	170	728	526	178	101	53
23	108	107	126	e95	e634	207	171	2210	456	187	101	63
24	102	112	e123	e95	e471	207	179	2200	410	190	134	62
25	96	98	128	e82	e405	208	189	965	370	186	248	56
26	95	104	127	e82	e351	206	183	996	349	181	328	52
27	96	92	129	e91	e298	254	172	587	354	166	177	74
28	72	101	128	e91	258	1140	169	449	342	150	124	87
29	96	110	129	e94	305	780	164	464	483	149	104	77
30	98	104	125	e98	---	496	165	4270	414	164	92	75
31	98	---	124	e86	---	345	---	3220	---	164	83	---
TOTAL	3285	3751	3667	3369	6420	24377	5948	24779	28738	10242	4483	1790
MEAN	106	125	118	109	221	786	198	799	958	330	145	59.7
MAX	140	237	131	129	634	4940	276	4270	6990	872	331	87
MIN	72	92	104	82	86	206	164	156	321	149	83	40
AC-FT	6520	7440	7270	6680	12730	48350	11800	49150	57000	20320	8890	3550

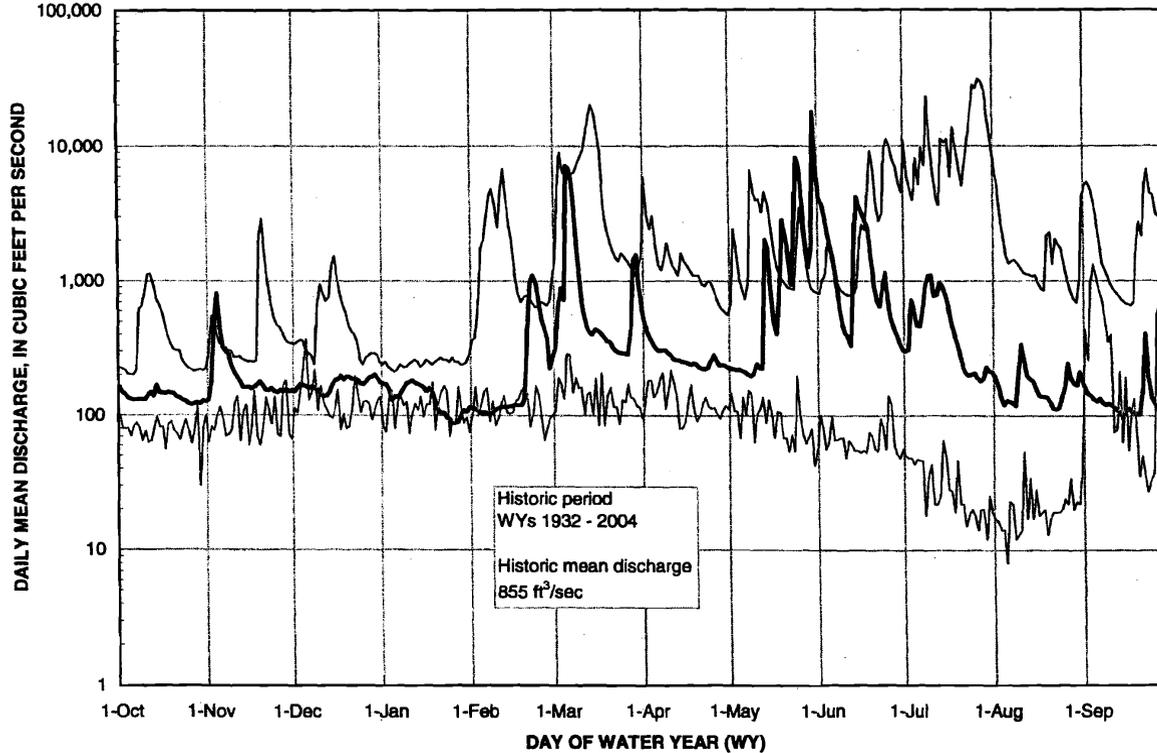
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2004, BY WATER YEAR (WY)

	MEAN	240	179	174	320	786	520	804	983	996	496	372
MEAN	304	240	179	174	320	786	520	804	983	996	496	372
MAX	2163	1113	424	576	1059	3816	2379	2302	4373	9014	2572	1320
(WY)	1987	1997	1993	1984	1993	1993	1987	1995	1984	1993	1985	1977
MIN	45.3	81.1	96.7	98.5	115	118	123	108	151	83.8	72.5	32.0
(WY)	1992	1992	2001	1977	1992	1981	2003	1992	1981	2002	1991	1991

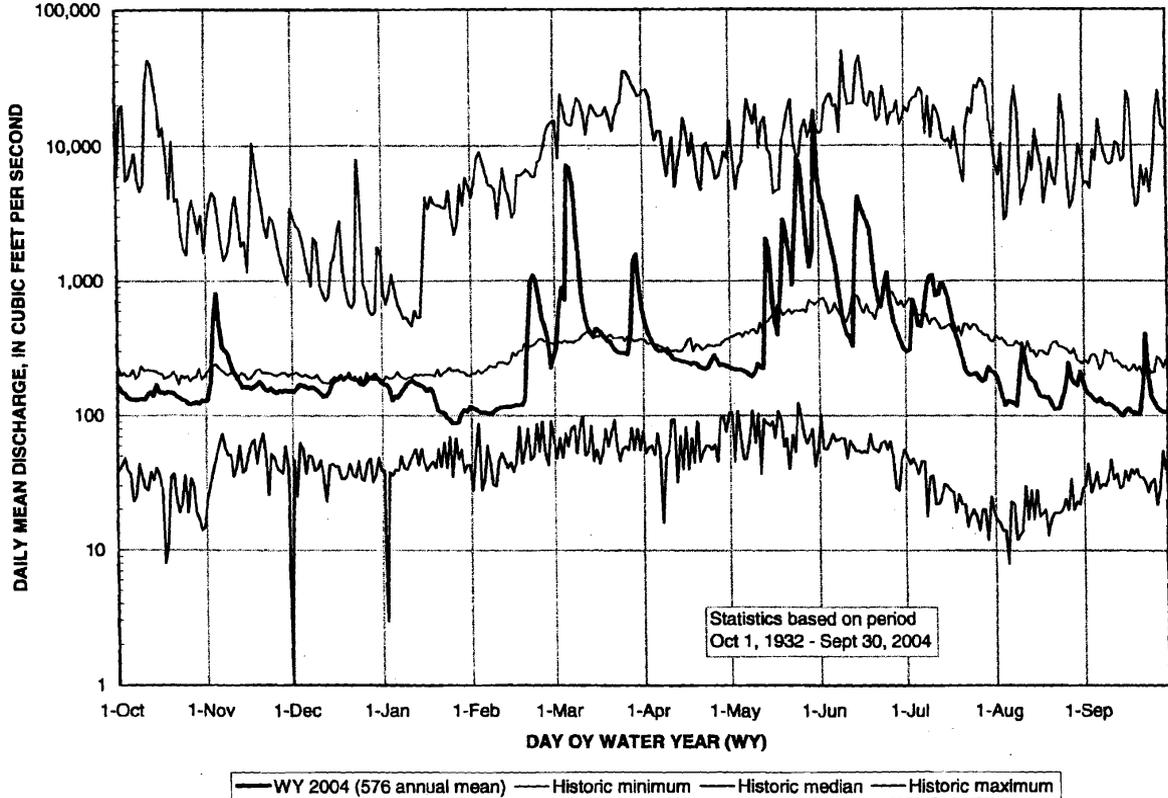
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 1975 - 2004	
ANNUAL TOTAL	151819	120849		
ANNUAL MEAN	416	330	516	
HIGHEST ANNUAL MEAN			1891	1993
LOWEST ANNUAL MEAN			195	1991
HIGHEST DAILY MEAN	29100	Jun 24	6990	Jun 16
LOWEST DAILY MEAN	56	Sep 8	40	Sep 20
ANNUAL SEVEN-DAY MINIMUM		Sep 3	49	Sep 14
MAXIMUM PEAK FLOW			10200	Jun 16
MAXIMUM PEAK STAGE			11.64	Jun 16
ANNUAL RUNOFF (AC-FT)	301100	239700		373800
10 PERCENT EXCEEDS	435	559		849
50 PERCENT EXCEEDS	129	147		200
90 PERCENT EXCEEDS	101	90		105

e Estimated



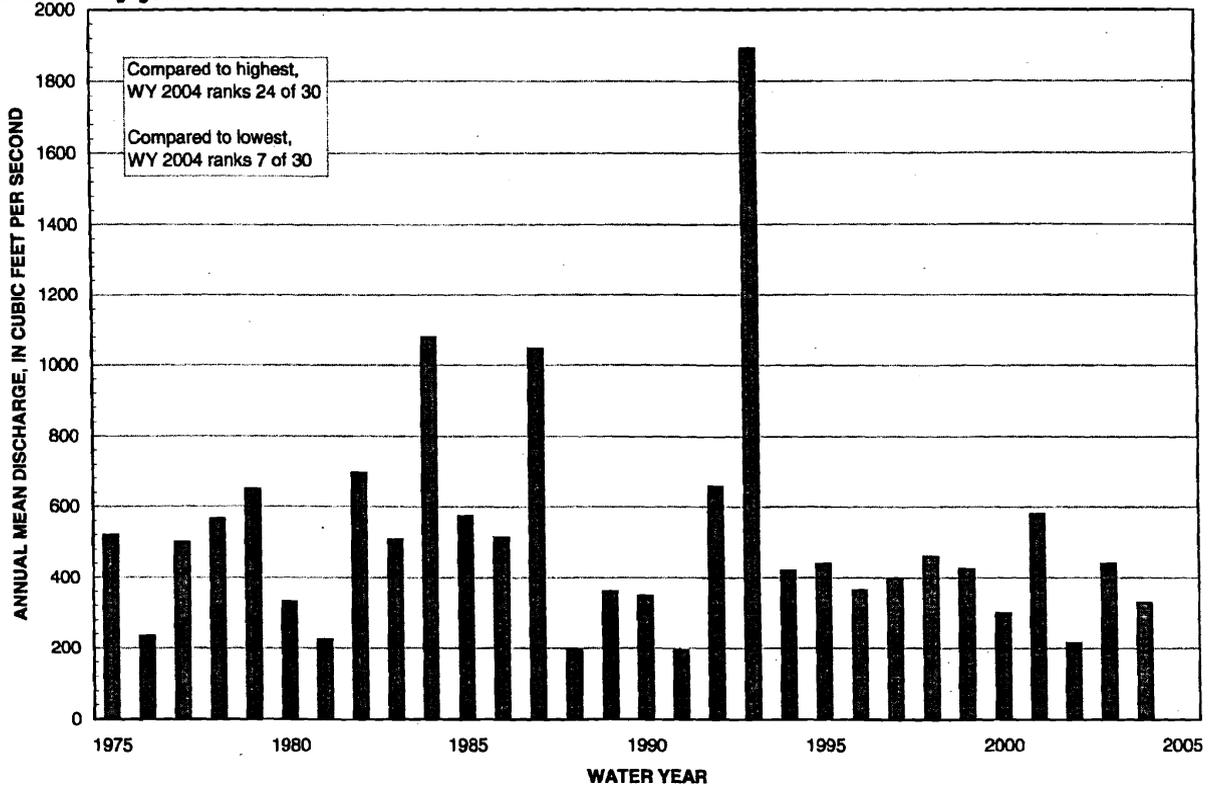


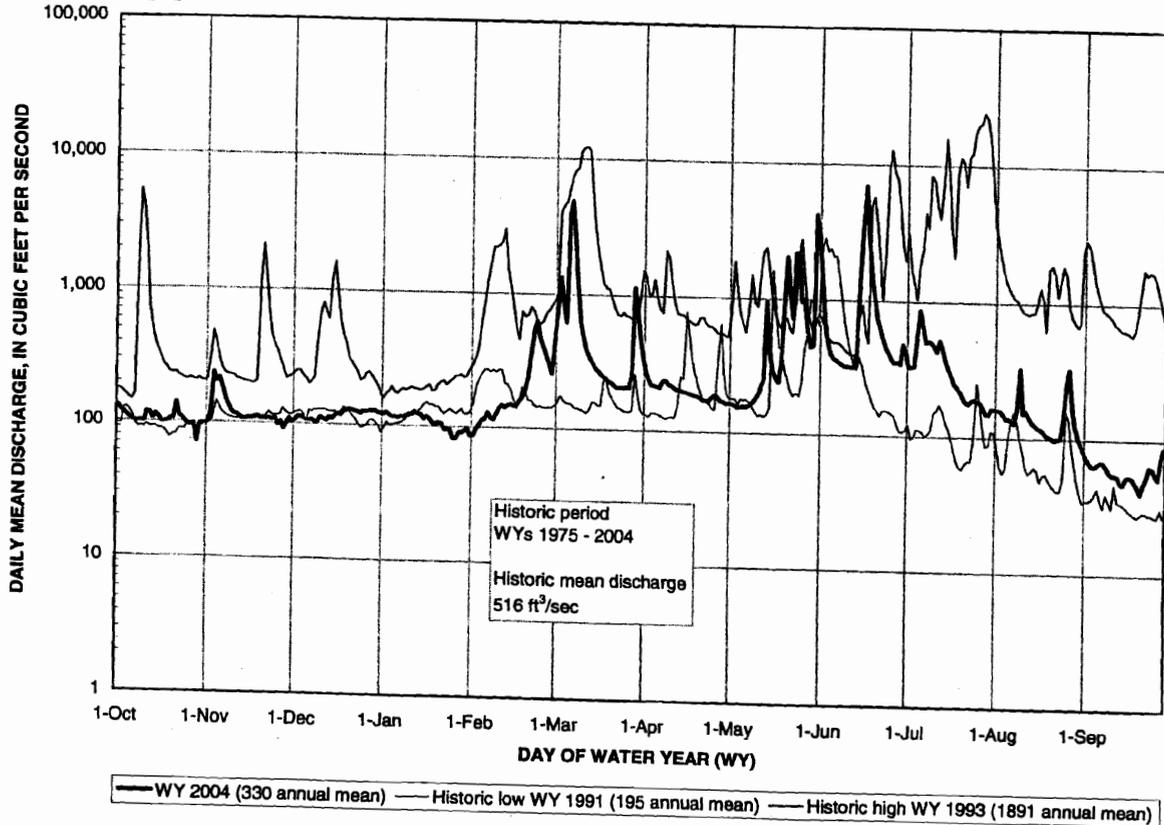
— WY 2004 (576 annual mean) — Historic low WY 1934 (115 annual mean) — Historic high WY 1993 (2781 annual mean)





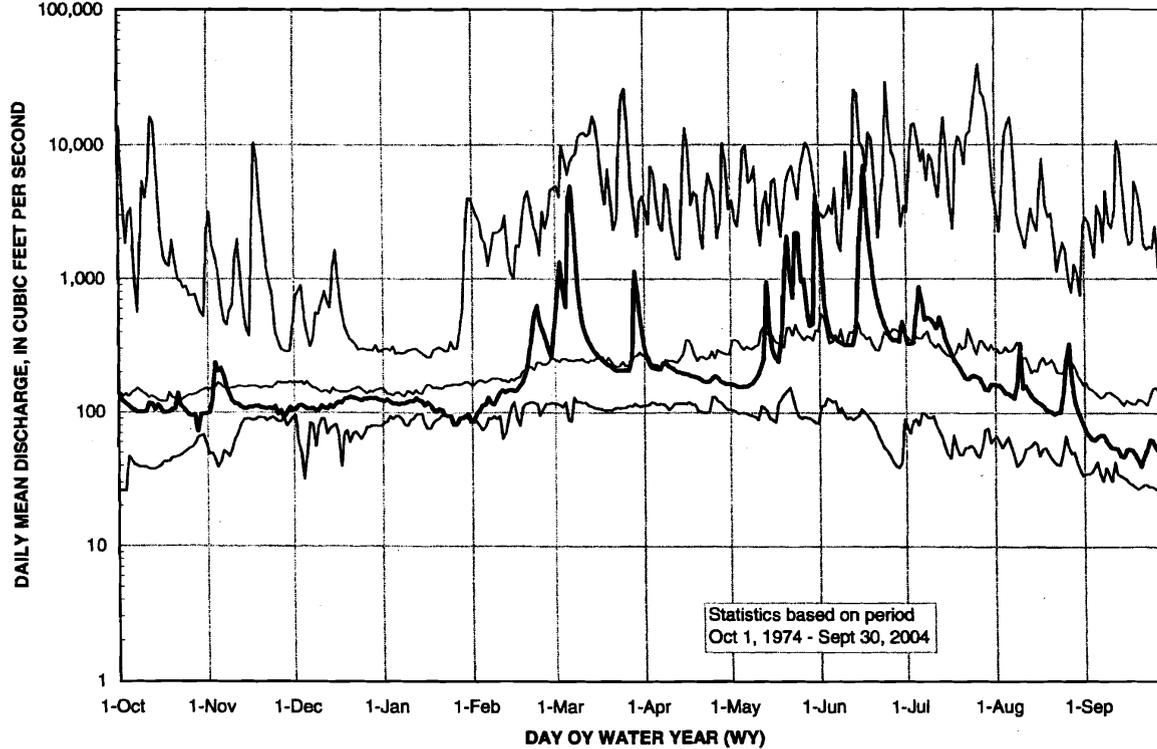
06884025 Little Blue River at Hollenberg, KS







06884025 Little Blue River at Hollenberg, KS



— WY 2004 (330 annual mean) — Historic minimum — Historic median — Historic maximum

**REPORT OF THE TREASURER
TO THE
KANSAS-NEBRASKA BIG BLUE RIVER COMPACT ADMINISTRATION
May 12, 2005**

Balance on Hand July 1, 2004	\$15,168.32
Income to Date	
State Assessments	\$16,000.00
Interest Income	<u>\$187.02</u>
 Funds Available to Date	 \$31,355.34
 Expenditures to Date	
USGS	\$9,600.00
Lower Big Blue Natural Resources District	\$1,380.00
Postage/Supplies	\$52.08
Printing	\$76.69
Dana Cole - Audit	\$700.00
Miscellaneous	<u>\$9.50</u>
 Balance on Hand	 \$19,537.07
 Estimated Expenditures	
USGS	\$3,240.00
Secretary Honorarium	\$750.00
Secretary Travel Expenses	\$50.00
Printing	<u>\$123.31</u>
 Total Estimated Additional Expenses	 \$4,163.31
 Estimated Income	
Interest Income	\$30.00
 Estimated End of Fiscal Year Balance	 <u><u>\$15,403.76</u></u>

BIG BLUE RIVER COMPACT BUDGET ANALYSIS May 2005							
	FY2004		FY 2005		FY 2006		FY 2007
	Actual	Adopted May 2003	Estimated (To Date)	Adopted May 2004	Estimated May 2004	Adopted May 2005	Estimate
EXPENDITURES							
Operations							
StateLine Gages	\$12,420.00	\$12,420.00	\$12,840.00	\$12,840.00	\$13,740.00	\$13,350.00	\$14,000.00
Observation Wells	\$1,110.00	\$1,480.00	\$1,380.00	\$1,020.00	\$1,020.00	\$760.00	\$760.00
Water Quality Committee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fidelity Bond	\$100.00	\$100.00	\$0.00	\$100.00	\$100.00	\$100.00	\$100.00
Secretary Honorarium	\$750.00	\$750.00	\$750.00	\$750.00	\$750.00	\$750.00	\$750.00
Treasurer Honorarium	\$750.00	\$750.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Staff Travel Expenses	\$261.48	\$200.00	\$50.00	\$200.00	\$200.00	\$50.00	\$50.00
Annual report	\$76.17	\$500.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00
Annual Audit	\$565.00	\$500.00	\$700.00	\$500.00	\$500.00	\$700.00	\$700.00
Postage and Office Supplies	\$0.00	\$100.00	\$52.08	\$100.00	\$100.00	\$100.00	\$100.00
Miscellaneous Expenses	\$250.10	\$100.00	\$9.50	\$100.00	\$100.00	\$100.00	\$100.00
Total Expenses	\$16,282.75	\$16,900.00	\$15,981.58	\$15,810.00	\$16,710.00	\$16,110.00	\$16,760.00
INCOME & CARRY OVER							
Assessments (Both States)	\$16,000.00	\$16,000.00	\$16,000.00	\$16,000.00	\$16,000.00	\$16,000.00	\$16,000.00
Interest earned	\$18.43	\$150.00	\$217.02	\$50.00	\$150.00	\$200.00	\$200.00
Carry Over from Prior Year	\$15,432.64	\$14,649.92	\$15,168.32	\$14,913.64		\$15,153.64	\$15,243.64
Total Income and Carry Over	\$31,451.07	\$30,799.92	\$31,385.34	\$30,963.64		\$31,353.64	\$31,443.64
Balance End of Year	\$15,168.32	\$13,899.92	\$15,403.76	\$15,153.64		\$15,243.64	\$14,683.64

KANSAS - NEBRASKA BIG BLUE RIVER COMPACT ADMINISTRATION REPORT

**Water Quality Committee
May 12, 2005**

BACKGROUND: In 1995, the Water Quality Committee and affiliated partner agencies and associations began pursuing four (4) primary objectives designed to enhance water quality in the Big Blue River Basin of Kansas and Nebraska. These objectives were to:

- 1) design and implement a basin wide water quality monitoring program;
- 2) develop and conduct a baseline survey of farm practices utilized in the basin with emphasis on pesticide and nutrient use;
- 3) develop water quality Best Management Practices (BMPs) and economics support information suitable to the basin; and,
- 4) initiate and conduct water quality stewardship education and outreach programs in the basin.

Most Water Quality Committee projects are planned and conducted through the use of work groups made up of governmental agency, land grant university and private sector partners. The full committee and affiliated partners meet annually for a review of the status of existing projects and to establish goals for the upcoming year. Work groups meet as needed. In recent years we have held an annual meeting immediately proceeding the annual meeting of the Kansas - Nebraska Big Blue River Compact Administration. Project work groups meet as the need arises. Over the years we have developed an excellent working relationship with most decisions being made by consensus.

ANNUAL MEETING: The 2005 annual meeting of the Kansas - Nebraska Big Blue River Compact Administration's Water Quality Committee was held on Tuesday, May 3 from 10: a.m. to 2:30 p.m. at the offices of the Lower Big Blue Natural Resource District, 805 Dorsey Street, Beatrice, NE. Committee members present at this year's meeting included Pat Rice (NDEQ), Rich Reiman (NDA), Tom Stiles (KDHE), and Dale Lambley (KDA). Other participants included Steve Walker (NDEQ), Don Vogel (NE CGA), Phil Barnes (KSU Biological and Agricultural Engineering), Jack Dutra (Syngenta), Dick Ehrman (NE Association of Resource Districts), Russ Gierhart and Rod

DeBuhr (Upper Big Blue NRD), and Daryl Anderson (Little Blue NRD). A copy of the meeting agenda is provided in Attachment A.

Cooperative Blue River Grant Proposal: Much time was spent by the committee in reviewing and discussing a grant proposal which is currently under development for submission to US-EPA. Steve Walker/NDEQ has taken the lead in developing the original draft proposal document, with some assistance from Jackie Ferguson (EPA, Region VII).

The project proposal is entitled "Tuttle Creek Lake Interstate Targeted Watersheds Grant Project Proposal: A Cooperative Proposal By Tuttle Creek Lake Watershed Partners in Nebraska And Kansas. The project is a collaborative effort between the states of Nebraska and Kansas and is designed to address multi-jurisdictional water quality problems including excessive runoff of sediment, nutrients, herbicides and bacteria from the Big Blue River system into Tuttle Creek Lake. Tuttle Creek is listed on the Kansas Section 303(d) list as impaired for sedimentation, eutrophication, atrazine and alachlor. The project we are going to propose to EPA is designed to build upon our existing Blue River watershed partnerships and integrate funding sources from the Farm Bill, the Clean Water Act, and state and local conservation programs in implementing existing local watershed plans and total maximum daily load plans.

The project proposes to use voluntary, market-based approaches to obtaining landowner adoption of BMPs. This approach will allow landowners to determine their own desired price and negotiate for levels of rental, incentive and maintenance payments and cost-share assistance required to adopt conservation practices on their own land. Several conservation practice types would be potentially funded by this project but the two considered highest priority would be: 1) implementation of continuous no-till systems, and 2) installation of riparian buffer strips. Research on reduction of runoff of water contaminants indicates that no-till is doing a very effective job, and in the long term appears the best way to go in reducing the non-point load from cultivated cropland. If EPA offers the possibility of funding, but at a reduced level, the project focus could be reduced to target a four county area at the state line. Key areas we want to include are Gage County in Nebraska and Marshall County in Kansas.

Comments from committee reviewers were due back to Steve Walker by yesterday (May 11). Support letters are to be completed by tomorrow (Friday, May 13) and the document will be submitted to EPA by NDEQ shortly.

The Compact Water Quality Committee owes a large debt of gratitude to Steve Walker for the hard work he has expended in getting the grant package assembled and prepared.

Water Quality Monitoring Program Report: . Phil Barnes provided the WQ Committee with an update of water quality monitoring findings.

The basin water quality monitoring system has just completed its eighth year of operation. In broad terms there has been a general downward trend in atrazine levels in waters of the Big Blue River, with concentrations generally running in the 0.8 to 1.4 ppb range the last few years. The public drinking water standard is 3.0 ppb. At the same time, Tuttle Creek inflow went above 4.0 ppb for one period last year following a large late May storm event in the Crete and Wilbur, NE areas. Analysis of more recent data also indicates that Kansas needs to increase efforts with agricultural producers in the Marshall County area as significant atrazine contributions are arising from the area near and below Marysville. A copy of the power point visuals used by Phil in his presentation is attached as Attachment B.

The monitoring program is nearing the end of its funding. The grant proposal previously discussed contains a request for \$160,000 which would allow continued funding for water quality monitoring, and would add sediments, nutrients and bacteria to the monitoring program

Farm Practices Survey: Nearly 9 years have passed since the WQ Committee, in cooperation with KS and NE National Agricultural Statistics, prepared and conducted the original Blue River Basin Farm Practices Survey. At last year's meeting, the committee determined that timing was right to conduct a follow up survey. Since that time Dale Lambley (KDA) and Craig Romary(NDA) have been exploring options and seeking potential sources of funding to support conduct of a new survey. Total dollars needed to conduct the survey are in the range of \$160,000 and to date we have not been successful in securing funding sources. Work on design of the original survey questionnaire was done by KDA, NDA, UNL, KSU and KS and NE NASS personnel. EPA provided a substantial portion of the dollars required for the original survey. We had originally discussed including a survey component in the Tuttle Creek Lake grant request, but have since decided otherwise. Including the survey component would put the overall grant request above \$1 million and, it is suspected, would weaken the project proposal.

Conservation Security Program Activities: A general discussion was held on Conservation Security Program (CSP) activities. The CSP is unique from other USDA conservation programs in that it financially rewards farmers and ranchers who have been doing a good job in protecting their soil, water, grassland and wildlife resources. The program is also designed to be an incentive to encourage additional land stewardship measures. The lower two-thirds of the Big Blue River Basin is now eligible for the 2005 CSP signup. The CSP is one of the newest soil and water conservation programs available from USDA, but it is quickly becoming a major player in getting BMPs on the

ground in the Big Blue River Basin. Several WQ Committee participants noted that local turnout at CSP informational meetings had been excellent. A primary complaint heard relates to the amount of paperwork involved in participation.

Agencies and Partners Reports: Don Vogel (NeCGA) gave an update of the HUSKER F.A.R.M. program which is spearheaded by the Nebraska Corn Growers Association. The HUSKER F.A.R.M. Program is designed to help the producer develop a plan that provides stewardship of land and surface water resources while allowing for efficient and profitable production. Producers completing the program and implementing practices are given recognition. The core HUSKER F.A.R.M. program practices review has also been updated to identify or include CSP requirements.

Rich Reiman (NDA) reported that the Nebraska Buffer Strip program continues to go well. This is a program supported by state pesticide product registration dollars. There are now approximately 12,000 acres enrolled in the program and funding has finally caught up with requests. A future challenge will be that many of the original participants signed up for a 10 year term, and this is year 7.

Jack Dutra (Syngenta) reported that EPA is now reviewing simazine herbicide data. This is the last piece in the triazine herbicide review. It is anticipated that the final result of the overall triazine review is to be a single number or set of numbers based on total triazine levels.

Pat Rice (NDEQ), Steve Walker (NDEQ) and Tom Stiles (KDHE) gave a TMDL update. No new TMDLs have been put into place in the Nebraska portion of the basin. Tom Stiles reported that the Tuttle Creek Lake TMDLs are being revised to include KSU and Phil Barnes monitoring program data. The data review shows that we have made progress, particularly when compared to USGS and Army Corps of Engineers data from the 1980s. In general, we now need to focus on reducing the May and June spikes into the reservoir with a goal of keeping concentrations of atrazine below 3.0 ppb in the waters in the first 5 feet of the flood pool (i.e. 1075 – 1080 ft.). Newest data indicates that Kansas needs to focus runoff prevention efforts in the Marshall County area, particularly in the Barneston to Marysville corridor. Nebraska needs to focus on the Little Blue.

Tom reported that alachlor spikes are also still coming into the lake. The question unanswered, however, is where is alachlor being used? Rich Reiman and Dale Lambley indicated that they would work with their respective pesticide program staffs and attempt to find an answer to this question.

Dick Ehrman (NARD) gave the WQ Committee a report on the Bacteria/Pesticide Monitoring cooperative monitoring projects which are underway in Nebraska. Cooperators include NDEQ, NDA and various natural resource districts. The projects, supported by a grant from EPA with supplemental money from NDA provide equipment and training for NRD offices to conduct surface and groundwater analyses for coliform bacteria, atrazine, alachlor, metolachlor and acetochlor. All participating NRDs currently have the capacity to do bacterial monitoring. Pesticide data was taken by 10 NRDs last year, and efforts are underway to expand the pesticide network by 3 for 2005. All 3 Big Blue River Basin NRDs are participants in the program.

Daryl Anderson (LBBRD), Russ Gierhart and Rod DeBuhr (UBBNRD) gave reports on some of the water quality related activities in their respective districts. Among their many other activities, both districts have been involved in training and recertification of producers in fertilizer use areas. The districts plan to attend have detailed reports ready for the annual meeting of the Compact on May 12.

Daryl Anderson also brought up the subject of the Groundwater Foundation's efforts to work with municipalities along the Blue River, and was joined in that discussion by Russ, Rod and Phil Barnes. The Groundwater Foundation's Blue River Project was to be directed toward community source water protection. Apparently attendance at the Foundation's meetings in most locations has not been good.

Other Items: Dale Lambley brought up the issue of "toxic algae" which is not a subject unique to the Big Blue River Basin. Kansas had problems with toxic algae last year in Marion Reservoir, and Nebraska had occurrences in several lakes and reservoirs. This seems to be a growing problem in our two states, but one for which there is a lack of solutions. Steve Walker noted that early water quality samples indicate that problems may arise again this summer.

Sincerely



Dale Lambley, Chair
Water Quality Committee

Agenda

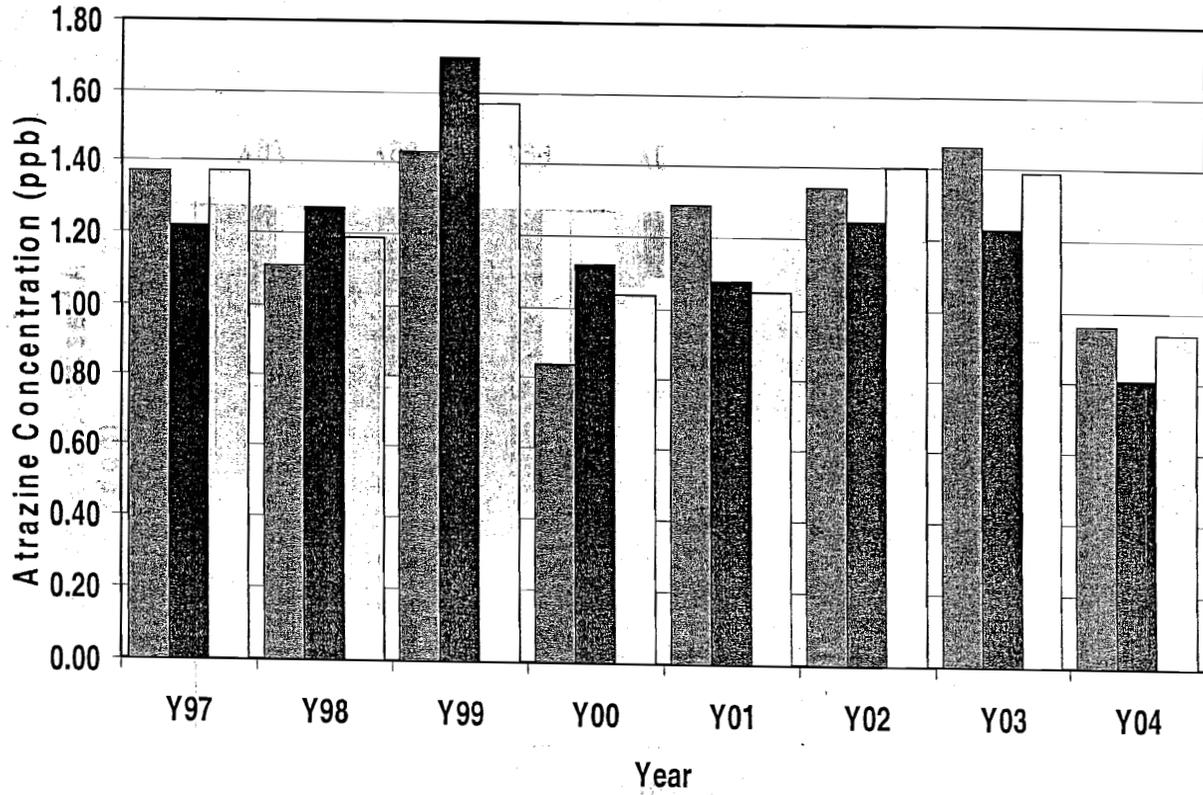
**Big Blue River Compact
Water Quality Committee
Meeting**

May 3, 2005 – 10:00A to 2:30P
Lower Big Blue NRD Office, Beatrice, NE

- I. Introductions
- II. Review and Discussion of Blue River Grant Proposal – Steve Walker
- III. Status of WQ Monitoring Program – Phil Barnes & Steve Walker
- IV. Status of Blue River Farm Practices Survey Effort – Dale Lambley
and/or Craig Romary
- V. Conservation Security Program Activities in the Basin
Nebraska NRCS Report
Kansas NRCS Report
- VI. Agencies & Partners Reports
- VII. Action Items?

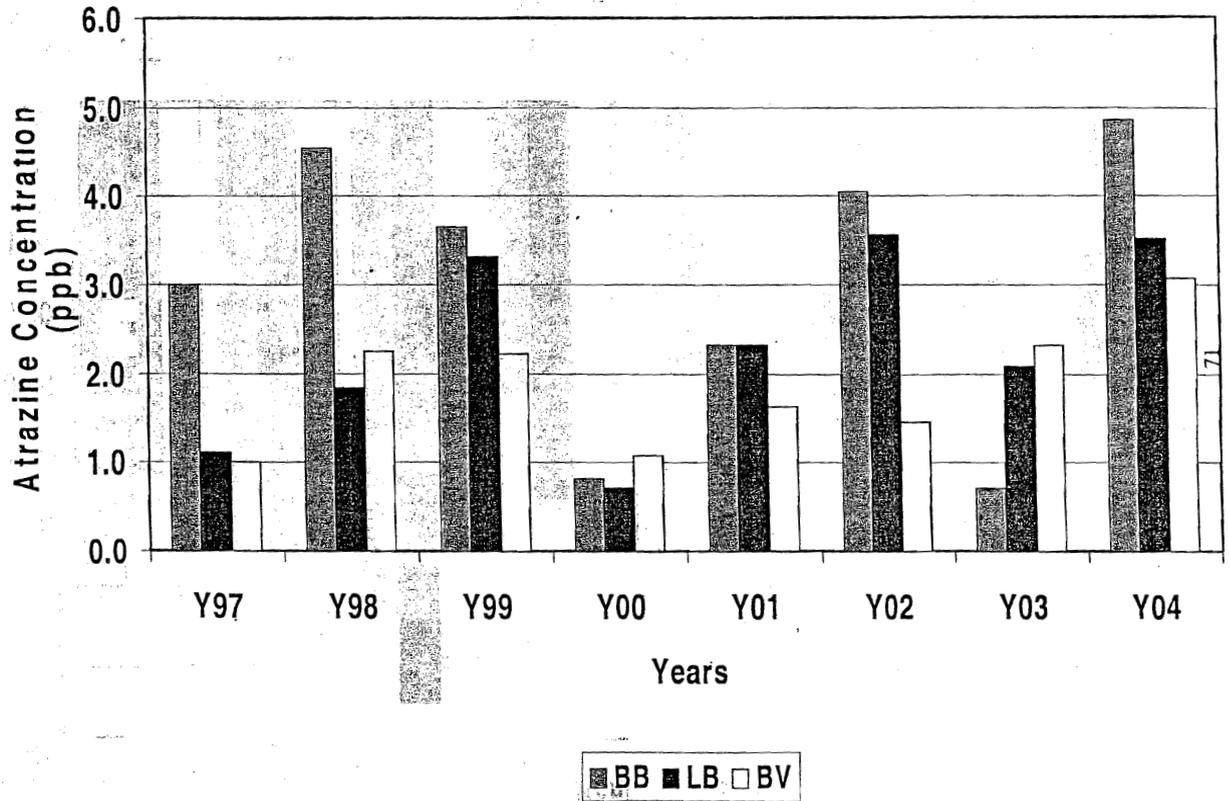
**BLUE RIVER
MONITORING REPORT
2004**

Lower Kansas Monitoring Sites

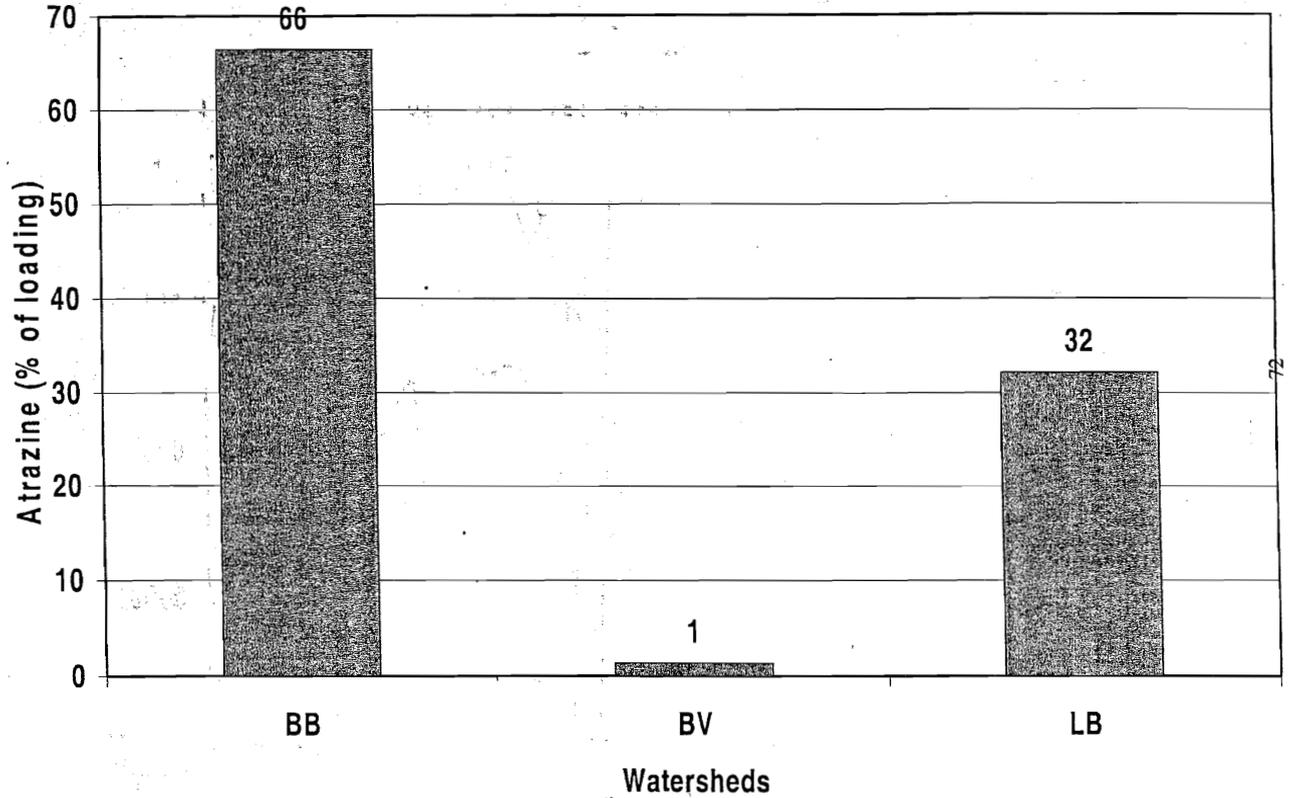


■ K18 ■ Blue □ Kansas

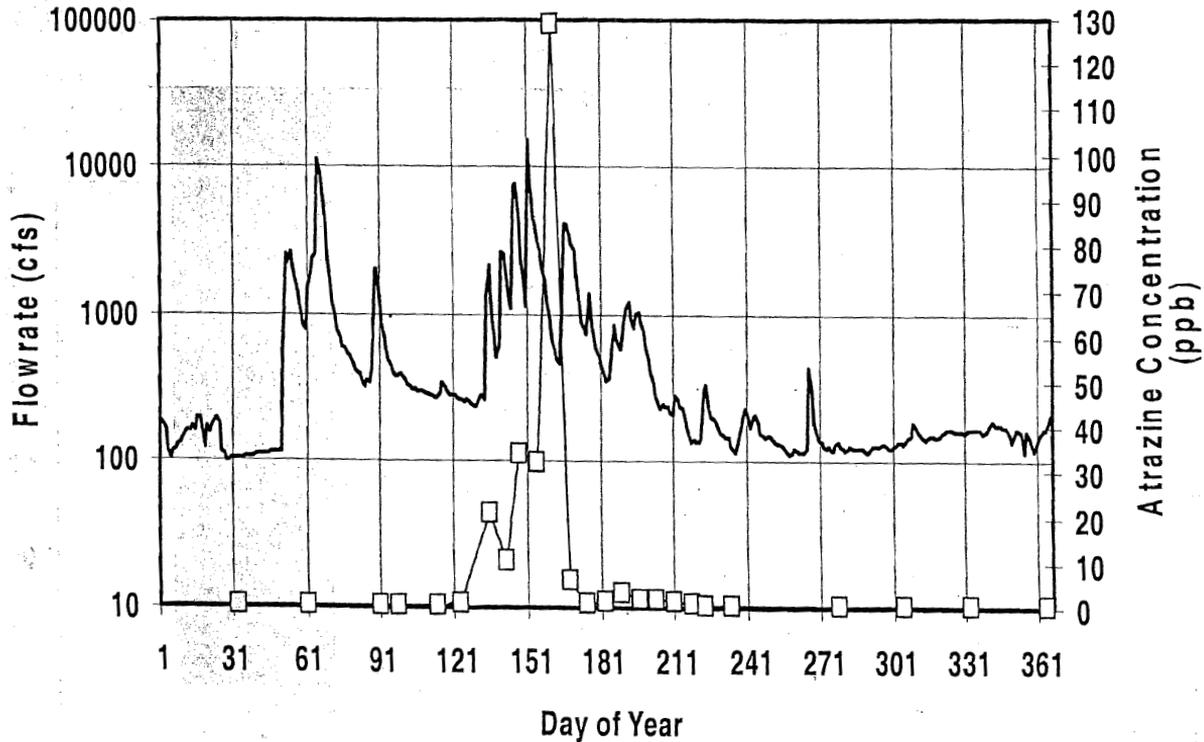
Tuttle Creek Inflow Atrazine Concentration



Tuttle Creek Reservoir Inflow

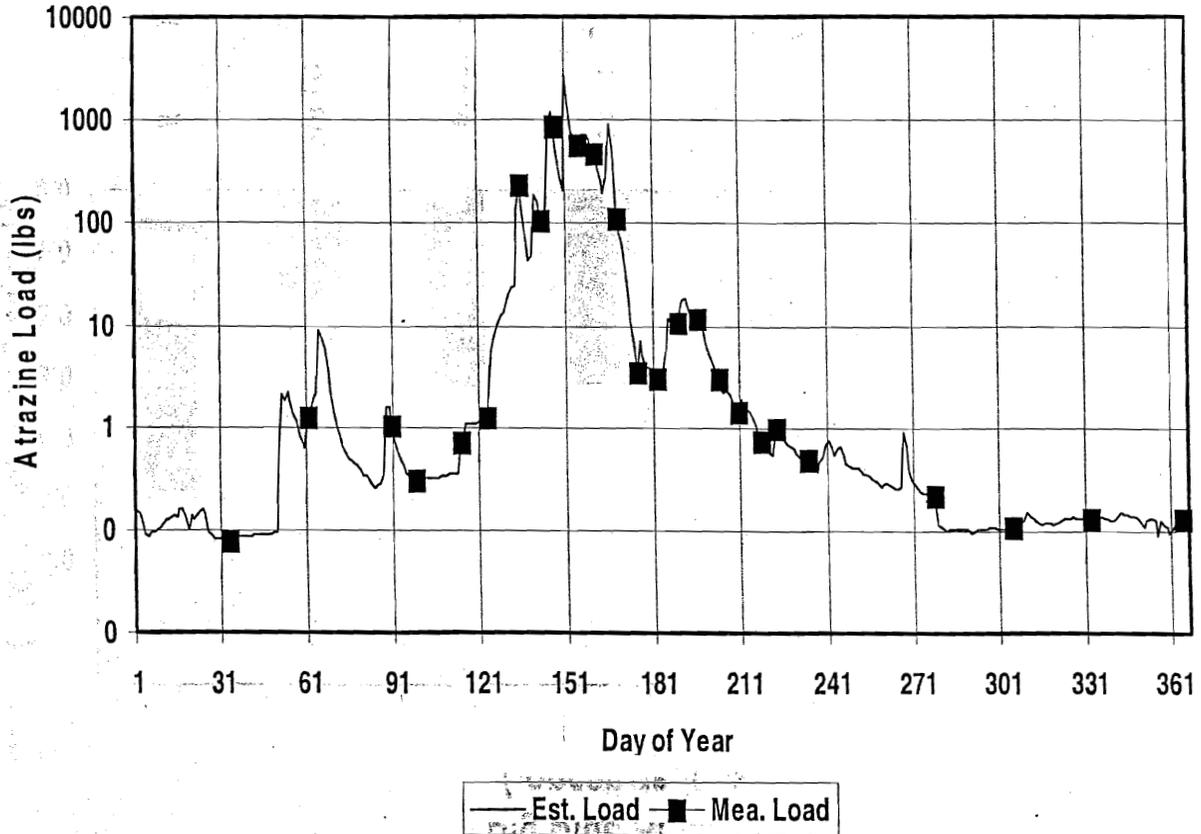


Big Blue River, Marysville, KS 2004

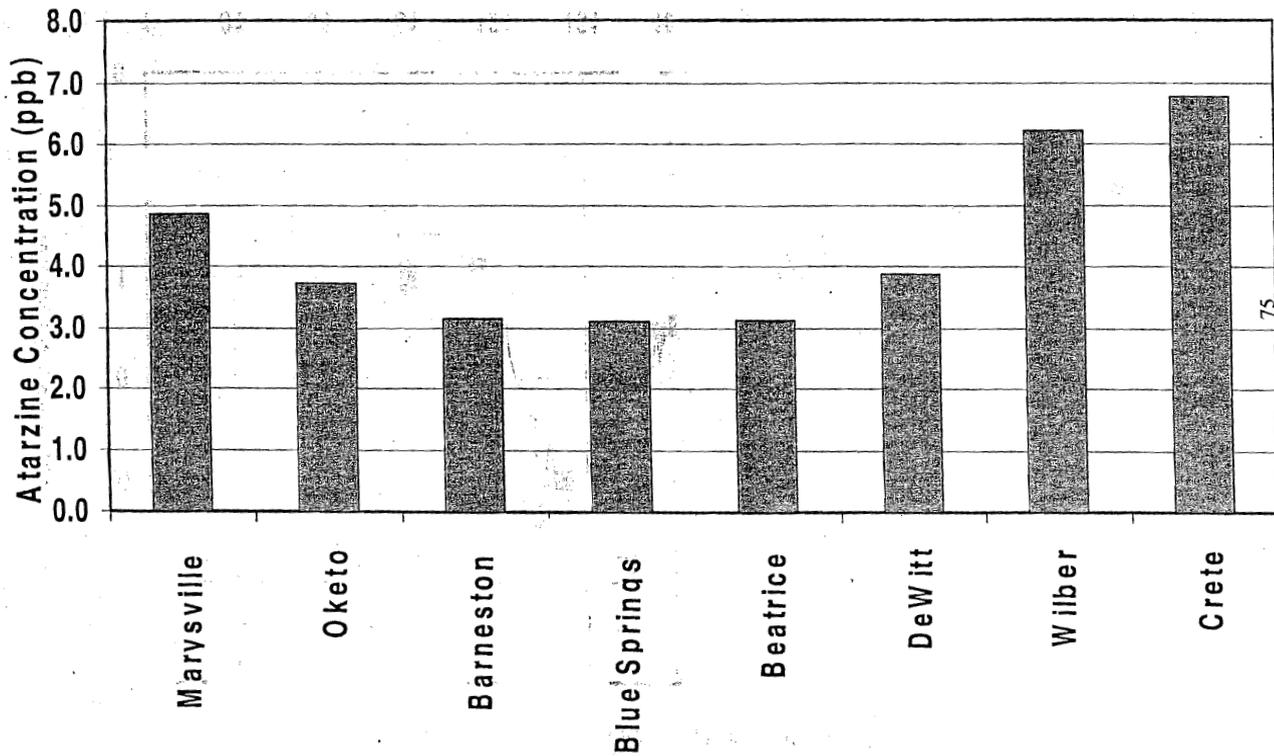


— Flow — Est. Conc. □ Mea. Conc.

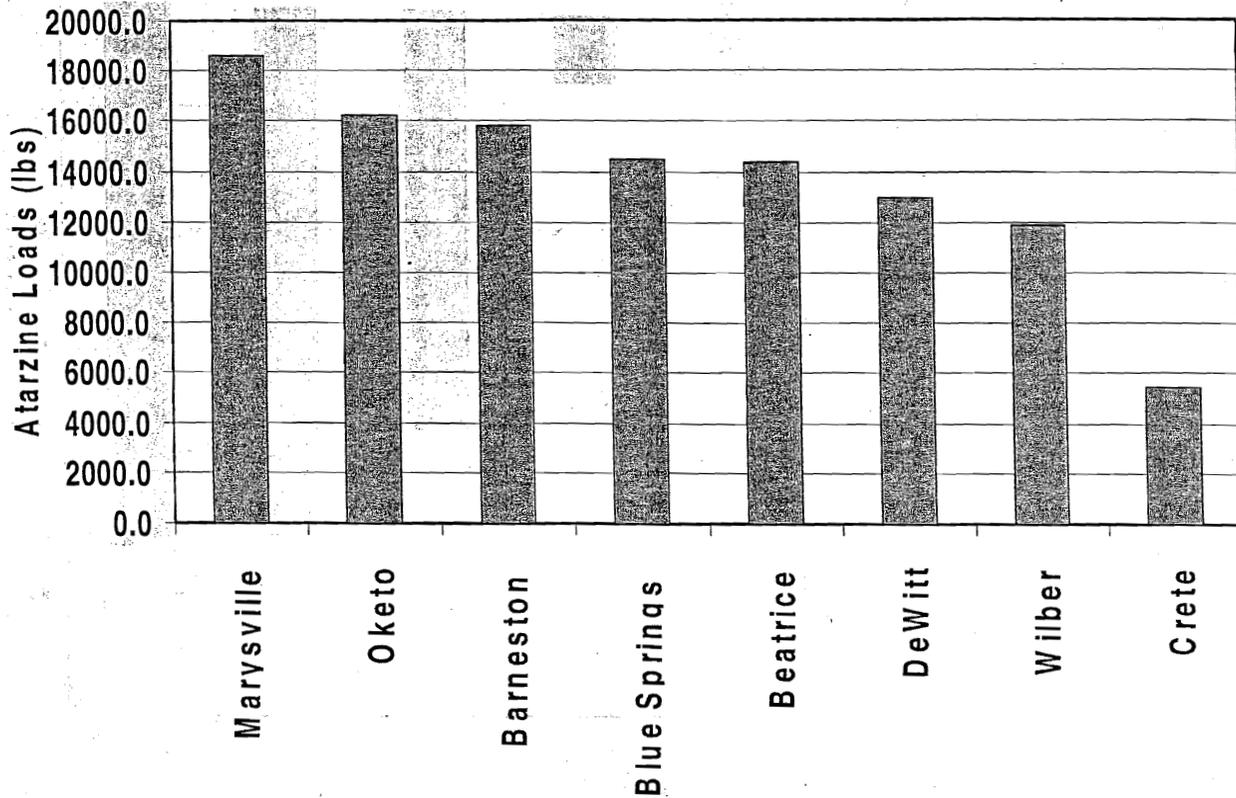
Big Blue River, Marysville, KS 2004



Big Blue Atrazine Concentrations



Big Blue Atrazine Loads



Big Blue Atrazine

