

**LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF WATER RESOURCES**

1998 ATRAZINE ACTIVITIES

for the

UPPER TERREBONNE BASIN

December 1998

1998 ATRAZINE REPORT
UPPER TERREBONNE BASIN
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BACKGROUND

The entire Terrebonne Basin covers an area extending approximately 120 miles from the Mississippi River on the north to the Gulf of Mexico to the south. It varies in width from 18 to 70 miles. The topography of the entire basin is lowland and is subject to flooding except the natural levees along major waterways. The coastal portion of the basin is prone to tidal flooding and consists of marshes ranging from fresh to saline. The northern part of this basin, or the Upper Terrebonne Basin (UTB), is located between the Mississippi River levee system on the east and the Atchafalaya River levee system to the west. The Morganza Spillway structure along LA Highway 1 is the northern boundary, effectively closing this basin on three sides, causing surface water leaving the UTB to exit primarily via the Intracoastal Waterway.

Historically, the majority of the land that lies within the boundary of the Upper Terrebonne Basin that is used for agricultural purposes use is in sugarcane production, with corn, soybeans, and pasture occupying the remaining agricultural use. The 1996 Water Quality Inventory [305(b)] Report indicated that many of the bayous in the upper portion of the Terrebonne Basin are either not meeting or are only partially meeting their designated uses for fishing or swimming. Bayou Portage, Poydras, Choctaw, Grosse Tete and Bayou Maringouin are all showing impairment for both fish and wildlife propagation and swimming. Non-irrigated crop production is one of the suspected sources of water quality impairment for each of these water bodies. Pollutants such as pesticides, nutrients, siltation and organic enrichment are also listed as suspected causes for water quality impairment for the water bodies in this part of the Terrebonne Basin. Each of these water bodies was also included on the 303(d) list in 1996.

The area of the UTB that this project encompasses covers approximately 450,000 acres, with approximately 60,000 acres being waterbodies. In 1996 and 1997, there was approximately 20,000 acres of sugarcane and 20,000 acres of corn in production. For 1998, the sugarcane acreage was 21,000 acres, while corn acreage increased to 41,000. The increase in corn production was primarily from the changeover from soybean production to corn. Other agricultural uses include cotton and pasture/hay production. The remaining area of the basin is bottomland, hardwood, urban, industrial, or other non-agricultural uses.

In 1992, the Louisiana Department of Agriculture and Forestry (LDAF) began a surface water monitoring program for pesticides, utilizing 45 sampling sites at selected locations throughout the state. This monitoring program for 1992, 1993 and 1994 indicated that atrazine levels in surface waters of the Upper Terrebonne Basin could reach peak concentrations that would place the average above the maximum contaminant level (MCL) of three parts per billion (ppb). LDAF extended water monitoring in this area to include Iberville Parish Waterworks District No. 3 and the city of Thibodaux Water Works.

In mid-1996, LDAF hosted a meeting involving Novartis Crop Protection (an atrazine manufacturer), Louisiana Department of Health and Hospitals, LDEQ, Iberville Parish Waterworks District No. 3 and the LSU Agricultural Center. It was determined that the monitoring program should continue and that LSU's Cooperative Extension Service would incorporate information on best management practices (BMPs) into their educational meetings that are implemented within this area. Two meetings were held in 1997, with Iberville District

No. 3 Board members to tour the plant and make suggestions for the best utilization of equipment in the use of powder activated carbon and for steps toward reducing atrazine runoff in the sugarcane production areas. From the final meeting, it was agreed that a watershed committee should be formed to help direct information, education, research and outreach on atrazine usage.

1998 Non-Point Activities

In order to reduce the concentration of atrazine leaving agricultural fields, LDEQ's Nonpoint Source Management Program worked with LSU's Agricultural Center on a demonstration project and educational program for farmers in the UTB. The demonstration project was aimed at evaluation of best management practices to reduce the application rates of atrazine to sugarcane fields, to examine how residue management combined with placement and application methods could reduce the concentration of atrazine leaving the sugarcane fields. Edge-of-field water quality data was collected in an effort to determine the most efficient way to manage the pesticide use within this watershed area. LDEQ applied for EPA non-point funding to implement this project in 1998, but the funding was delayed and will not be applied to the project until 1999. In the interim, LSU Agricultural Center implemented the first year of the project through other funds.

Watershed Committee

The Upper Terrebonne Basin Cooperative Agreement for Atrazine was the concept utilized by the Louisiana Department of Agriculture and Forestry to bring together the stakeholders, regulators, agricultural education, demonstration outreach, and research. In this Cooperative Agreement the LDAF formed the Upper Terrebonne Basin Watershed Committee to carry the duties listed later in this document. Representatives from the following agencies and organizations serve as Committee members:

- Louisiana Department of Agriculture and Forestry
- Louisiana Department of Environmental Quality
- Louisiana Department of Health and Hospitals
- LSU Agricultural Center
- County Agents
- Certified Crop Consultants
- Louisiana Farm Bureau
- Sugarcane Farmers
- Corn Farmers
- Pesticide Dealers
- Pesticide Manufacturers
- Soil and Water District
- Iberville #3 Water Board
- Iberville Parish Council

An Action Plan was drafted to address the problems that exist with atrazine usage in the upper Terrebonne Basin, components of which are included here:

1. Continue the voluntary monitoring program for Iberville Parish Waterworks No. 3;
2. Contact, coordinate, and assist state and federal agencies, LSU, and grower organizations in the watershed to develop and implement grower education particularly with regards to BMPs;
3. Develop concept and write a brochure and mailer on sugarcane BMPs that is presently available including a detailed map of the watershed as an insert;
4. Help develop and serve on a local watershed committee. Novartis will work with this committee to develop a watershed management plan. Novartis will sponsor an educational BMP consultant to come to a meeting and help develop this watershed management plan;
5. Support the watershed committee's plan through development and financial support of newsletter articles, mailers, BMP demonstration tours, and additional meetings. This support may be given through in-kind resources or hiring of outside consultants to work on specific projects;
6. Establish a baseline survey of atrazine usage and application in the watershed with plans for an additional survey to determine progress of education and outreach;
7. Enter into a formal agreement with LSU Agricultural Center to conduct a literature search on atrazine BMPs for Sugarcane.
8. Novartis will continue the responsibilities mentioned above until the Product Stewardship timetable is completed or the detection of atrazine is below the annualized average MCL in raw water for a given year.

LSU Agricultural Center

Utilize their resources for education outreach in the watershed. Propose BMPs for atrazine use in sugarcane, based on them, and a literature search. Provide parameters for a joint agreement on sugarcane with Novartis to conduct sugarcane BMP research. Provide one key Extension person to help coordinate the watershed committee. If existing research does not allow for sound BMPs, new BMP research conducted by LSU will be utilized to provide information on recommendations on alternative weed control product usage to reduce present rates of atrazine per acre. LSU Agricultural Center would also propose demonstration projects to look at these reduced atrazine rates/alternative products.

Louisiana Sugarcane League

Participate in all discussions and become an active member of the watershed committee. Work with LSU Agricultural Center to help with education and outreach. Assist in development of a survey with other groups that the membership can utilize to provide a baseline on atrazine usage.

Louisiana Department of Agriculture and Forestry

Continue the sampling and monitoring program with Iberville. Help inform and participate in all phases of education and outreach along with playing an active role in the watershed committee. Jointly develop a specific atrazine BMP educational program that would be incorporated into present re-certification programs developed for that training. Organize an atrazine specific educational meeting for the Iberville watershed. Develop materials that could be utilized for training and education for re-certification meetings. Approve various programs for re-certification training for all educational meetings in the watershed. Specific atrazine meetings would qualify for CEU credits toward re-certification.

Iberville Parish Waterworks District No.3

Help form and participate in the local watershed committee. Continue to participate in Novartis' voluntary monitoring program. Support and play an active role in implementing activities that are determined to be of importance to the watershed committee. Continue assessment of in-plant treatment processes. Jointly develop a consumer confidence report with the Louisiana Department of Agriculture, the Louisiana Department of Health and Hospitals and Novartis.

Louisiana Department of Environmental Quality

Participate in the local watershed committee, in education and outreach programs, surface and ground water monitoring within the watershed program area. Both the Nonpoint Source Unit staff and the Source Water Protection staff will participate in all aspects of the watershed protection program. LDEQ will work with LSU Agricultural Center on review of BMPs that have been recommended for atrazine and will offer support for demonstration projects where alternative or innovative application methods are evaluated to determine whether the concentration of atrazine can be reduced. LDEQ will also offer support to the Local Soil and Water Conservation Districts who are working with sugarcane farmers to implement best management practices.

Outlined below are four objectives with the goal of reducing the amount of atrazine in the Upper Terrebonne Basin and therefore reducing the amount of atrazine in the raw water at Iberville Water Works #3.

Objective 1: To document goals ,objectives and tasks that will be implemented to reduce atrazine concentration in surface and ground water within the Upper Terrebonne Basin Watershed Area.

Task 1.1 Synthesize data and information on land-use, water quality and type of existing management practices utilized within the Upper Terrebonne Basin watershed.

Task 1.2 Include this information in a synthesis document that includes existing data, outlines a process for gathering additional data and information, demonstration projects on alternative practices, education and outreach, tracking success of BMP implementation and water quality monitoring.

Task 1.3 Prepare watershed plan with narrative text, tasks, data, maps and other information necessary to describe the process that will be implemented to reduce the level of atrazine in ground and surface waters within the Upper Terrebonne Basin watershed project area.

Task 1.4 Submit draft watershed plan to members of the Interagency Task Force that are working cooperatively on implementation of the management strategy to reduce and correct the problems associated with runoff of atrazine from agricultural land within the Upper Terrebonne Watershed for review and comment.

Measure of Success: A clearly documented synthesis report which describes the existing problems outlines goals, objectives, tasks which the Interagency Task Force has agreed to implement within the Upper Terrebonne Basin watersheds.

Objective 2: To implement tasks that have been approved as steps that need to be taken to meet project goals and objectives.

Task 2.1 Implement tasks that relate to data collection and water quality monitoring of surface and ground waters in project area.

Task 2.2 Implement tasks that relate to research and demonstration of sugarcane BMPs for atrazine.

Task 2.3 Implement tasks that relate to education and outreach within the project area to farmers who grow sugarcane and people who drink the water from Iberville #3 Waterworks.

Task 2.4 Implement tasks that relate to tracking the utilization of sugarcane best management practices within the watershed project area.

Task 2.5 Implement tasks that relate to documenting success of project through quarterly, annual and final reports.

Measure of Success: Implement tasks that were identified within the watershed plan by committee members who agreed to participate in project implementation.

Objective 3: To document results of project implementation and transfer these results to other watersheds where similar or potential problems with atrazine exist.

Task 3.1 Document results of project implementation through quarterly, annual and final report.

Task 3.2 Report results of watershed implementation program to Nonpoint Source Interagency Committee and the Barataria-Terrebonne National Estuary Program.

Task 3.3 Coordinate and transfer the results from this watershed program to watersheds with similar programs that are being implemented in the Vermilion-Teche River Basin and the Barataria-Terrebonne Basins.

Task 3.4 Work with the Coastal Nonpoint Pollution Control Program to incorporate results of this watershed program into the management measures for sugarcane within the coastal management area.

Task 3.5 Report on results of these transfer and coordination efforts in watersheds where sugarcane production is a major land-use activity.

Measure of Success: Accurate reporting, documentation, and transfer of information gathered through the implementation of the Upper Terrebonne Basin Watershed Protection Plan.

Objective 4: To implement methods that ensure that the problem with atrazine is addressed at the Iberville District Waterworks No. 3

Task 4.1 Determine whether implementation program has resulted in reduced concentration of atrazine at the Iberville District Waterworks No 3.

Task 4.2 If annualized average detection level in water does not fall below MCL after one year of program implementation and volunteer BMP implementation has been successful, then additional monitoring will be done to determine source of atrazine.

Task 4.3 If annualized average detection level in water does not fall below MCL after two years of program implementation, initiate mandatory management plans through LDAF.

Task 4.4 If mandatory management program does not reduce atrazine below the MCL, programs should be implemented that discourage use of atrazine in watershed and encourage alternative weed control.

Task 4.5 If annualized average level of detection in raw water continues to be above the MCL or, one sample is more than four times the MCL one year after advocating weed control alternatives, withdraw atrazine (all brands) use from the watershed through state rule-making procedures.

Measure of Success: Reduction of the concentration of atrazine below the MCL at Iberville Parish Waterworks District No. 3.

In addition to the Upper Terrebonne Basin Watershed Committee discussed above, a cooperative agreement formally called the *Atrazine Cooperative Agreement Program for the Upper Terrebonne Basin*, has been developed and is being administered by the LDAF. The cooperative agreement defines a timetable of actions to be taken over the next four years concerning atrazine use and levels in the basin. The actions defined by the Atrazine Cooperative Agreement Program are as follows:

1998

1. Continue accelerated (weekly) monitoring by LDAF at Iberville #3.
2. Institute accelerated field monitoring by LDAF in watershed area.
3. Institute educational program to address compliance with voluntary BMP's.
4. Setup field research projects on evaluation of additional management practices.
5. BMP demonstration tours.

6. Initiate a targeted watershed monitoring program to determine potential source(s) and/or necessary modifications of BMP's and grower re-education.
7. Establish a local watershed management plan.
8. Survey dealers, farmers, commercial, agricultural, and right-of-way applicators for atrazine applications.
9. Conduct planted acres survey for corn and sugarcane in late spring.

1999

If annualized average of detection level in raw water at Iberville #3 does not fall below current MCL of 3ppb at the end of 1998, or if one sample is four times greater than the MCL, the following steps will be implemented:

1. Continue all provisions listed for 1998 and LDAF shall have the option to make the BMP's mandatory for the watershed area.
2. Begin educational program to focus on discouraging the use of atrazine in the watershed and encourage alternative weed control programs.

2000

At the end of 1999, if annualized average of detection level in raw water at Iberville #3 does not fall below current MCL, or if one sample is four times greater than the MCL, the following steps will be implemented:

1. Continue all provisions listed for 1998 and 1999 and LDAF shall have the option through administrative rule process to limit the application of atrazine on sugarcane, corn and milo to practices identified through research as effective towards reducing the runoff of atrazine into the watershed.

2001

At the end of 2000 or any consecutive years of all the above listed, if annualized average of detection level in raw water at Iberville #3 does not fall below current MCL, or if one sample is four times greater than the MCL, the following steps will be implemented:

1. LDAF shall have the option through administrative rule process to suspend the use of atrazine (all brands and mixtures) in the watershed area.

INTRODUCTION

In 1998, the Louisiana Department of Environmental Quality and the Louisiana Department of Agriculture and Forestry undertook a joint sampling project to fulfill in part the actions to be taken as directed and recommended by the Upper Terrebonne Basin Watershed Committee and the Atrazine Cooperative Agreement Program for the Upper Terrebonne Basin. In particular, this sampling project fulfilled the goal of Objective 2, Task 2.1; *Implement tasks that relate to data collection and water quality monitoring of surface and ground waters in project area*, as described in the background section of this work plan.

It is intended that the analytical data provided from this joint effort has provided sufficient data to determine areas of elevated atrazine concentrations within the Upper Terrebonne Basin. This data will be supplied to and used by members of the Watershed Committee and participants of the Atrazine Cooperative Agreement Program, particularly LDEQ and LDAF, to make recommendations and take actions that will reduce the amount of atrazine in waters of this basin. This report will also be made available to the public via posting to LDEQ's web site.

SAMPLE STATION SELECTION

LDEQ and LDAF selected 31 sampling locations within the Upper Terrebonne Basin (UTB) that would best monitor atrazine levels in the waters of the UTB. The majority of the stations selected are located downstream on streams that receive runoff from predominantly sugar cane and corn production areas.

Ten of the 31 stations are located along US Highway 190 from just east of the intersection of Highway 190 and LA 383, west to Livonia at LA 77. These stations are located on Bayous Grosse Tete, Tommy, Sterling, Cholpe, Poydras, Stumpy, and on unnamed drainage canals and ditches. Four stations are located north of Highway 190 on Bayou Fordoche, Portage Canals One and Two, and at the outflow of False River on Lighthouse Canal.

The remaining 17 stations are located south of Highway 190 on major streams which include Bayous Maringouin, Grosse Tete, Chalpin, Choctaw, Plaquemine, Bourbeaux, and Johnson Canal, Wilbert Canal, the ICWW (Intracoastal Waterway), the Lower Grand River, and other unnamed canals and ditches. The Lower Grand River station serves as a background sample station for this sampling project.

Three of the streams in the UTB have multiple stations located along their length. These are: Bayou Grosse Tete, 2 stations; Bayou Maringouin, 2 stations; and the ICWW, 3 stations. For a more detailed sample station location description, see the Sample Station Description section of this report. Also contained in this report is Figure 1, which represents the UTB area, along with the sample stations' locations.

SAMPLE STATION DESCRIPTION

- Station 1.¹ Bayou Grosse Tete at the Highway 77 bridge, approximately 0.5 mile north of Highway 190 in Lovinia.
- Station 2.¹ Bayou Fordoche at the Highway 77 bridge, approximately 1 mile north of Highway 190 in Lovinia.
- Station 3.¹ Bayou Tommy at the Highway 190 bridge, approximately 3.25 miles east of Lovinia.
- Station 4.¹ Bayou Sterling at the Highway 190 bridge, approximately 1.4 miles west of the intersection of Highway 1 and Highway 190.
- Station 5.¹ Bayou Cholpe at the Highway 190 bridge, approximately 1 mile west of the intersection of Highway 1 and Highway 190.
- Station 6.¹ Drainage Canal at Highway 190, approximately 0.3 mile east of the intersection of Highway 1 and Highway 190.
- Station 7.¹ Bayou Poydras at the bridge off of Highway 413, approximately 0.1 mile north of Highway 190 in Erwinville.
- Station 8.¹ Drainage Canal at the Highway 190 culvert, approximately 2.25 miles east of Erwinville.
- Station 9.¹ Bayou Stumpy at the Highway 190 bridge, approximately 1.6 miles west of the intersection of Highway 190 and Highway 383.
- Station 10.¹ Drainage Ditch at the Highway 190 culvert, approximately 1.15 miles west of the intersection of Highway 190 and Highway 383.
- Station 11.¹ Unnamed Canal at the Highway 190 bridge, approximately 0.2 mile east of the intersection of Highway 190 and Highway 383.
- Station 12.¹ Bayou Chalpin at the Highway 76 bridge, approximately 0.2 mile west of the intersection of Highway 76 and Highway 413.
- Station 13.¹ Unnamed Canal at the Highway 76 bridge, approximately 1 mile east of Rosedale.
- Station 14.¹ Bayou Grosse Tete at the Highway 76 bridge at Rosedale.
- Station 15.¹ Bayou Maringouin at the Highway 76 bridge, at the intersection with Highway 3000.
- Station 16.¹ Bayou Maringouin at the Highway 77 bridge, east of the intersection with Highway 76.

- Station 17.² Bayou Choctaw at I-10, approximately 12 miles east of Baton Rouge.
- Station 19.² Johnson Canal as it enters Bayou Choctaw.
- Station 20.² Unnamed Canal as it enters the ICWW.
- Station 22.¹ Bayou Bourbeaux at the Bayou Choctaw Oilfield Rd. bridge, north of Plaquemine approximately 0.2 mile west of Highway 1148.
- Station 23.¹ Wilbert Canal at the Alternative Route Rd. bridge, north of Plaquemine off of Highway 1148.
- Station 24.² ICWW at the Highway 77 bridge.
- Station 25.² Bayou Plaquemine at the Highway 3066 bridge.
- Station 26.² ICWW at the U.S. Army Corp of Engineers dock adjacent to the Port Allen Locks.
- Station 27.¹ Portage Canal No. 1 at the Hospital Road bridge, in of New Roads.
- Station 28.² ICWW approximately 100 yards upstream from the Iberville Water Works #3 intake.
- Station 29.¹ Borrow Ditch from the first bridge south of I-10 on the east side of the protection levee, approximately 4 miles south of I-10.
- Station 30.³ Portage Canal No. 2 north of Highway 78 on oil field road where pipeline crosses Portage No. 2
- Station 31.¹ Lighthouse Canal at False River on Highway 1.
- Station 32.² Grand River at ICWW. (Site added after first sampling event.)
- Station B1.² Lower Grand River near the public landing on the east side of the protection levee. (Background sample station)

¹ Sample station to be accessed by vehicle

² Sample station to be accessed by boat

³ Sample station to be accessed by all terrain vehicle

SAMPLING SCHEDULE

It was planned that four sampling events would be undertaken for 1998. The dates were meant to coincide with pre-emergence and post-emergence applications of atrazine, lay-by (time of little or no crop tending activity), and possible fall applications of atrazine.

Schedule for the four sampling events:

<u>EVENT#</u>	<u>DATE</u>
1	February 17, 1998
2	April 7, 1998
3	June 16, 1998
4	September 29, 1998

Water samples and field data were collected from each station during each sampling event. Sediment samples were collected during the second and third events only, where sediments were collected from approximately one-half of the stations on the second event, and sediments were collected from the remaining stations on the third event. Table 1 below details the sampling schedule for 1998. As the reader will notice, station 30, Portage Canal No. 2, was sampled only twice in 1998. This was due to the site being added after the first event, and access restrictions at the time of the last sampling event. Also noted is that this station was sampled on the previous day of events two and three also due to accessibility considerations. In Table 5, Event Averages, this station is included in the averages of events two and three (4/7/98 and 6/16/98).

In conjunction with the four sampling events described above, weekly samples were collected from sample station numbers 1, 7, 14, 17, 24, and 25. This weekly sampling was on each Tuesday, beginning on March 10, 1998, and continued through June 30, 1998. Field data and water samples to be analyzed for atrazine were collected from these six stations. Sediment, turbidity, and TSS samples were not collected from these six stations during the weekly sampling activities, except on those dates where the weekly sampling coincided with a full sampling event. Additionally, a one-time sampling event was undertaken on April 30, 1998, which was preceded by a rainfall event. The stations sampled included the six weekly stations, plus the following four stations: 2, 11, 15, and 23.

The effluent from the outfalls of certain facilities within the Upper Terrebonne Basin was selected and sampled for atrazine. A compliance sampling inspection was performed on these facilities during the month of March. See the Facility section later in this report for atrazine data and listing of facilities.

A minimum of four water wells located in the Upper Terrebonne Basin, with a depth not greater than 100 feet were to be selected and sampled for atrazine twice in 1998. Due to the lack of water wells completed at this shallow depth, none have been sampled at the time of the writing of this report. However, five to six wells, which are screened to no more than 200 feet, have been located and are slated to be sampled before the end of the year. An addendum will be made to this report at such time as the data become available.

TABLE 1
Sampling Schedule

STATION NUMBER	SAMPLING TEAM	ANALYTICAL PARAMETERS											
		EVENT # 1			EVENT # 2			EVENT # 3			EVENT # 4		
		Atrazine		Turbidity & TSS	Atrazine		Turbidity & TSS	Atrazine		Turbidity & TSS	Atrazine		Turbidity & TSS
		Water	Sediments		Water	Sediments		Water	Sediments		Water	Sediments	
1	II	X		X	X		X	X	X	X		X	
2	II	X		X	X	X	X		X	X		X	
3	II	X		X	X		X	X	X	X		X	
4	II	X		X	X		X	X	X	X		X	
5	II	X		X	X		X	X	X	X		X	
6	II	X		X	X	X	X		X	X		X	
7	II	X		X	X	X	X		X	X		X	
8	II	X		X	X	X	X		X	X		X	
9	II	X		X	X		X	X	X	X		X	
10	II	X		X	X	X	X		X	X		X	
11	II	X		X	X	X	X		X	X		X	
12	III	X		X	X		X	X	X	X		X	
13	III	X		X	X	X	X		X	X		X	
14	III	X		X	X		X	X	X	X		X	
15	III	X		X	X	X	X		X	X		X	
16	III	X		X	X		X	X	X	X		X	
17	I	X		X	X	X	X		X	X		X	
19	I	X		X	X		X	X	X	X		X	
20	I	X		X	X		X	X	X	X		X	
22	III	X		X	X		X	X	X	X		X	
23	III	X		X	X	X	X		X	X		X	
24	I	X		X	X	X	X		X	X		X	
25	I	X		X	X	X	X		X	X		X	
26	I	X		X	X		X	X	X	X		X	
27	II	X		X	X		X	X	X	X		X	
28	I	X		X	X	X	X		X	X		X	
29	III	X		X	X	X	X		X	X		X	
30	I	X		X	X		X		X	X		X	
31	II	X		X	X		X	X	X	X		X	
32	I				X		X	X	X	X		X	
B1	I	X		X	X		X	X	X	X		X	

PARAMETERS

ANALYTICAL PARAMETERS Water and sediment⁵ samples were collected from each of the sample stations listed in the Sample Station Description section and analyzed for the following parameters:

<u>PARAMETER</u>	<u>CONTAINER</u>	<u>MEDIA</u>	<u>PRESERVATION</u>
Atrazine	hexane rinsed, 32oz. wide-mouth, amber glass jar, with Teflon lined lid	Water	Ice
Atrazine	hexane rinsed, 8oz. wide-mouth, amber glass jar, with Teflon lined lid	Sediment	Ice
Turbidity, TSS	1L. cubitainer	Water	Ice

FIELD PARAMETERS The following field parameters were taken at each station: Temperature, pH, Dissolved Oxygen, Specific Conductance, and Light Penetration. In-situ field instruments were employed to collect these readings. Instrument type and calibration is discussed in the Sampling Equipment section later in this document.

⁵ Sediment samples were **NOT** collected from Sample Station No. 30 due to access limitations. Sediment samples were **NOT** collected from stations 31 or B1 due to hard stream bottoms.

SAMPLE COLLECTION

SAMPLE CONTAINERS

Water samples analyzed for atrazine were collected in 32oz. amber wide mouth glass jars with teflon lined lids. Sediment samples analyzed for atrazine were collected in 8oz. amber wide mouth glass jars with teflon lined lids. The 32oz. and 8oz. glass jars were rinsed by LDEQ sampling personnel with pesticide grade hexane.

Water samples analyzed for turbidity and TSS were collected in one-liter cubitainers. LDEQ supplied all sample containers for this sampling effort. The sample containers were labeled according to LDEQ protocol. All LDEQ sample labels included the sample number, date, time, and sample station number. A chain of custody was used for sample tracking. The chain of custody was prepared according to LDEQ sampling protocol as described in the Quality Assurance Project Plan for Surface Water Monitoring and Analysis. LDAF labeled the split samples and prepared chain-of-custody forms according to LDAF protocol.

SAMPLING EQUIPMENT

Water samples were collected using stainless steel samplers. The samplers were rinsed by LDEQ personnel prior to the sampling effort with DI water and pesticide grade hexane. The samplers' property tag or serial numbers were recorded in the log book for the sampling effort, along with the date the samplers were rinsed.

Sediment samples were collected using stainless steel dredges, stainless steel buckets, and stainless steel shovels or spoons. The dredges, buckets, shovels, and spoons were rinsed by LDEQ personnel prior to the sampling effort with DI water and pesticide grade hexane. The dredges' property tag or serial numbers were recorded in the log book for the sampling effort, along with the date the dredges were rinsed.

Field parameters were acquired with in-situ instruments such as the HydroLab or YSI. The readings were recorded on a field data form. The instruments were calibrated according to the manufacturers' requirements prior to each sampling event. The date the instruments were calibrated was recorded in the log book along with the make, model, and property tag numbers or serial numbers of the instruments. Secchi discs were employed to measure light penetration in the streams. The readings were also recorded on the field data form. The secchi discs' property tag or serial numbers were recorded in the log book for the sampling effort.

SAMPLING PROCEDURES

Water samples collected from each station that was analyzed for atrazine was split with LDAF, whereas water samples collected for turbidity and TSS were not split with LDAF. A total of five samples were collected from each primary station.

Water samples were collected at each station at a depth of approximately one meter. If the stream was less than one meter in depth, samples were collected from approximately two-thirds depth of the stream. Prior to collecting each sample, the sampler was pre-rinsed with water from the stream. The sampler was submerged until full (no air bubbles escaping from vent). Sampling personnel then filled the two one-liter glass sample containers until minimum headspace was achieved, with the water from the original volume of the sampler (after the initial rinse of the sampler with site water). This was done to achieve a true split sample from each station. If a sufficient volume of water remained in the sampler, then the one-liter cubitainer was filled, if not, the sampler was re-submerged until full and then the cubitainer was filled.

Sediment samples were collected at each sampling station from the bottom of the stream. Prior to collection of each sample, the sampler, bucket, hand shovel, and spoon were pre-rinsed with the water from the stream. The sediment was placed in the stainless steel bucket before transferring it to the sample container. Sample personnel used a stainless steel hand shovel or spoon to thoroughly mix the sediments to achieve a near homogenous mixture of the sediments. The sediments were then transferred from the bucket to the sample container. The sample container was filled from the bucket until minimum headspace was achieved. After collecting

each sample, all sediment was removed from the dredge. The stainless steel bucket and hand shovel were rinsed after each sample collection to remove all sediment.

The time each sample was taken was recorded on the sample container label and on the chain-of-custody. After the samples were collected at each station, the samples were placed on ice in an ice chest. All field parameters were taken at each sampling station and recorded on the field data form.

QUALITY ASSURANCE SAMPLES

Field blanks and duplicate samples were prepared and collected at a rate of at least ten percent (10%) for this sampling effort. Two field blanks were prepared by each sampling team for a total of six field blanks per event. Each sampling team selected one sample station from which to collect duplicate samples, for a total of three duplicate samples.

Field blanks were prepared using DI water supplied by LDEQ Water Lab and collected in the containers used for this sampling effort. The first field blank was prepared at the beginning of each sampling event. The sample containers were filled with DI water directly from the water container. The second field blank was prepared after the last station was sampled for each event. This field blank was prepared by first rinsing the sampler with DI water, filling the sampler with DI water, then filling the sample containers from the sampler, following described procedures.

Duplicate samples were collected from the stations selected by each sampling team immediately following the completion of original sample collection from that station. The same sampling protocols were followed for the duplicate sample as described above in the Sampling Procedures section of this document.

One duplicate sample and one field blank were collected and prepared for the six samples collected weekly, adhering to the procedures described above. Also, LDAF received split samples from LDEQ from the six stations sampled weekly, however LDAF did not split samples on any of the QA samples (duplicates and blanks) from the full sampling events or the weekly sampling events.

SAMPLE ANALYSIS

For all atrazine analysis, LDEQ utilized the NLU Soil-Plant Analysis Laboratory, located on the campus of Northeast Louisiana University, in Monroe, Louisiana. For TSS and turbidity analysis, LDEQ utilized the LDEQ Water Laboratory, located in Baton Rouge, Louisiana.

LDAF water and sediment samples were analyzed for atrazine by their analytical laboratory located on the campus of Louisiana State University, in Baton Rouge, Louisiana.

DATA SUMMARY

The data presented here are from the analytical reports as received from the NLU Soil-Plant Analysis Laboratory, in Monroe, Louisiana. The lab performed atrazine analysis with a minimum detection limit (MDL) of 1.0 part per billion (ppb). Where duplicate samples were collected from a single station, the listed results are the average of the duplicate samples. In calculating means for individual stations where atrazine was below the detection limit (BDL), one-half the detection limit (0.5) was used as discussed in the Department's *Risk Evaluation/Corrective Action Program* document.

The data summarized below is only LDEQ data for atrazine. For a complete tabulation of all LDEQ analytical data and field parameters, see Appendix 1 of this report. For LDAF analytical data, contact the Louisiana Department of Agriculture and Forestry, Pesticide Use, Pesticide Waste Assessment and Remediation office in Baton Rouge, Louisiana.

WATER ANALYSIS DATA

Table 2 presents analytical data from a total of 181 samples collected and analyzed for atrazine from the 31 sample stations. Of these 181 samples, 82 (45.3%) exceeded the Maximum Contaminant Level (MCL) of 3.0 ppb for atrazine. Of these 82 samples that exceeded the MCL, the lowest concentration of 3.1 ppb was reported from station 13 collected on 2/17/98, from an unnamed canal crossing US Highway 190 east of Rosedale. The highest concentration of 216.2 ppb was reported from station 16 collected on 4/7/98, from Bayou Maringouin at LA Highway 77 bridge.

Table 3 reports the number of samples collected from each station, along with the maximum, minimum, and mean concentrations of atrazine in samples collected from each station in 1998. The average atrazine concentration of each station shows that 21 of the 31 stations exceeded the MCL of 3.0 ppb. The data also reveal that seven of the 31 stations sampled never exceeded the MCL in 1998, and that atrazine was not detected in 1998, at or above the detection limit of 1.0 ppb in only three stations, as outlined below.

Station	Stream	≤ MCL	Not Detected
3	Bayou Tommy	X	X
9	Bayou Stumpy	X	
19	Johnson Canal	X	
20	Unnamed Canal	X	X
26	ICWW @ Locks	X	X
31	Lighthouse Canal	X	
32	Grand River	X	

Table 4 tabulates data on three streams of the UTB (Bayou Grosse Tete, Bayou Maringouin, and the ICWW) which have multiple sample stations located on them. Listed in this table are the station numbers, quantity of samples collected from each stream, and the maximum, minimum, and mean atrazine concentrations for 1998. These data show that of these three streams, Bayou Maringouin reported the highest concentration of atrazine, at 216.2 ppb, while all three streams reported a minimum atrazine concentration below the detection limit of

1.0 ppb. The averages of all three streams exceeded the 3.0 ppb MCL for atrazine, which ranged from 4.9 to 40.7 ppb.

Table 5 shows atrazine data on a per-event basis, where the average of all stations sampled are listed for that date. This data shows that of the four full sampling events that the February and April event averages exceeded the MCL for atrazine, while the last two full sampling events in June and September were below the MCL. The weekly sampling events tended to follow this pattern also, as most of the exceedances of the MCL occurred in March and April. In May and June, all but one of the average atrazine concentrations for the weekly sampling events decreased to below the MCL, and on four events, was below the detection limit of 1.0 ppb.

SEDIMENT ANALYSIS DATA

As stated previously in this report, sediment samples were to be collected from all sample stations, except station 30 due to accessibility limitations. Sediments were collected from approximately one-half the stations on April 7, 1998, and sediment samples were collected from the remaining stations on June 16, 1998. The tabulated data below in Table 6 lists the results of the analysis of these sediment samples. The sediment samples were analyzed for atrazine by the Soil-Plant Analysis Laboratory at the NLU campus in Monroe, LA, with a detection limit of 1.0 ppb.

Table 6, Atrazine Concentration in Sediments, shows that of the sediments collected from the 28 stations, 14 stations reported detectable concentrations of atrazine, while the atrazine concentrations of the sediments collected from the remaining stations were below the detection limit. Atrazine concentrations in sediments ranged from 2.2 ppb (station 9, Bayou Stumpy) to 68.2 ppb (station 15, Bayou Maringouin), with an average of 5.9 ppb. Of the 14 stations with reportable quantities of atrazine, 13 were above the MCL of 3.0 ppb.

RAINFALL DATA

Rainfall data was monitored and collected by LDEQ from a site located west of Maringouin, near to and east of, the Atchafalya Basin protection levee. Rainfall data monitoring began on March 3, 1998, to present. It is not intended that this single station be representative of the entire UTB, in that rainfall amounts can vary widely across the area of this basin.

Contained in Appendix 2 of this report is the tabulation of this data, along with monthly charts showing daily events and graphs the totals by month. Table 7, in the body of this report, compares weekly rainfall amounts to the average atrazine concentrations of the weekly sampling events, where the total of rainfall reported is for the seven days preceding the sampling event.

FACILITIES

As stated previously in this report, the effluent from the outfalls of seven permitted facilities within in the UTB was sampled for atrazine. This task was completed during the month of March, while conducting compliance inspections of these facilities. Atrazine was not detected

at or above the minimum detection limit of 1.0 ppb from any of the seven facilities. Listed below are the seven facilities and their corresponding NPDES (permit) Number:

<u>Facility</u>	<u>NPDES Number</u>
Pointe Coupee Sewage District # 1	LA0003034
Pointe Coupee Sewage District # 3	LA0020542
Pointe Coupee Sewage District # 4	LA0092665
Pointe Coupee Sewage District # 5	LA0085189
Alma Plantation, Limited	LA0020648
City of Port Allen Waste Water Treatment Plant	LA0091847
City of Plaquemine South Waste Water Treatment Plant	LA0088528

CONCLUSION

Review of the data presented in this report shows that the herbicide atrazine is entering the waters of the Upper Terrebonne Basin in concentrations that are, in many instances, several times greater than the Maximum Contaminant Level established for atrazine (3.0 ppb). The times of elevated levels of this herbicide generally occur in conjunction with application of atrazine, and are tied to rainfall events as well. This is evidenced by the data in this report, and particularly by the data in Tables 2 and 5. The data in these tables show increased atrazine concentrations in the waters of the UTB in the spring, when the herbicide atrazine is applied at a higher frequency than later in the year when atrazine usage is reduced.

TABLE 2
Atrazine Data by Date

Station	2/17	3/10	3/17	3/24	3/31	4/6	4/7	4/14	4/21	4/28	4/30	5/5	5/12	5/19	5/26	6/2	6/9	6/15	6/16	6/23	6/30	9/29
B-1	BDL						4.6												1.8			BDL
1	BDL	9.3	129.6	5.5	BDL		8.9	4.3	20.2	BDL	7.5	BDL	1.8	BDL	BDL	2.9	BDL		BDL	BDL	BDL	BDL
2	4.0						15.3				14.5								BDL			BDL
3	BDL						BDL												BDL			BDL
4	BDL						4.9												BDL			BDL
5	BDL						11.0												16.2			3.8
6	11.3						11.6												8.7			BDL
7	25.9	5.1	34.7	3.9	BDL		2.6	1.2	2.3	BDL	2.4	BDL	BDL	BDL	BDL	2.1	1.9		BDL	BDL	BDL	3.4
8	8.6						4.0												BDL			BDL
9	1.9						1.7												BDL			BDL
10	17.2						2.8												BDL			BDL
11	46.8						3.0				4.0								1.5			BDL
12	1.5						205.9												5.4			BDL
13	3.1						15.8												2.8			1.3
14	BDL	54.0	3.5	6.6	1.5		55.4	7.0	31.6	2.7	24.9	2.8	1.6	BDL	BDL	17.4	4.5		1.9	1.0	BDL	BDL
15	10.9						110.4				9.1								8.3			BDL
16	BDL						216.2												9.8			BDL
17	11.2	10.4	48.7	13.2	4.4		49.0	18.3	40.3	5.5	6.6	BDL	2.6	BDL	BDL	BDL	BDL		1.3	1.9	BDL	1.2
19	2.1						BDL												BDL			BDL
20	BDL						BDL												BDL			BDL
22	1.6						11.1												2.3			1.6
23	5.4						BDL				15.0								1.2			BDL
24	7.3	7.6	11.7	10.5	2.1		BDL	7.7	32.6	BDL	12.5	4.9	BDL	BDL	2.4	17.4	BDL		BDL	BDL	BDL	BDL
25	10.9	8.2	6.1	11.5	4.2		2.7	3.5	10.8	2.9	7.7	BDL	2.7	1.3	BDL	2.7	BDL		1.0	BDL	BDL	BDL
26	BDL						BDL												BDL			BDL
27	BDL						4.9												1.0			20.9
28	12.3						BDL												BDL			BDL
29	3.6						1.8												4.7			BDL
30	NS					13.3												BDL				NS
31	BDL						BDL												1.0			BDL
32	NS						1.5												BDL			BDL

Atrazine concentrations reported in parts per billion (ppb).
BDL = Below Detection Limit of 1.0 ppb.
NS = No Sample collected.

TABLE 3
Atrazine Maximum, Minimum, and Mean Values by Station

Station	Stream Name	No. of Samples	Station Maximum	Station Minimum	Station Mean
B-1	Lower Grand River	4	4.6	BDL	1.8
1	Bayou Grosse Tete	20	129.6	BDL	9.8
2	Bayou Fardoche	5	15.3	BDL	7.0
3	Bayou Tommy	4	BDL	BDL	BDL
4	Bayou Sterling	4	4.9	BDL	1.6
5	Bayou Cholpe	4	16.2	BDL	7.9
6	Drainage Ditch	4	11.6	BDL	8.0
7	Bayou Poydras	20	34.7	BDL	4.5
8	Drainage Ditch	4	8.6	BDL	3.4
9	Bayou Stumpy	4	1.9	BDL	1.2
10	Unnamed Ditch	4	17.2	BDL	5.3
11	Unnamed Canal	5	46.8	BDL	11.2
12	Bayou Tommy	4	205.9	BDL	53.3
13	Unnamed Canal	4	15.8	1.3	5.8
14	Bayou Grosse Tete	20	55.4	BDL	10.9
15	Bayou Maringouin	5	110.4	BDL	27.8
16	Bayou Maringouin	4	216.2	BDL	56.7
17	Bayou Choctaw	20	49.0	BDL	10.9
19	Johnson Canal	4	2.1	BDL	0.9
20	Unnamed Canal	4	BDL	BDL	BDL
22	Bayou Bourbeaux	4	11.1	1.6	4.2
23	Wilbert Canal	5	15.0	BDL	4.5
24	ICWW	20	32.6	BDL	6.1
25	Bayou Plaquemine	20	11.5	BDL	4.0
26	ICWW	4	BDL	BDL	BDL
27	Portage Canal No. 1	4	20.9	BDL	6.8
28	ICWW	4	12.3	BDL	3.5
29	Bar Ditch	4	4.7	BDL	2.7
30	Portage Canal No. 2	2	13.3	BDL	6.9
31	Lighthouse Canal	4	1.0	BDL	0.6
32	Grand River	3	1.5	BDL	0.8

TABLE 4
Stream Max, Min, and Mean, Streams with Multiple Sample Stations

Stream Name	Station Numbers	No. of Samples	Stream Maximum	Stream Minimum	Stream Mean
Bayou Grosse Tete	1 & 4	24	129.6	BDL	10.4
Bayou Maringouin	15 & 16	9	216.2	BDL	40.7
ICWW	24, 26, & 28	28	32.6	BDL	4.9

TABLE 5
Event Averages

Date	Atrazine Event Average (ppb)	Event Type
2/17/98	6.6	Event One
3/10/98	15.8	Weekly
3/17/98	39.1	Weekly
3/24/98	8.5	Weekly
3/31/98	2.2	Weekly
4/7/98	24.6	Event Two (includes station 30)
4/14/98	7.0	Weekly
4/21/98	23.0	Weekly
4/28/98	2.1	Weekly
4/30/98	10.4	Rainfall Event (weekly stations + stations 2, 11, 15, & 23)
5/5/98	1.6	Weekly
5/12/98	1.6	Weekly
5/19/98	BDL	Weekly
5/26/98	BDL	Weekly
6/2/98	7.2	Weekly
6/9/98	1.4	Weekly
6/16/98	2.5	Event Three (includes station 30)
6/23/98	BDL	Weekly
6/30/98	BDL	Weekly
9/29/98	1.5	Event Four

TABLE 6
Atrazine Concentration in Sediments

Station	Stream	Date Sampled	Atrazine Sediment (ppb)
B1	Lower Grand River	6/16/98	Not sampled - hard bottom
1	Bayou Grosse Tete	6/16/98	BDL
2	Bayou Fordoche	4/7/98	5.2
3	Bayou Tommy	6/16/98	BDL
4	Bayou Sterling	6/16/98	BDL
5	Bayou Cholpe	6/16/98	14.7
6	Drainage Ditch	4/7/98	BDL
7	Bayou Poydras	4/7/98	BDL
8	Drainage Ditch	4/7/98	BDL
9	Bayou Stumpy	6/16/98	2.2
10	Unnamed Ditch	4/7/98	5.4
11	Unnamed Canal	4/7/98	4.3
12	Bayou Tommy	6/16/98	BDL
13	Unnamed Canal	4/7/98	8.1
14	Bayou Grosse Tete	6/16/98	4.3
15	Bayou Maringouin	4/7/98	68.2
16	Bayou Maringouin	6/16/98	BDL
17	Bayou Choctaw	4/7/98	17.4
19	Johnson Canal	6/16/98	BDL
20	Unnamed Canal	6/16/98	BDL
22	Bayou Bourbeaux	6/16/98	3.8
23	Wilbert Canal	4/7/98	5.1
24	ICWW	4/7/98	BDL
25	Bayou Plaquemine	4/7/98	8.4
26	ICWW	6/16/98	BDL
27	Portage Canal No. 1	6/16/98	BDL
28	ICWW	4/7/98	BDL
29	Bar Ditch	4/7/98	5.8
31	Lighthouse Canal	6/16/98	Not sampled - hard bottom
32	Grand River	6/16/98	4.9

TABLE 7
Comparison of Rainfall to Weekly Sampling Events

Date	Rainfall (in.)¹	Atrazine Average² (ppb)
2/17/98	No Data	6.6
3/10/98	0.00	15.8
3/17/98	2.56	39.1
3/24/98	0.03	8.5
3/31/98	1.94	2.2
4/7/98	0.95	24.6
4/14/98	0.53	7.0
4/21/98	0.92	23.0
4/28/98	0.53	2.1
4/30/98	0.51	10.4
5/5/98	0.00	1.6
5/12/98	0.36	1.6
5/19/98	0.00	BDL
5/26/98	0.00	BDL
6/2/98	0.00	7.2
6/9/98	0.57	1.4
6/16/98	0.14	2.5
6/23/98	0.25	BDL
6/30/98	0.30	BDL
9/29/98	0.29	1.5

¹ Rainfall totals are for the 7 days preceding sampling event.

² Atrazine average is for all stations sampled on date shown.

MAP OF THE UPPER TERREBONNE BASIN AND SAMPLE STATION LOCATIONS

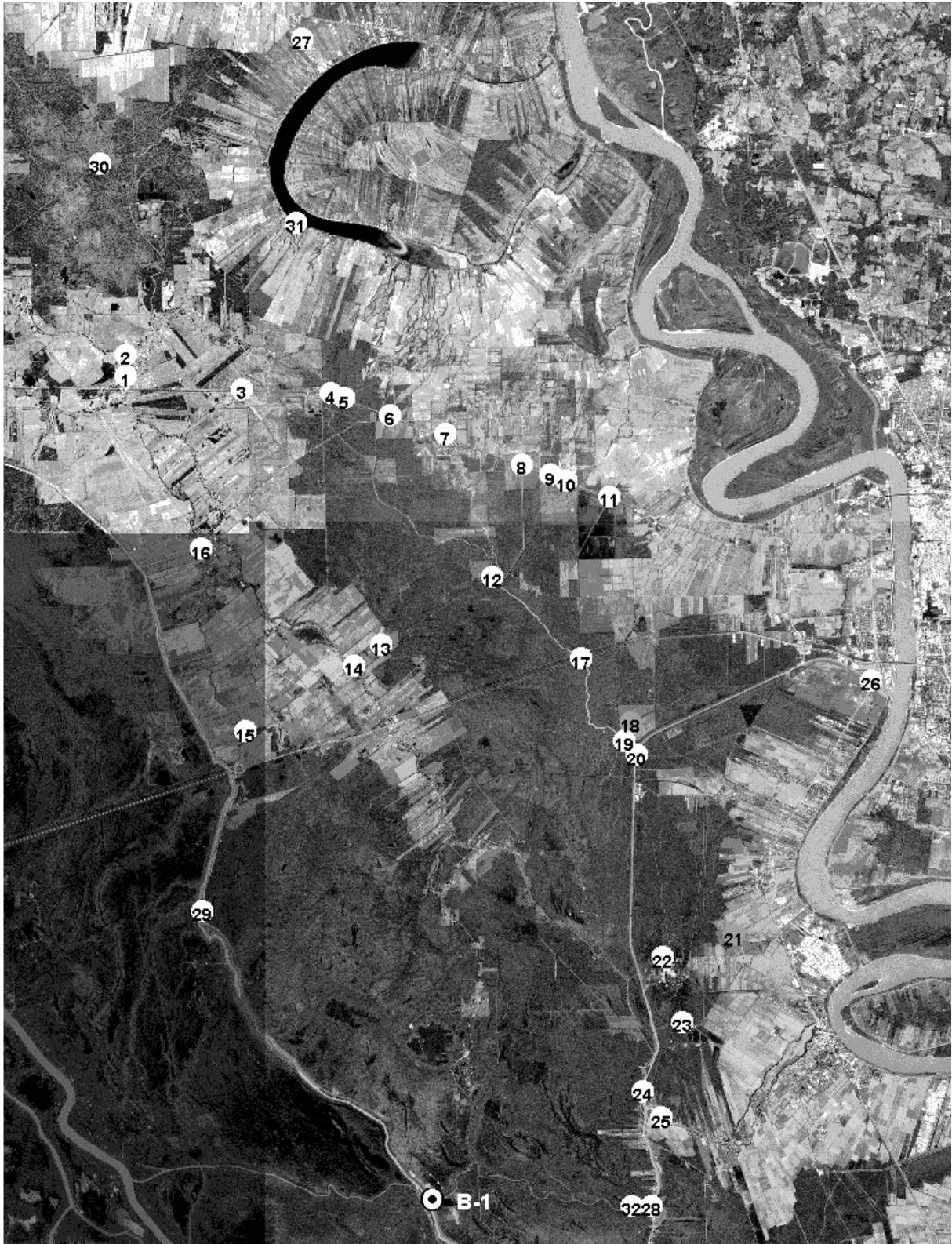


FIGURE 1

APPENDIX 1

1998 ATRAZINE ACTIVITIES

LDEQ Atrazine and Water Quality Analytical/Field Data

Appendix 1

1998 Atrazine Activities

LDEQ Atrazine and Water Quality Analytical/Field Data

Station Number	Stream Name	Date Sampled	Atrazine (ppb)	Turbidity (NTU)	TSS (ppm)	Temp (°C)	Conductivity (umhos/cm)	pH (SU)	DO (mg/l)	Secchi Reading (ft)	Sample Depth (m)
B-1	Upper Grand River	2/17/98	BDL	50	34	13.70	270	7.83	7.26	0.50	1.0
B-1	Upper Grand River	4/ 7/98	4.6	26	12	22.60	227	7.56	6.64	1.00	1.0
B-1	Upper Grand River	6/16/98	1.8	27	14	31.10	312	7.57	2.90	0.50	1.0
B-1	Upper Grand River	9/29/98	BDL	48	58	27.30	179	8.06	5.92	0.42	1.0
1	Bayou Grosse Tete	2/17/98	BDL	110	82	12.20	145	6.78	9.14	1.00	1.0
1	Bayou Grosse Tete	3/10/98	9.3	Not Analyzed		13.40	267	7.60	6.28	0.33	1.0
1	Bayou Grosse Tete	3/17/98	129.6	Not Analyzed		16.70	140	7.91	6.11	0.50	1.0
1	Bayou Grosse Tete	3/24/98	5.6	Not Analyzed		15.90	300	7.36	5.64	0.50	1.0
1	Bayou Grosse Tete	3/31/98	BDL	Not Analyzed		22.60	309	7.64	4.12	0.42	0.5
1	Bayou Grosse Tete	4/ 7/98	8.9	60	60	19.50	310	6.99	5.50	0.30	1.0
1	Bayou Grosse Tete	4/14/98	4.3	Not Analyzed		21.10	313	7.35	3.58	0.33	1.0
1	Bayou Grosse Tete	4/21/98	19.2	Not Analyzed		18.50	238	7.19	5.37	0.40	1.0
1	Bayou Grosse Tete	4/28/98	BDL	Not Analyzed		19.90	207	7.25	5.54	0.00	0.5
1	Bayou Grosse Tete	4/30/98	7.5	Not Analyzed		19.60	161	6.74	3.24	0.30	1.0
1	Bayou Grosse Tete	5/ 5/98	BDL	Not Analyzed		23.10	257	7.61	6.08	0.25	1.0
1	Bayou Grosse Tete	5/12/98	1.8	Not Analyzed		25.40	323	7.41	3.55	0.40	1.0

BDL = Below Detection Limit of 1.0 ppb.

Not Analyzed = Turbidity and TSS samples were not collected from weekly stations.

Station Number	Stream Name	Date Sampled	Atrazine (ppb)	Turbidity (NTU)	TSS (ppm)	Temp (°C)	Conductivity (umhos/cm)	pH (SU)	DO (mg/l)	Secchi Reading (ft)	Sample Depth (m)
1	Bayou Grosse Tete	5/19/98	BDL	Not Analyzed		27.20	332	7.52	3.26	0.30	1.0
1	Bayou Grosse Tete	5/26/98	BDL	Not Analyzed		27.50	288	7.40	4.26	0.33	0.5
1	Bayou Grosse Tete	6/ 2/98	2.9	Not Analyzed		30.50	349	7.19	3.18	0.30	0.8
1	Bayou Grosse Tete	6/ 9/98	BDL	Not Analyzed		27.50	323	7.72	2.64	0.40	0.8
1	Bayou Grosse Tete	6/16/98	BDL	30	35	30.50	306	7.23	5.04	0.33	0.5
1	Bayou Grosse Tete	6/23/98	BDL	Not Analyzed		30.30	324	7.57	3.01	0.50	0.8
1	Bayou Grosse Tete	6/30/98	BDL	Not Analyzed		29.00	302	7.78	3.67	0.40	1.0
1	Bayou Grosse Tete	9/29/98	BDL	38	70	27.73	220	7.52	2.55	0.33	1.0
2	Bayou Fordoche	2/17/98	4	130	205	12.40	163	6.76	8.81	0.50	0.6
2	Bayou Fordoche	4/ 7/98	15.3	75	145	19.30	367	6.75	4.12	0.20	0.6
2	Bayou Fordoche	4/30/98	14.5	Not Analyzed		20.10	188	6.86	3.17	0.50	0.5
2	Bayou Fordoche	6/16/98	BDL	60	212	30.40	311	7.21	5.40	0.50	0.5
2	Bayou Fordoche	9/29/98	BDL	39	134	27.42	230	7.54	2.78	1.00	0.5
3	Bayou Tommy	2/17/98	BDL	70	36	11.33	278	6.76	10.33	0.67	0.3
3	Bayou Tommy	4/ 7/98	BDL	70	60	19.40	652	6.87	5.10	0.20	0.3
3	Bayou Tommy	6/16/98	BDL	320	792	27.00	772	6.95	2.72	0.33	0.5
3	Bayou Tommy	9/29/98	BDL	60	166	24.60	768	7.14	2.42	2.00	0.5
4	Bayou Sterling	2/17/98	BDL	60	52	12.40	162	6.91	9.40	0.67	1.0
4	Bayou Sterling	4/ 7/98	4.9	33	36	19.20	280	7.07	5.83	0.40	1.0

BDL = Below Detection Limit of 1.0 ppb.

Not Analyzed = Turbidity and TSS samples were not collected from weekly stations.

Station Number	Stream Name	Date Sampled	Atrazine (ppb)	Turbidity (NTU)	TSS (ppm)	Temp (°C)	Conductivity (umhos/cm)	pH (SU)	DO (mg/l)	Secchi Reading (ft)	Sample Depth (m)
4	Bayou Sterling	6/16/98	BDL	12	28	28.60	282	7.06	3.31	2.00	1.0
4	Bayou Sterling	9/29/98	BDL	45	62	26.54	235	7.74	4.28	0.33	1.0
5	Bayou Cholpe	2/17/98	BDL	190	125	11.50	95	6.77	9.51	0.17	0.6
5	Bayou Cholpe	4/ 7/98	11	190	240	19.30	371	6.85	3.93	0.50	0.2
5	Bayou Cholpe	6/16/98	16.2	130	188	26.70	542	7.00	2.35	0.50	0.5
5	Bayou Cholpe	9/29/98	3.84	230	428	23.99	296	6.87	0.85	0.25	0.5
6	Drainage Ditch	2/17/98	11.26	85	50	11.80	120	6.60	8.61	0.50	1.0
6	Drainage Ditch	4/ 7/98	11.6	10	4	17.90	495	6.99	4.55	1.00	0.6
6	Drainage Ditch	6/16/98	8.7	110	224	27.00	555	7.33	2.25	1.00	0.5
6	Drainage Ditch	9/29/98	BDL	290	556	24.40	331	7.19	1.54	0.33	0.5
7	Bayou Poydras	2/17/98	25.33	230	175	12.60	114	6.61	8.40	0.17	0.6
7	Bayou Poydras	3/10/98	5.1	Not Analyzed		12.00	530	7.45	3.30	0.50	0.3
7	Bayou Poydras	3/17/98	33.7	Not Analyzed		16.90	124	7.42	5.30	0.33	0.5
7	Bayou Poydras	3/24/98	3.9	Not Analyzed		16.20	596	7.14	2.43	0.50	0.5
7	Bayou Poydras	3/31/98	BDL	Not Analyzed		21.80	615	7.61	2.14	0.42	0.3
7	Bayou Poydras	4/ 7/98	2.6	75	110	21.00	698	6.81	1.55	0.30	0.5
7	Bayou Poydras	4/14/98	1.2	Not Analyzed		21.20	669	7.63	3.46	0.50	1.0
7	Bayou Poydras	4/21/98	2.3	Not Analyzed		17.20	614	7.32	1.40	0.30	0.5
7	Bayou Poydras	4/28/98	BDL	Not Analyzed		19.30	152	7.08	5.66	0.40	1.0

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Station Number	Stream Name	Date Sampled	Atrazine (ppb)	Turbidity (NTU)	TSS (ppm)	Temp (°C)	Conductivity (umhos/cm)	pH (SU)	DO (mg/l)	Secchi Reading (ft)	Sample Depth (m)
7	Bayou Poydras	4/30/98	2.4	Not Analyzed		20.10	277	6.97	4.24	0.30	0.5
7	Bayou Poydras	5/ 5/98	BDL	Not Analyzed		23.10	561	7.22	3.11	0.30	0.5
7	Bayou Poydras	5/12/98	BDL	Not Analyzed		25.90	631	7.54	1.74	0.40	0.5
7	Bayou Poydras	5/19/98	BDL	Not Analyzed		25.60	565	7.92	2.83	0.50	0.3
7	Bayou Poydras	5/26/98	BDL	Not Analyzed		26.10	427	8.21	2.95	0.17	0.5
7	Bayou Poydras	6/ 2/98	2.1	Not Analyzed		27.70	557	8.11	1.86	0.50	0.5
7	Bayou Poydras	6/ 9/98	1.9	Not Analyzed		26.80	544	8.76	3.40	0.40	0.5
7	Bayou Poydras	6/16/98	BDL	500	1240	30.80	951	7.16	2.49	0.17	0.5
7	Bayou Poydras	6/23/98	BDL	Not Analyzed		27.30	335	8.45	9.13	0.40	0.5
7	Bayou Poydras	6/30/98	BDL	Not Analyzed		20.30	652	8.56	4.99	0.40	1.0
7	Bayou Poydras	9/29/98	3.38	120	260	25.43	510	8.09	5.94	0.16	0.5
8	Drainage Ditch	2/17/98	8.61	140	136	12.20	106	6.53	8.85	0.25	1.0
8	Drainage Ditch	4/ 7/98	4	45	46	19.90	444	7.12	5.75	1.00	0.3
8	Drainage Ditch	6/16/98	BDL	80	172	30.20	449	7.87	7.55	0.50	0.5
8	Drainage Ditch	9/29/98	BDL	390	820	25.38	352	7.93	5.78	1.00	0.5
9	Bayou Stumpy	2/17/98	1.94	75	36	13.00	116	6.50	8.90	0.50	0.5
9	Bayou Stumpy	4/ 7/98	1.7	18	10	19.80	423	6.92	5.85	1.00	0.5
9	Bayou Stumpy	6/16/98	BDL	17	32	30.00	529	7.78	5.55	0.50	0.5
9	Bayou Stumpy	9/29/98	BDL	25	42	24.87	367	7.40	4.69	3.00	1.0

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Station Number	Stream Name	Date Sampled	Atrazine (ppb)	Turbidity (NTU)	TSS (ppm)	Temp (°C)	Conductivity (umhos/cm)	pH (SU)	DO (mg/l)	Secchi Reading (ft)	Sample Depth (m)
10	Unnamed Ditch	2/17/98	17.22	75	38	12.80	219	6.68	7.84	0.67	1.0
10	Unnamed Ditch	4/ 7/98	2.8	29	26	20.70	544	7.16	5.96	1.50	0.8
10	Unnamed Ditch	6/16/98	BDL	110	296	29.50	631	7.52	4.16	0.50	0.5
10	Unnamed Ditch	9/29/98	BDL	170	492	25.84	457	7.52	3.35	0.67	0.5
11	Unnamed Canal	2/17/98	46.82	130	124	12.80	223	6.87	9.35	0.33	0.5
11	Unnamed Canal	4/ 7/98	3	60	68	20.53	621	7.40	6.71	0.30	0.3
11	Unnamed Canal	4/30/98	4	Not Analyzed		19.80	477	7.33	6.76	0.00	0.3
11	Unnamed Canal	6/16/98	1.5	200	312	32.50	640	7.97	8.13	0.33	0.5
11	Unnamed Canal	9/29/98	BDL	500	796	26.33	514	8.28	5.99	0.30	0.5
12	Bayou Tommy	2/17/98	1.5	100	60	12.40	123	7.40	8.50	0.67	1.0
12	Bayou Tommy	4/ 7/98	205.9	28	29	20.10	283	7.00	3.50	1.33	1.0
12	Bayou Tommy	6/16/98	5.4	37	47	30.80	285	7.70	5.43	1.50	1.0
12	Bayou Tommy	9/29/98	BDL	40	58	27.26	263	8.16	4.55	0.20	1.0
13	Unnamed Canal	2/17/98	3.14	120	50	13.30	190	7.19	8.17	0.50	1.0
13	Unnamed Canal	4/ 7/98	15.8	15	8	21.80	579	7.16	4.80	1.33	0.5
13	Unnamed Canal	6/16/98	2.8	14	10	27.50	420	7.46	1.62	1.50	0.5
13	Unnamed Canal	9/29/98	1.27	8	11	26.18	514	7.73	5.56	0.30	0.5
14	Bayou Grosse Tete	2/17/98	BDL	150	50	11.80	120	7.16	8.17	0.50	1.0
14	Bayou Grosse Tete	3/10/98	53.7	Not Analyzed		15.70	246	7.51	4.84	0.33	1.0

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Station Number	Stream Name	Date Sampled	Atrazine (ppb)	Turbidity (NTU)	TSS (ppm)	Temp (°C)	Conductivity (umhos/cm)	pH (SU)	DO (mg/l)	Secchi Reading (ft)	Sample Depth (m)
14	Bayou Grosse Tete	3/17/98	3.5	Not Analyzed		15.40	303	7.64	6.41	0.25	1.0
14	Bayou Grosse Tete	3/24/98	6.6	Not Analyzed		15.90	245	7.45	5.80	0.33	1.0
14	Bayou Grosse Tete	3/31/98	1.51	Not Analyzed		22.20	335	7.49	4.53	0.42	1.0
14	Bayou Grosse Tete	4/ 7/98	55.4	17	6	21.20	376	6.98	2.51	1.50	1.0
14	Bayou Grosse Tete	4/14/98	7	Not Analyzed		21.30	333	7.22	3.86	0.33	1.0
14	Bayou Grosse Tete	4/21/98	31.6	Not Analyzed		17.30	233	6.82	4.34	0.30	1.0
14	Bayou Grosse Tete	4/28/98	2	Not Analyzed		20.90	219	7.27	6.25	0.00	0.5
14	Bayou Grosse Tete	4/30/98	24.9	Not Analyzed		20.00	148	6.73	3.37	0.00	0.5
14	Bayou Grosse Tete	5/ 5/98	2.6	Not Analyzed		22.60	244	7.24	4.45	0.33	1.0
14	Bayou Grosse Tete	5/12/98	1.6	Not Analyzed		25.70	352	7.14	2.62	0.40	1.0
14	Bayou Grosse Tete	5/19/98	BDL	Not Analyzed		26.90	335	7.27	2.52	0.40	1.0
14	Bayou Grosse Tete	5/26/98	BDL	Not Analyzed		27.00	328	7.17	2.10	0.92	1.0
14	Bayou Grosse Tete	6/ 2/98	16.5	Not Analyzed		28.40	272	6.72	0.43	0.25	1.0
14	Bayou Grosse Tete	6/ 9/98	4.5	Not Analyzed		27.80	350	7.52	1.83	0.30	1.0
14	Bayou Grosse Tete	6/16/98	1.9	36	26	30.10	329	7.42	5.28	2.08	0.5
14	Bayou Grosse Tete	6/23/98	1	Not Analyzed		29.80	345	7.33	1.12	0.50	1.0
14	Bayou Grosse Tete	6/30/98	BDL	Not Analyzed		28.70	339	7.50	1.68	0.50	1.0
14	Bayou Grosse Tete	9/29/98	BDL	9	12	27.62	286	7.85	4.29	0.30	1.0
15	Bayou Maringouin	2/17/98	10.93	100	50	12.04	147	7.06	8.45	0.67	1.0

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15	Bayou Maringouin	4/ 7/98	106.1	26	34	21.10	469	7.00	2.54	2.83	0.5
15	Bayou Maringouin	4/30/98	9.1	Not Analyzed		19.70	328	6.98	4.68	0.40	1.0
15	Bayou Maringouin	6/16/98	8.3	4	4	30.00	571	8.02	4.11	2.50	0.5
15	Bayou Maringouin	9/29/98	BDL	15	56	25.63	368	7.78	1.54	0.60	0.5
16	Bayou Maringouin	2/17/98	BDL	70	39	12.20	119	7.03	7.70	0.83	1.0
16	Bayou Maringouin	4/ 7/98	216.2	14	36	21.10	429	6.90	2.45	2.80	0.5
16	Bayou Maringouin	6/16/98	9.8	9	14	29.90	586	7.73	1.85	2.33	0.5
16	Bayou Maringouin	9/29/98	BDL	28	36	26.31	365	7.88	2.86	0.58	1.0
17	Bayou Choctaw	2/17/98	11.17	150	130	11.90	134	7.19	8.26	0.33	1.0
17	Bayou Choctaw	3/10/98	10.4	Not Analyzed		14.90	271	7.67	6.50	0.42	1.0
17	Bayou Choctaw	3/17/98	48.7	Not Analyzed		16.20	191	7.66	6.44	0.00	0.5
17	Bayou Choctaw	3/24/98	13.2	Not Analyzed		15.90	302	7.54	7.29	0.42	1.0
17	Bayou Choctaw	3/31/98	4.42	Not Analyzed		22.75	379	7.72	5.17	0.50	1.0
17	Bayou Choctaw	4/ 7/98	49	25	23	20.60	431	7.52	3.84	0.83	1.0
17	Bayou Choctaw	4/14/98	18.3	Not Analyzed		21.10	494	7.50	4.08	0.50	1.0
17	Bayou Choctaw	4/21/98	40.3	Not Analyzed		19.30	334	7.28	4.74	0.40	1.0
17	Bayou Choctaw	4/28/98	5.5	Not Analyzed		21.70	347	7.59	7.28	0.00	0.5
17	Bayou Choctaw	4/30/98	6.6	Not Analyzed		20.00	230	7.01	5.46	0.30	1.0
17	Bayou Choctaw	5/ 5/98	BDL	Not Analyzed		23.70	279	7.41	5.34	0.30	1.0

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Station Number	Stream Name	Date Sampled	Atrazine (ppb)	Turbidity (NTU)	TSS (ppm)	Temp (°C)	Conductivity (umhos/cm)	pH (SU)	DO (mg/l)	Secchi Reading (ft)	Sample Depth (m)
17	Bayou Choctaw	5/12/98	2.6	Not Analyzed		26.30	440	7.50	5.41	0.33	1.0
17	Bayou Choctaw	5/19/98	BDL	Not Analyzed		27.50	484	7.54	4.11	0.40	1.0
17	Bayou Choctaw	5/26/98	BDL	Not Analyzed		28.00	490	7.57	2.95	0.58	1.0
17	Bayou Choctaw	6/ 2/98	BDL	Not Analyzed		30.20	526	7.55	6.58	0.50	1.0
17	Bayou Choctaw	6/ 9/98	BDL	Not Analyzed		28.10	534	7.92	3.70	0.50	1.0
17	Bayou Choctaw	6/16/98	1.3	18	17	30.80	475	6.19	5.43	0.40	1.0
17	Bayou Choctaw	6/23/98	1.9	Not Analyzed		31.30	441	7.83	3.62	0.50	1.0
17	Bayou Choctaw	6/30/98	BDL	Not Analyzed		29.90	453	7.95	3.98	0.50	1.0
17	Bayou Choctaw	9/29/98	1.17	22	30	27.50	345	7.77	4.61	4.20	1.0
19	Johnson Canal	2/17/98	2.07	110	60	11.60	133	7.14	7.53	0.25	1.0
19	Johnson Canal	4/ 7/98	BDL	45	51	20.10	431	7.56	5.49	0.67	1.0
19	Johnson Canal	6/16/98	BDL	22	28	30.20	540	7.80	3.13	0.50	1.0
19	Johnson Canal	9/29/98	BDL	24	37	27.00	280	7.70	4.70	0.60	1.0
20	Unnamed Canal	2/17/98	BDL	120	80	12.30	173	7.17	7.44	0.25	1.0
20	Unnamed Canal	4/ 7/98	BDL	90	86	15.60	348	7.58	8.26	0.50	1.0
20	Unnamed Canal	6/16/98	BDL	45	56	29.20	387	7.87	6.30	0.50	1.0
20	Unnamed Canal	9/29/98	BDL	75	112	28.00	440	7.97	5.65	0.30	1.0
22	Bayou Bourbeaux	2/17/98	1.56	110	70	12.10	147	7.09	7.20	0.50	1.0
22	Bayou Bourbeaux	4/ 7/98	11.1	24	28	20.60	444	6.50	4.50	1.00	1.0

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22	Bayou Bourbeaux	6/16/98	2.6	7	14	29.90	620	7.68	3.47	2.00	1.0
22	Bayou Bourbeaux	9/29/98	1.63	8	14	26.04	458	7.59	1.97	0.50	0.5
23	Wilbert Canal	2/17/98	5.38	280	220	12.30	116	7.01	7.04	0.33	1.0
23	Wilbert Canal	4/ 7/98	BDL	80	78	20.20	314	6.70	4.55	0.50	1.0
23	Wilbert Canal	4/30/98	15	Not Analyzed		19.80	309	6.85	3.64	0.25	1.0
23	Wilbert Canal	6/16/98	1.2	38	52	31.00	383	7.10	7.30	0.92	1.0
23	Wilbert Canal	9/29/98	BDL	100	118	27.30	248	7.50	4.75	0.30	1.0
24	ICWW	2/17/98	7.3	130	125	11.90	205	7.38	8.01	0.25	1.0
24	ICWW	3/10/98	7.6	Not Analyzed		15.00	247	7.52	5.90	0.50	1.0
24	ICWW	3/17/98	11.7	Not Analyzed		13.30	317	7.67	7.84	0.00	0.5
24	ICWW	3/24/98	10.5	Not Analyzed		15.20	274	7.34	6.75	0.33	1.0
24	ICWW	3/31/98	2.14	Not Analyzed		18.40	305	7.69	7.74	0.30	1.0
24	ICWW	4/ 7/98	BDL	150	150	18.00	350	7.52	8.00	0.83	1.0
24	ICWW	4/14/98	7.7	Not Analyzed		18.90	360	7.51	6.87	0.33	1.0
24	ICWW	4/21/98	32.6	Not Analyzed		18.20	333	7.53	4.91	0.50	1.0
24	ICWW	4/28/98	BDL	Not Analyzed		20.20	363	7.68	7.60	0.00	0.5
24	ICWW	4/30/98	12.5	Not Analyzed		19.60	348	7.49	5.41	0.30	1.0
24	ICWW	5/ 5/98	4.9	Not Analyzed		22.40	268	7.17	4.24	0.25	1.0
24	ICWW	5/12/98	BDL	Not Analyzed		23.90	356	7.44	5.70	0.30	1.0

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24	ICWW	5/19/98	BDL			25.10	364	7.52	6.06	0.50	1.0
24	ICWW	5/26/98	2.4			25.90	325	7.42	5.55	0.50	1.0
24	ICWW	6/ 2/98	17.4			26.90	356	7.25	5.84	0.30	1.0
24	ICWW	6/ 9/98	BDL			28.30	376	7.86	5.67	0.50	1.0
24	ICWW	6/16/98	BDL	45	38	30.30	381	7.86	5.60	0.50	1.0
24	ICWW	6/23/98	BDL			28.80	342	7.76	6.06	0.50	1.0
24	ICWW	6/30/98	BDL			27.90	368	7.93	6.06	0.00	1.0
24	ICWW	9/29/98	BDL	65	70	28.00	343	7.68	4.83	0.30	1.0
25	Bayou Plaquemine	2/17/98	10.18	18	14	14.10	373	7.79	7.35	0.50	1.0
25	Bayou Plaquemine	3/10/98	8.2			15.60	307	7.68	6.10	0.50	1.0
25	Bayou Plaquemine	3/17/98	6.1			16.30	288	7.64	8.06	0.50	1.0
25	Bayou Plaquemine	3/24/98	11.5			17.30	284	7.34	6.32	0.50	1.0
25	Bayou Plaquemine	3/31/98	4.21			21.50	319	7.61	7.37	0.50	1.0
25	Bayou Plaquemine	4/ 7/98	2.1	33	20	20.80	344	7.94	10.50	1.00	1.0
25	Bayou Plaquemine	4/14/98	3.5			21.20	368	7.69	6.90	0.42	1.0
25	Bayou Plaquemine	4/21/98	10.8			20.00	365	7.63	5.79	0.50	1.0
25	Bayou Plaquemine	4/28/98	2.9			21.90	358	7.90	7.80	0.33	1.0
25	Bayou Plaquemine	4/30/98	7.5			21.10	348	7.49	5.41	0.30	1.0
25	Bayou Plaquemine	5/ 5/98	BDL			23.70	345	7.67	6.65	0.40	1.0

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25	Bayou Plaquemine	5/12/98	2.7	Not Analyzed		25.90	368	7.76	6.66	0.50	1.0
25	Bayou Plaquemine	5/19/98	1.3	Not Analyzed		26.80	375	7.94	7.10	0.50	1.0
25	Bayou Plaquemine	5/26/98	BDL	Not Analyzed		27.50	347	7.65	6.15	1.00	1.0
25	Bayou Plaquemine	6/ 2/98	2.7	Not Analyzed		30.10	383	7.52	6.17	0.40	1.0
25	Bayou Plaquemine	6/ 9/98	BDL	Not Analyzed		29.20	397	8.03	6.07	0.40	1.0
25	Bayou Plaquemine	6/16/98	1	27	22	31.10	406	7.80	5.14	0.50	1.0
25	Bayou Plaquemine	6/23/98	BDL	Not Analyzed		30.80	412	7.57	4.18	0.40	1.0
25	Bayou Plaquemine	6/30/98	BDL	Not Analyzed		28.70	383	7.82	4.75	0.30	1.0
25	Bayou Plaquemine	9/29/98	BDL	110	72	27.50	322	7.56	2.72	0.42	1.0
26	ICWW	2/17/98	BDL	30	47	7.80	377	7.84	11.33	0.50	1.0
26	ICWW	4/ 7/98	BDL	50	32	14.70	344	7.65	8.89	0.83	1.0
26	ICWW	6/16/98	BDL	50	52	26.50	404	7.80	6.50	0.50	1.0
26	ICWW	9/29/98	BDL	18	30	27.60	476	7.88	6.40	0.50	1.0
27	Portage Canal No. 1	2/17/98	BDL	90	72	11.20	122	6.27	10.38	1.00	1.0
27	Portage Canal No. 1	4/ 7/98	4.9	45	42	17.77	442	6.84	6.44	1.00	0.3
27	Portage Canal No. 1	6/16/98	0.8	18	23	30.00	508	7.07	3.79	1.00	0.5
27	Portage Canal No. 1	9/29/98	20.88	16	24	23.92	5	7.30	1.07	0.75	0.5
28	ICWW	2/17/98	12.33	130	130	11.90	208	7.57	8.14	0.00	1.0
28	ICWW	4/ 7/98	BDL	80	80	18.80	332	7.51	6.30	0.83	1.0

BDL = Below Detection Limit of 1.0 ppb.

Not Analyzed = Turbidity and TSS samples were not collected from weekly stations.

Station Number	Stream Name	Date Sampled	Atrazine (ppb)	Turbidity (NTU)	TSS (ppm)	Temp (°C)	Conductivity (umhos/cm)	pH (SU)	DO (mg/l)	Secchi Reading (ft)	Sample Depth (m)
28	ICWW	6/16/98	BDL	70	108	30.60	376	7.70	5.20	0.50	1.0
28	ICWW	9/29/98	BDL	75	82	27.90	291	7.51	4.63	0.30	1.0
29	Bar Ditch	2/17/98	3.63	140	100	12.20	139	7.11	8.10	0.33	1.0
29	Bar Ditch	4/ 7/98	1.8	21	12	22.40	364	7.50	7.86	1.00	1.0
29	Bar Ditch	6/16/98	4.7	14	15	31.20	359	8.55	7.91	1.83	1.0
29	Bar Ditch	9/29/98	BDL	20	28	27.09	247	8.09	4.63	0.16	1.0
30	Portage Canal No. 2	4/ 6/98	13.3	200	380	17.00	637	5.54	7.64	0.00	1.0
30	Portage Canal No. 2	6/15/98	BDL	110	270	30.00	549	7.97	4.94	1.00	0.5
31	Lighthouse Canal	2/17/98	BDL	18	9.6	13.80	219	7.28	11.40	2.00	1.0
31	Lighthouse Canal	4/ 7/98	BDL	4	5	20.00	243	7.27	8.70	0.20	0.3
31	Lighthouse Canal	6/16/98	1	5	7	29.30	261	7.80	8.07	1.00	0.5
31	Lighthouse Canal	9/29/98	BDL	5	4	27.92	234	8.34	6.11	1.00	0.5
32	Grand River	4/ 7/98	1.5	33	18	22.20	219	7.21	4.09	1.00	1.0
32	Grand River	6/16/98	BDL	33	21	30.80	366	7.70	5.04	0.50	1.0
32	Grand River	9/29/98	BDL	60	54.5	27.60	223	7.62	6.08	0.50	1.0

BDL = Below Detection Limit of 1.0 ppb.

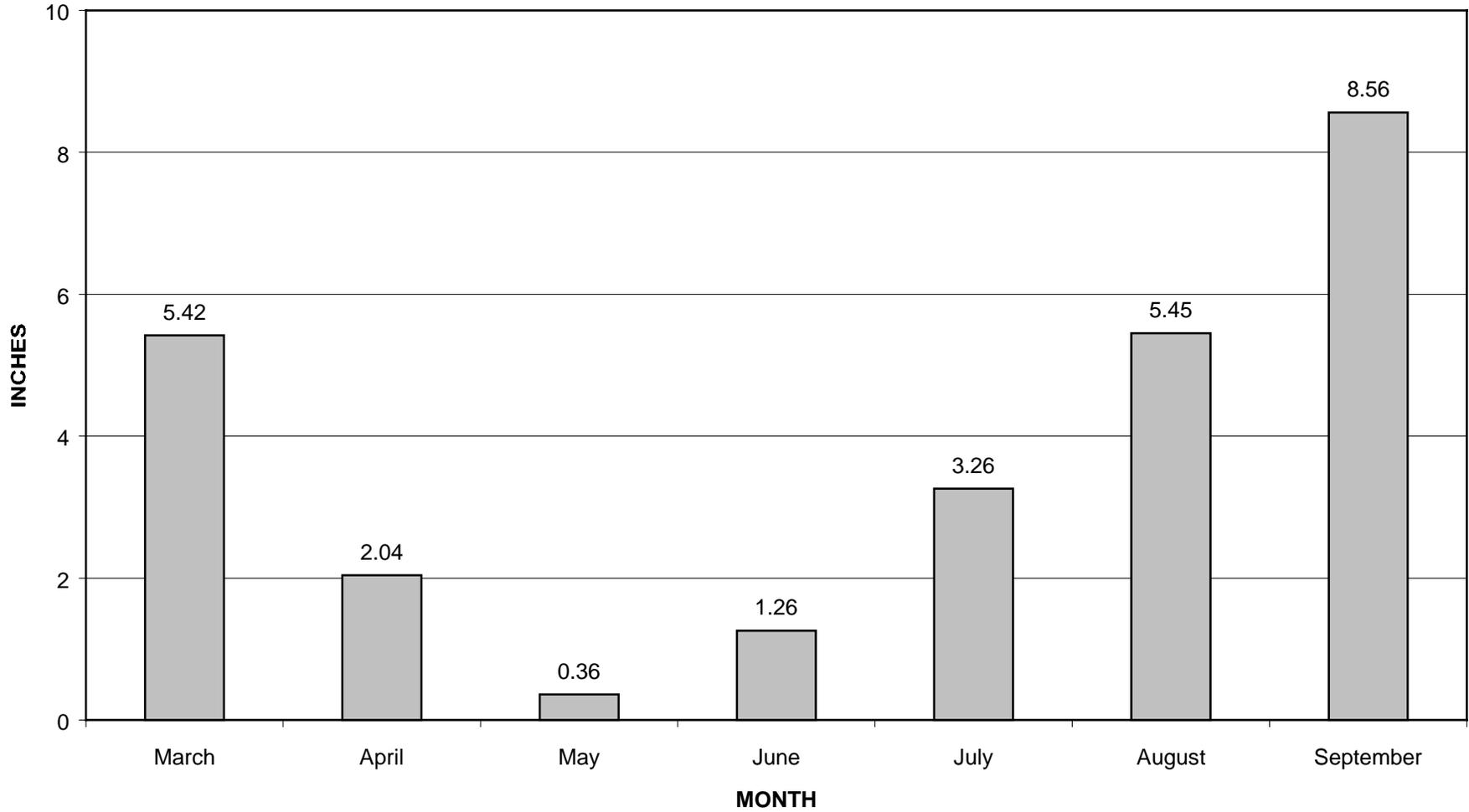
Not Analyzed = Turbidity and TSS samples were not collected from weekly stations.

APPENDIX 2

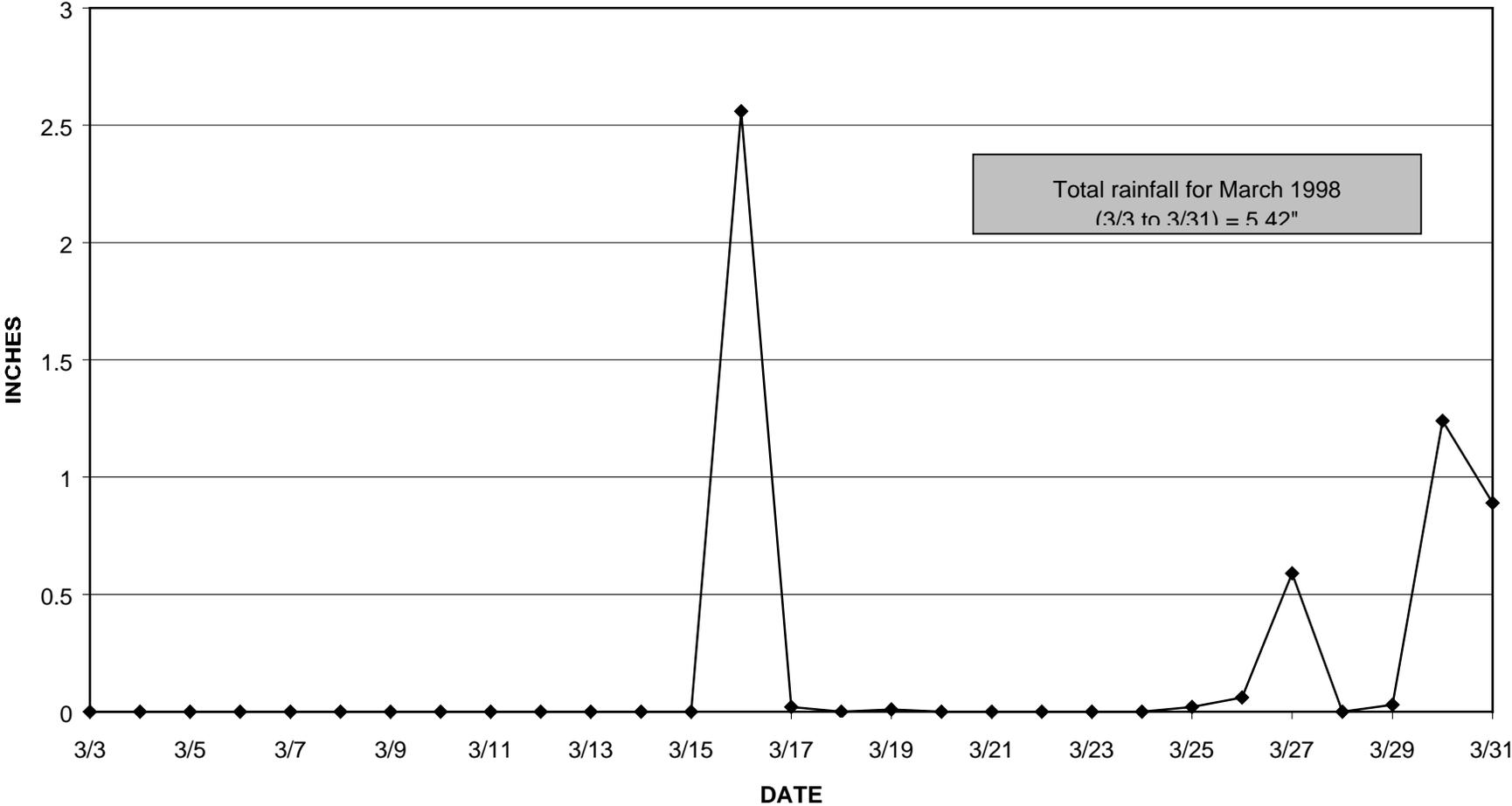
1998 ATRAZINE ACTIVITIES

LDEQ Rainfall Data

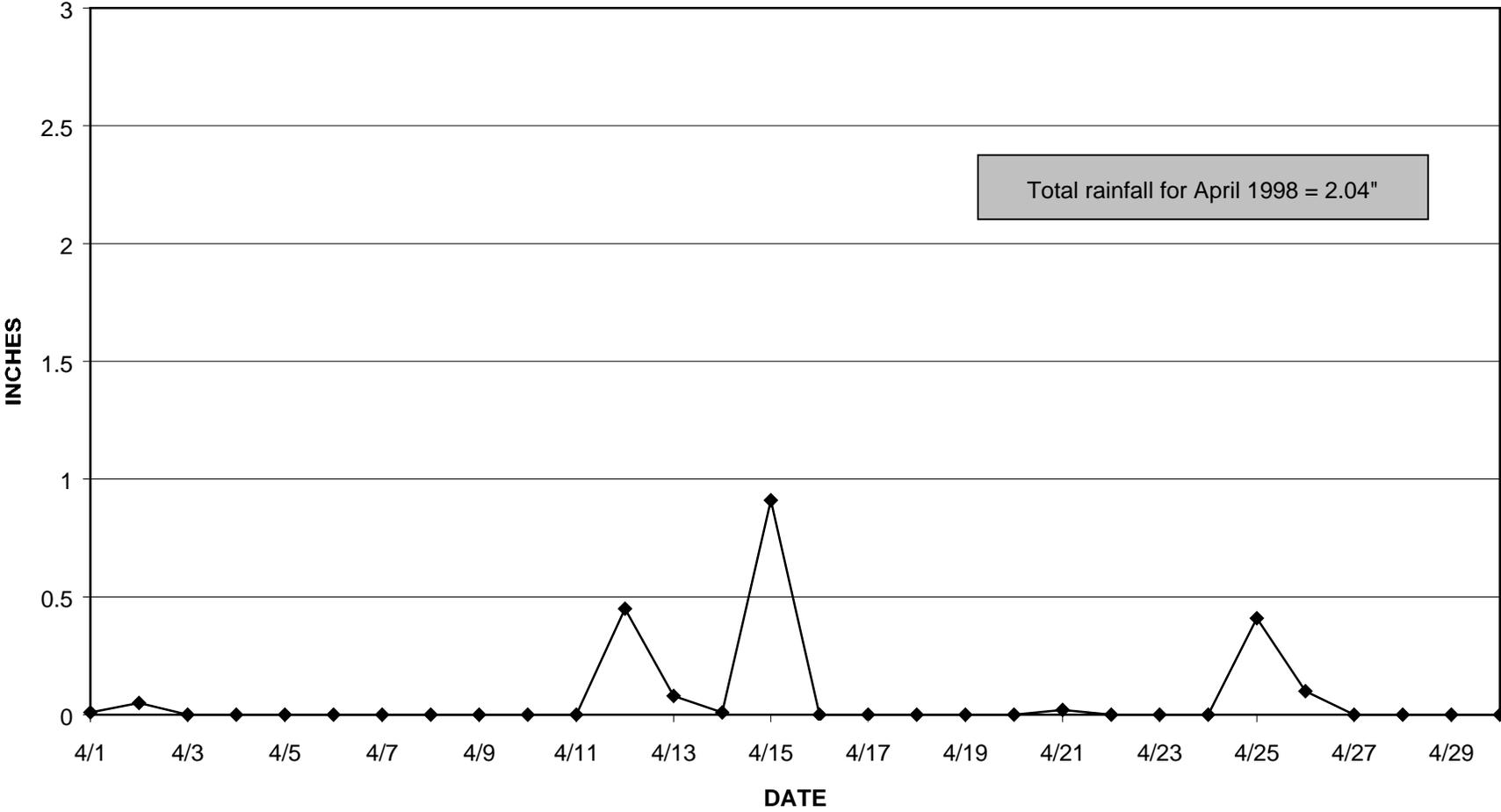
**1998 ATRAZINE ACTIVITIES
LDEQ RAINFALL DATA
MONTHLY TOTALS
(MARCH - SEPTEMBER)**



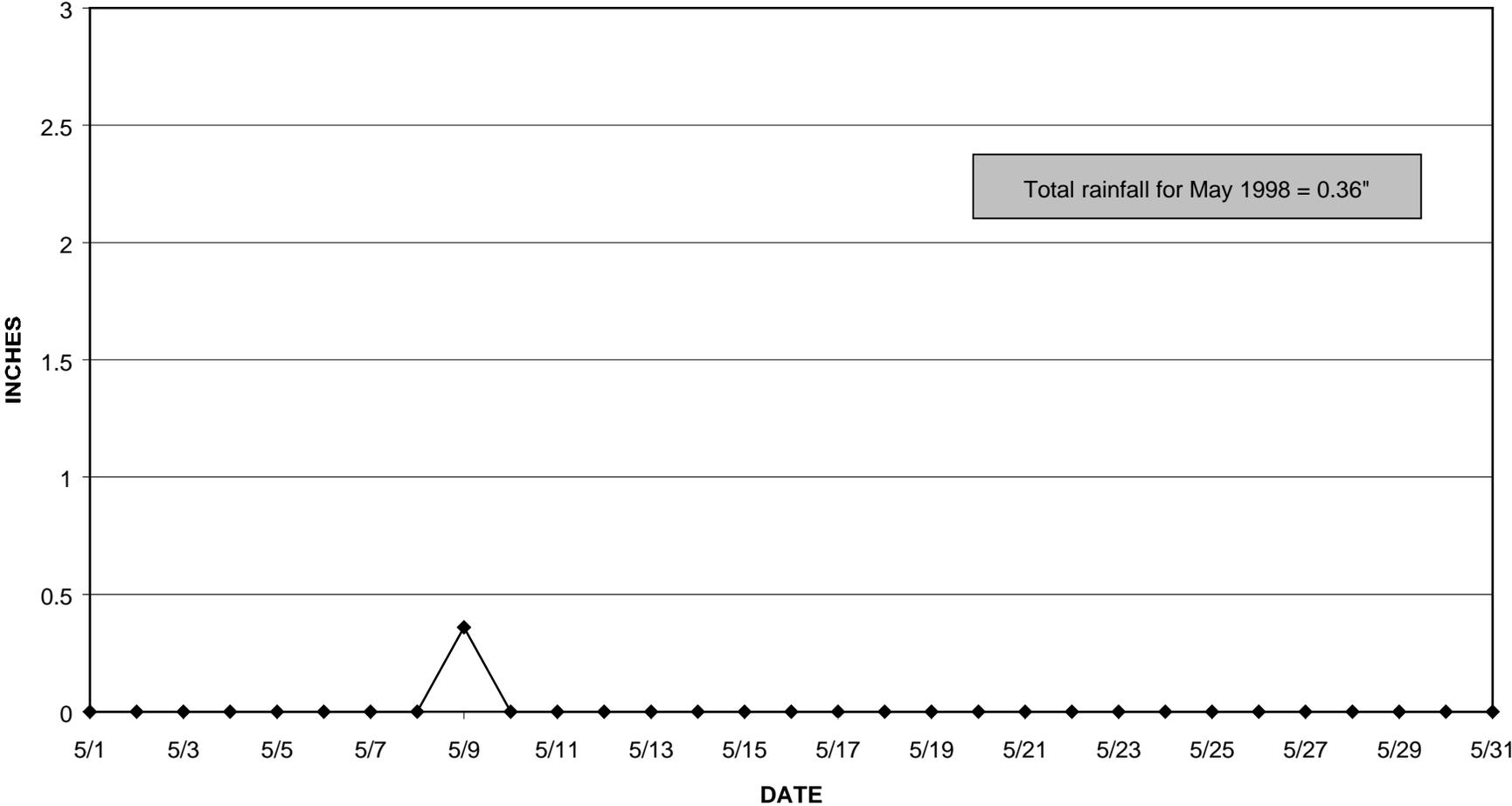
1998 ATRAZINE ACTIVITIES
LDEQ RAINFALL DATA
for
MARCH



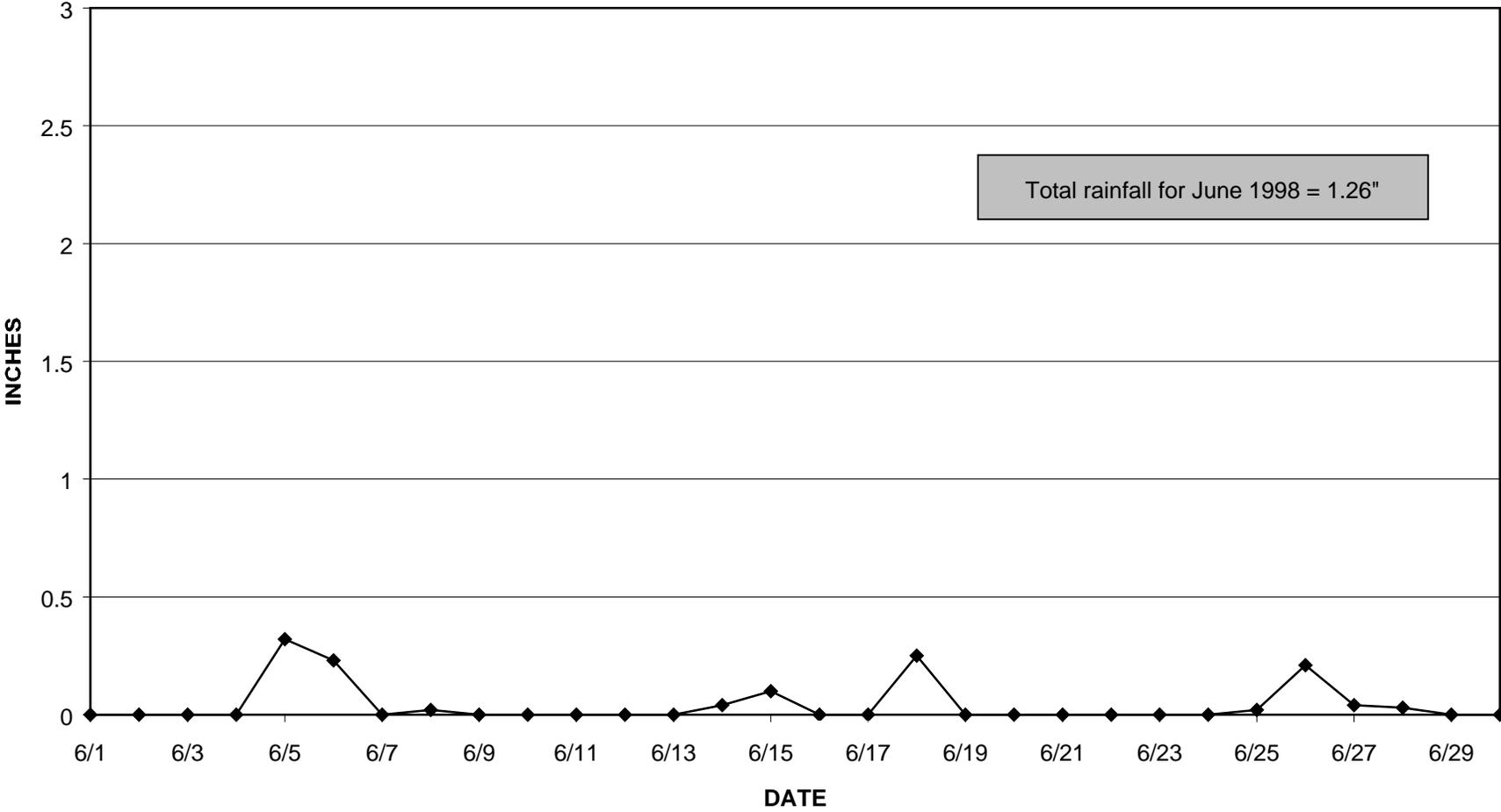
1998 ATRAZINE ACTIVITIES
LDEQ RAINFALL DATA
for
APRIL



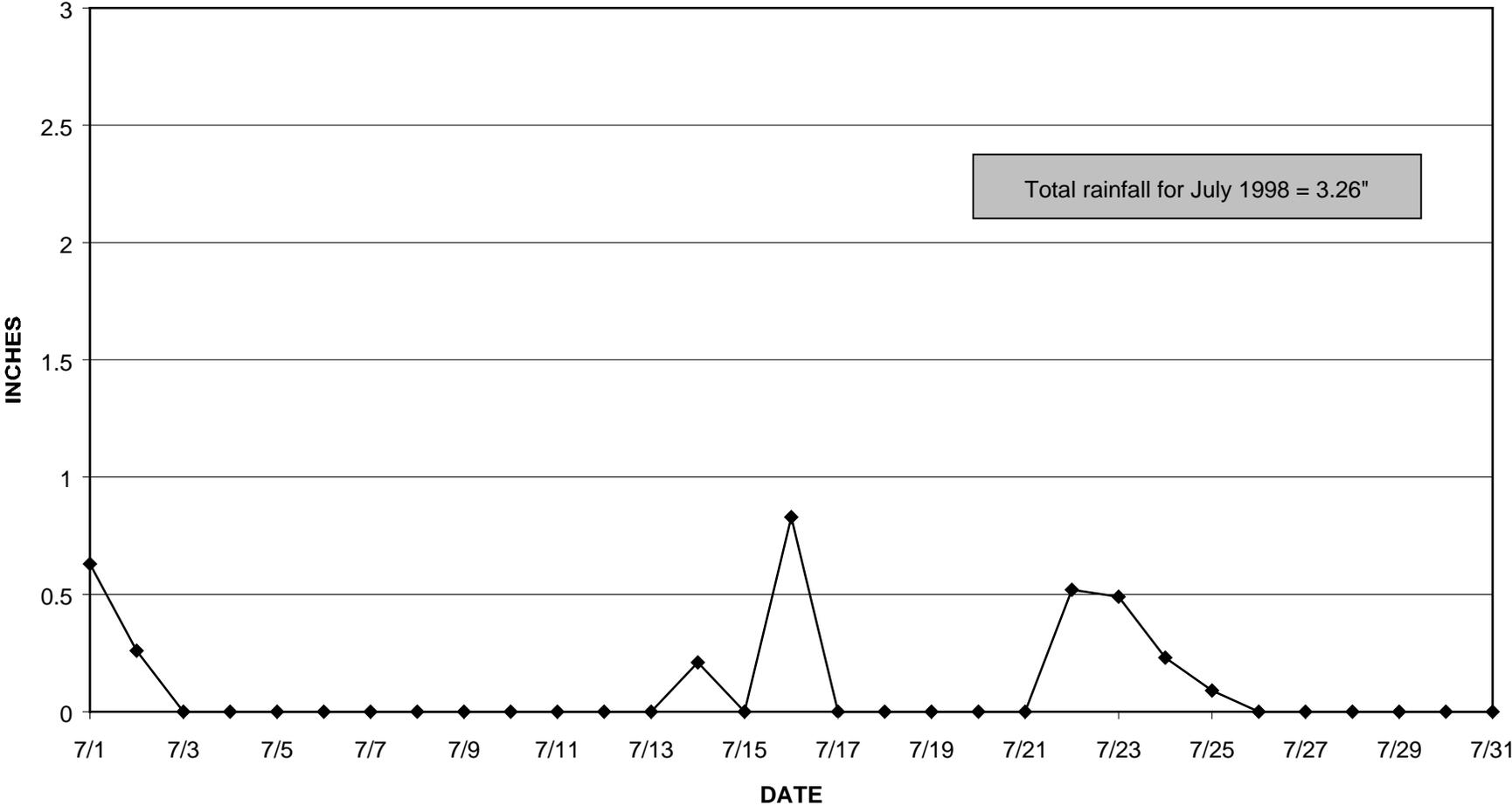
1998 ATRAZINE ACTIVITIES
LDEQ RAINFALL DATA
for
MAY



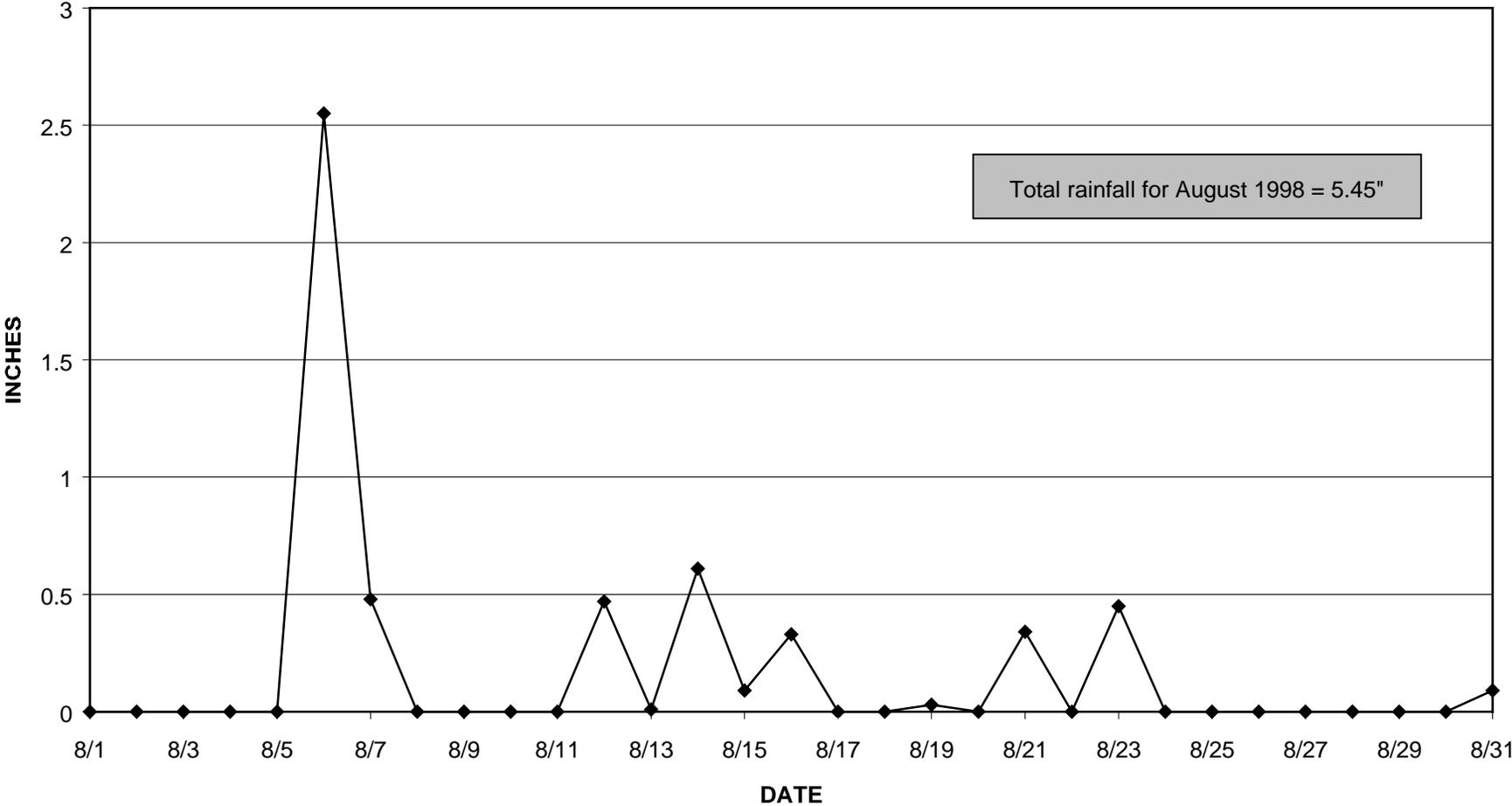
1998 ATRAZINE ACTIVITIES
LDEQ RAINFALL DATA
for
JUNE



1998 ATRAZINE ACTIVITIES
LDEQ RAINFALL DATA
for
JULY



1998 ATRAZINE ACTIVITIES
LDEQ RAINFALL DATA
for
AUGUST



1998 ATRAZINE ACTIVITIES
LDEQ RAINFALL DATA
for
SEPTEMBER

