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**ESTIMATION OF PEAK DISCHARGES
OF INDIANA STREAMS BY USING log PEARSON (III) DISTRIBUTION**

by

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LIST OF SYMBOLS

a_1, a_2, a_3 – exponents of the predictive equations

$\boldsymbol{\beta}$ – matrix of regression model coefficients

$\boldsymbol{\gamma}$ – estimate of the model error variance in the GLS model

C – constant in predictive equations

d – distance between stations

DA – effective drainage area

$\boldsymbol{e}$ – matrix of random errors

$E_{10\%}$ -- elevations of the thalweg of the stream at 10% of the total stream length

$E_{85\%}$ -- elevations of the thalweg of the stream at 85% of the total stream length

%F – forest cover factor

G – skew coefficient of the annual peak flow series

H_1, H_2, H_3 – homogeneity measures

$I_{2,24}$ – 2 year, 24 hour, rainfall depth

K – log-Pearson III distribution coefficient

L – length of the stream, in miles

$\boldsymbol{\Lambda}$ – covariance matrix of the GLS model

MSE_G – mean square error of the skew coefficient of the annual peak flow series

N – number of years of record in an annual peak flow series

$\boldsymbol{\rho}$ – lag-zero cross correlation coefficient

Q_{retper} – discharge estimated by predictive equations

RCD – runoff coefficient (drained condition)

RCU – runoff coefficient (undrained condition)

S – standard deviation of the annual peak flow series

Σ – matrix of sampling covariances in the GLS model

%U – urbanization factor

%W – water / wetland factor

X – logarithm of the annual peak flow

X – matrix of predictor variables

Y – matrix of response variables

ABSTRACT

Knipe, David B. M.S.C.E, Purdue University, August 2004. Estimation of Peak Discharges of Streams in Indiana. Major Professor: A. R. Rao.

Predictive equations are developed for estimating peak floods for specified frequencies for streams in Indiana. These predictive equations are derived from a regression analysis of data for 223 stream gages with over 9,000 observed annual peak flows. The state is regionalized for the purposes of this analysis into eight regions based on previous research at Purdue. Equations have been developed for the 10, 25, 50, 100, 200 and 500 year return period floods. The flood flow peaks are estimated by using effective drainage area, average slope of the watercourse, a percentage of the watershed that is urbanized, and a percentage of the watershed that features water or wetland features. The analysis of the land use characteristics of the gaged watersheds are based on satellite imagery data compiled by the USGS. Values of these parameters are provided for every watershed in Indiana. The equations are then tested by a spilt sample test of the dataset, and by comparing the results to peak discharges estimated by the Indiana Department of Natural Resources. Examples of the application of the equations are provided, and an EXCEL spreadsheet has been developed to facilitate the application.

I. INTRODUCTION

Determination of stream discharges is a major aspect of design and planning in and around watercourses. Damages from flooding cost the U. S. economy a sum approaching $6 Billion annually, and have been trending upwards (ASFPM, 2004). Proper and accurate determination of flood discharges for different frequencies is an important tool for making floodplain management decisions. Design of infrastructure improvements, such as highway bridge crossings of waterways, rely on peak discharge information as a critical part of the design process. With accurate determination of discharge rates, designers can have an increased confidence that their designs will not cause damage to the structure, or to lives and property, while also being economical. In addition, determination of the theoretical extent of flooding begins with an analysis of the hydrology of the watershed. Improvements in modeling techniques for the estimation of the resulting discharges can be the basis for accurate floodplain mapping, resulting in the reduction of loss of life and property by keeping development out of areas prone to flooding damages, and promoting remediation for property that has been previously developed in the floodplain.

The discharge of a stream is the volume of the flow of water in a stream channel and overbank moving past a point on the stream during a given period of time. Typically, this flow rate is measured in the English measurement system in cubic feet per second (CFS). In the United States, discharges are measured at various points by the Water Resource Division of the U. S. Geological Survey (USGS) for each state. Continuous monitoring of the stream is accomplished by the installation of a series of stream gages located at strategic points in a stream network. These stream gages continuously record stage levels for the stream, typically by a weighed float in a protected housing. USGS personnel then systematically make measurements of the discharge on a set schedule,

using various types of flow meters to measure velocity, then multiplying the velocity by the cross sectional area to determine the discharge rate. A rating curve is developed from this relationship between discharge and stage, which then allows estimation of discharge at the gaging station.

The peak discharge for a stream is the maximum discharge that occurs during a particular flood event. An annual maximum series is developed over time while the gaging station is in service. Maximum yearly discharges are determined based on the water year, which runs from October 1 of the previous calendar year to September 30 of the current calendar year. The water year is chosen to select the annual maximum flows because September and October are the driest months of the year for the majority of the streams in the United States. The wisdom of using the water year for annual maximum flow as compared to the calendar year was seen in water year 1991, when a large majority of the annual peak discharges occurred from a storm (and snowmelt) that occurred on December 30 and 31, 1990, in central Indiana, and therefore smaller streams peaked on the 31st, and the larger streams peaked on January 1st or later. Using the water year reduces the chance that a single storm event would be considered in two separate annual maximum flow in a series.

Estimation of peak discharges for a stream starts with an understanding of the hydrologic cycle and the effect different watershed characteristics can have on the response of the watershed. The hydrologic cycle represents various components of the meteorologic, geologic, and surface conditions that influence the movement of water. Figure 1.1 is a depiction of the major components of the hydrologic cycle. Precipitation falls over a watershed, resulting in a portion of the rainfall flowing through the soil layer as infiltration; a portion vaporizing into the air as evaporation (from standing bodies of water) and evapotranspiration (from water released by trees, plants and other vegetation); and the remainder running off the land surface into the stream network. These streams and rivers ultimately flow into the major oceans, where water then enters the atmosphere

through evaporation, and causes storm systems to move over the land, causing precipitation and beginning the cycle all over again.
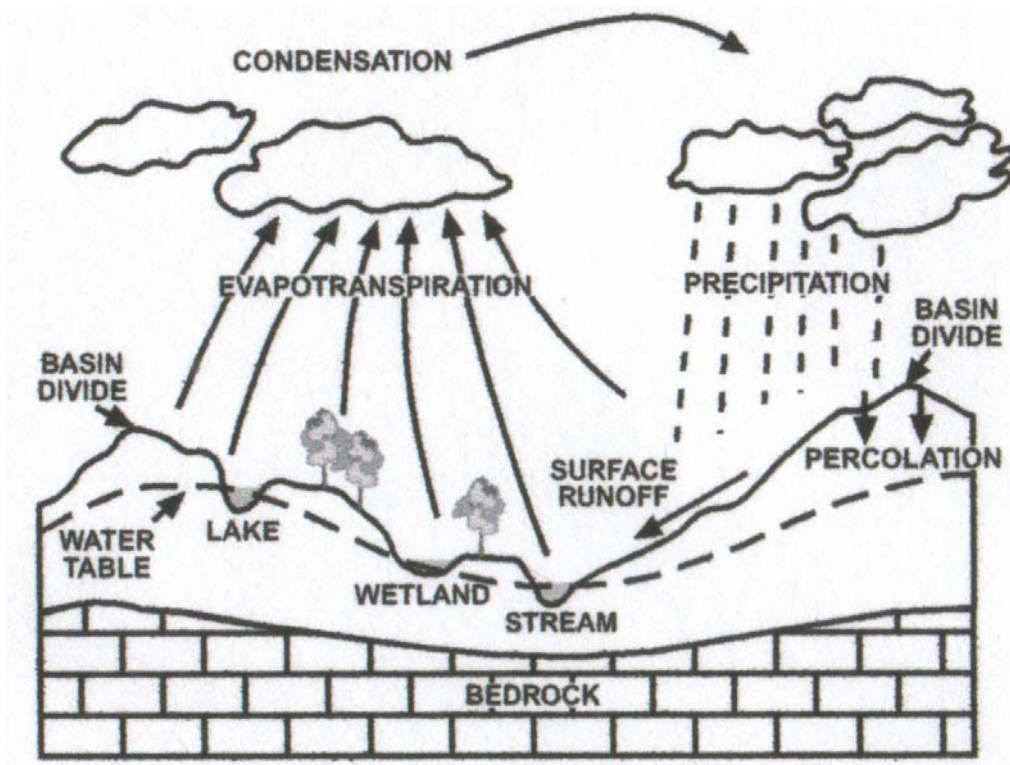
Figure 1.1: The hydrologic cycle (IDNR, 1996)

For planning and design purposes, the series of annual peak discharges measured at a gaging station is analyzed to determine discharge rates for various exceedance probabilities. The exceedance probability is the percent probability a certain discharge will be exceeded in a given year. For example, a peak discharge given as the 1% probability annual peak means that the given discharge has a 1% chance of being exceeded in any given year. In common usage, the exceedance probability is given in terms of a return period, which is the inverse of the exceedance probability, usually expressed in years. Therefore, a 1% exceedance probability is equivalent to a return period of 1/.01, or 100 years, and is commonly referred to as the 100-year flood event. While expressing the exceedance probability as a return period is somewhat misleading

to the casual observer, it is the standard used in the majority of design criteria, and has been adopted for this study.

While a large amount of research has gone into the hydrologic process and peak discharge estimation, there are limitations to any investigation of hydrologic response of watersheds. The major limitation is the sparseness of the stream gaging network. The USGS spends a considerable amount of money to install and maintain stream gages, but budget limitations force them to maintain only a fraction of a network that would be desirable to determine hydrologic trends. Another complication in estimating stream discharges is the complexity of the rainfall-runoff process and the short and long term variation of hydrologic conditions. While some hydrologic parameters can be easily estimated and are used in this study, other localized basin conditions are harder to determine generally, and have different impacts from basin to basin. Watershed conditions also vary greatly from season to season, depending on such factors as snow cover, ground temperature, crop maturity and leaf canopy condition. Over time, these factors combine with other watershed changes such as urbanization and flood control reservoirs to change the overall hydrologic response of the watershed.

II. SOME METHODS OF ESTIMATING PEAK DISCHARGES

There are a number of different methods that are used to calculate peak discharges for use in engineering studies and design. The choice of which method to use depends on a number of factors including the nature of the study in question, the level of detail and accuracy needed, and the need for full hydrographs compared with peak discharge values only. In Indiana, there are typically three approaches that are used for the estimation of peak discharges; the Coordinated Discharge program, watershed based rainfall-runoff models, and regression equations.

2.1 Coordinated Discharges

The Coordinated Discharge program is the result of a Memorandum of Understanding signed by the Indiana Department of Natural Resources (IDNR), the U. S. Geological Survey (USGS), the U. S. Army Corps of Engineers (USACE), and the Natural Resources Conservation Service (NRCS, previously the Soil Conservation Service) in 1976. This agreement calls for the coordination of discharge values between the four agencies, which are the main state and federal governmental agencies involved with water resources of the state. The process calls for the IDNR to coordinate the review and approval of discharges with the other agencies through a review and comment period of 30 days from the original proposal. These discharges are used for many purposes, but the main purpose is for Flood Insurance Studies published by the Federal Emergency Management Agency (FEMA). It is the practice of the IDNR, as the state coordinating agency for the National Flood Insurance Program (NFIP) in Indiana, to require coordinated discharges to be used in any Flood Insurance Study for Indiana.

Discharges proposed for coordination are typically presented as a straight line relationship of drainage area vs. discharge on a log-log plot, as shown in Figure 2.1. In most cases, the 10, 25, 50 and 100 year frequency flood discharges are plotted. The coordination agreement calls for discharges to be based on USGS Circular 710 (Davis, 1974), which contains the regression equations for Indiana in use at the time. In practice, coordinated discharge plots are based on a combination of regression equations, rainfall-runoff models, and review of gage analysis on a particular stream. Simplifying the results from these studies to a straight line relationship results in a graph that is easy to use and apply, since only the drainage area of the stream is needed to determine a discharge. Coordinated Discharge graphs can be found at http://www.in.gov/dnr/water/ surface_water/coordinated_discharges/index.html.
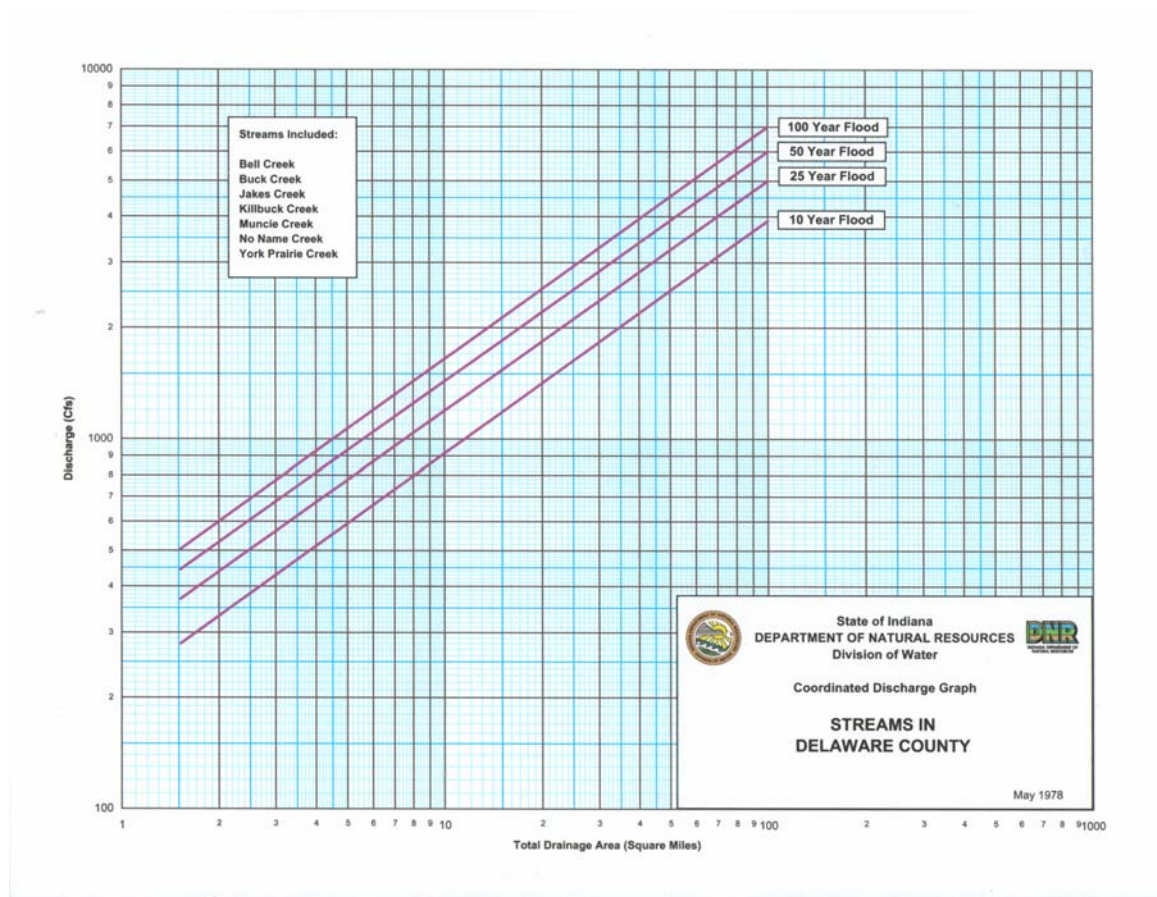
Figure 2.1: Coordinated Discharge Graph

2.2 Rainfall-Runoff Models

Rainfall-runoff models are a popular method for estimating discharges. These are watershed based models typically based on the NRCS unit hydrograph method for estimating the runoff from a particular watershed. In many applications, a watershed will be broken up into smaller watersheds for calculating hydrographs, and these hydrographs are routed down a main channel and combined to determine the discharges at various points in the main channel. The most popular versions of these modeling programs, of which there are many, are the USACE's HEC-HMS modeling package (and its predecessor, HEC-1) and the NRCS's TR-20 modeling program. Other programs are designed for specific applications, including dam safety, drainage design, and pond routing.

These models have their advantages and disadvantages. For modeling applications where a full hydrograph is required (such as unsteady state hydraulic modeling), these programs are useful for deriving such hydrographs. Design and evaluation of critical hydraulic structures, such as a dam or a stormwater detention basin, requires a full hydrograph to determine adequacy of the structure. These types of models can be fairly intricate, and are used for large basin-wide surveys of a watershed and for flood flow forecasting. However, these models can take a considerable amount of time and effort to develop, often the input data cannot be estimated accurately, and crude estimation results in unreliable results. Calibration of these models by using known events is often done to improve the reliability of the overall model, but other complicating factors (such as seasonal variations of the hydrologic response of the watershed) can make calibration a difficult task.

2.3 Regression Equations

The third common method for estimating peak discharges for a watershed is to use a regression equation. Regression equations are typically derived by using the results of a flood frequency analysis of data in a region, which are regressed against basin parameters. These have the advantage of being based on real data, as compared with a rainfall-runoff model, which is usually based on empirical methods. However, the gaging network these studies are based on is not dense enough to account for regional differences in watershed response. Also the equations are based on short periods of record at each gage, and, therefore, these studies often have large errors.

There have been a number of regression type studies that have been completed in Indiana. One of the earliest efforts was by Green and Hoggatt (1960) of the USGS. This effort divided the state into 8 regions, based on major basin boundaries. The regionalization was based on a review of the mean annual flood at each gaging station, with a review of the homogeneity of the stations in each region by computing the ratio of the 10 year flood to the mean annual flood. For each region, the relationship between drainage area and the mean annual flood was defined by a straight line on a log-log plot. The various frequencies are then calculated by another graphical relationship defining the ratio of the mean annual flood for various recurrence intervals. Adjustments are also made for certain basins with large amounts of floodplain storage or karst topography.

The next major regression style study was by Davis (1974), which is referenced in the Coordinated Discharge agreement previously described. Four different models are presented, based on a log-Pearson Type III distribution to calculate frequency curves at each gage in the study. No regionalization was presented; the models were designed to be applied statewide. Model 1 is for large streams (greater than 200 square miles in drainage area), model 2 is for small streams (less than 100 square miles in drainage area), model 3 is a simplified model for streams draining more than 15 square miles, and model 4 is for the Wabash and White Rivers. Watershed characteristics used in each of the

models include drainage area, channel slope, channel length, Precipitation Index, watershed relief, drainage density, and soil runoff coefficient. A method for calculating discharges for streams draining between 100 and 200 square miles, based on a combination of models 1 and 2 was also presented.

Glatfelter (1984) presented the most recent regression analysis for streams in Indiana, and is the current method used by most hydrologists. Glatfelter also used a log-Pearson type III distribution to define the frequency curves at each gaging station, which had been the methodology accepted by the U. S. Water Resources Council at the time of this study. The regionalization defined by Glatfelter separated the state into 7 regions, and was based on major watershed boundaries (see Figure 2.2). The region definition was a result of a regression technique, based on ordinary least square regression methodology, for eliminating and adding stations previously developed by USGS. Regression parameters used in Glatfelter's equations include drainage area, slope, runoff coefficient, 2-year, 24 hour rainfall depth, annual precipitation, and amount of storage in the watershed.

The objective of the study is to update these previous regression studies and determine predictive equations for a series of flood frequency return intervals. The major improvements that this study will have over the previous studies are 20 years of additional gage data to consider, an improved methodology for regression of the various basin characteristics, and regionalization of the state through a comprehensive and independent analysis of gage records, using a number of different methods. The return periods chosen for evaluation in this study are the 10, 25, 50, 100, 200 and 500 year frequency flood discharges estimated by using log-Pearson type III distribution. The results from the regression are evaluated using a number of different methods, including a split sample test and a comparison with discharges estimated by the Indiana Department of Natural Resources. This study also includes a method for estimating the effects of urbanization on a watershed. Examples for five different watersheds are presented, and a spreadsheet has been developed as a calculation aid.
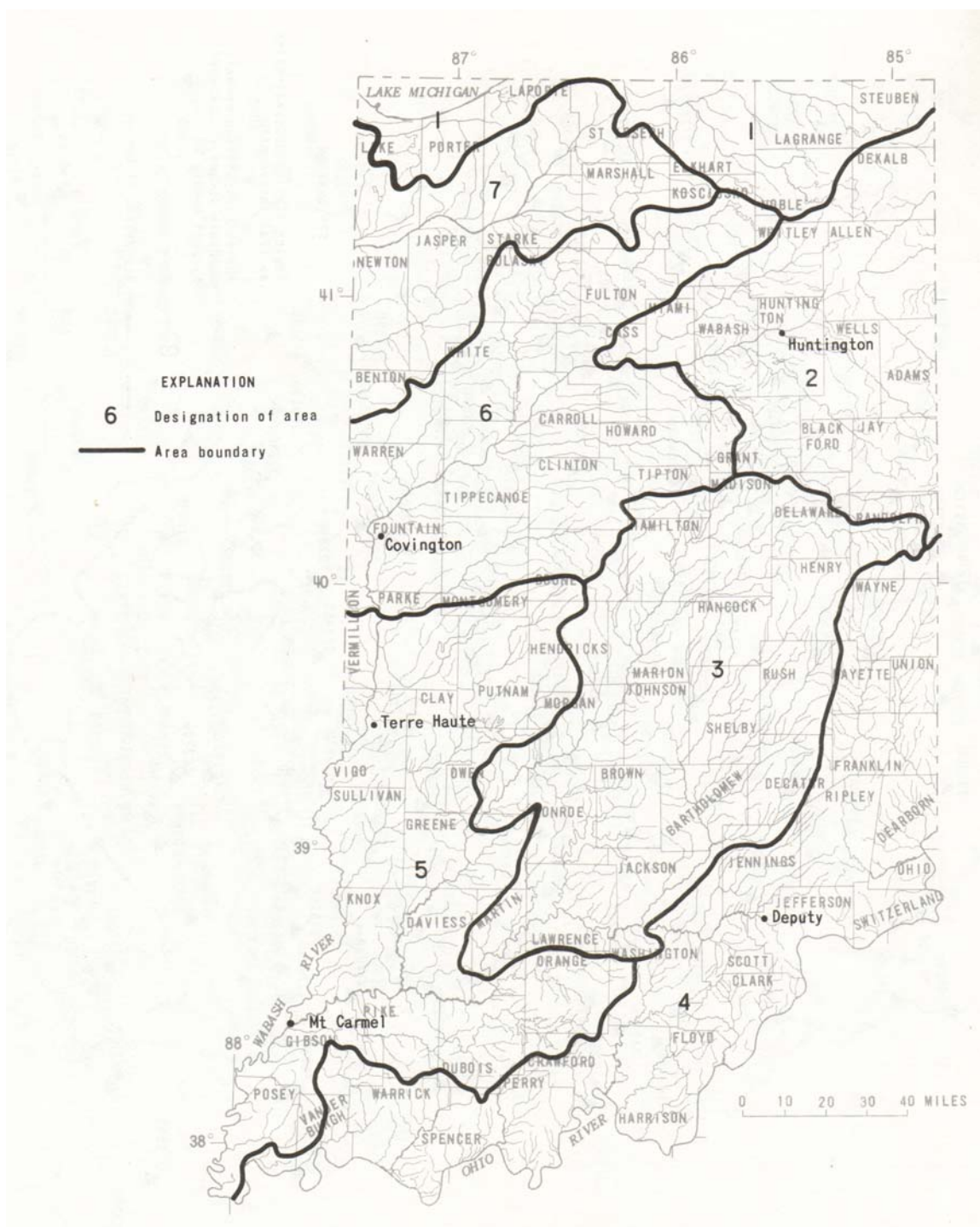
Figure 2.2: Flood Frequency Regions as defined by Glatfelter (1984)

III. REGIONALIZATION OF WATERSHEDS

Regionalization is the process of defining regions with similar hydrologic response for the determination of predictive equations based on regression modeling. It is important to define homogeneous regions properly to account for differences in hydrologic response between various parts of the state. Indiana features a wide variation of physiographic features that impact runoff and streamflow. The northern moraine and lake region features relatively flat topography with many natural lakes and wetland areas, while the southern hills and lowlands region is characterized by variable topography and shallow soil depths to bedrock. These factors, among others, complicate any attempt to estimate the magnitude of flood discharges for streams large and small. The goal of regionalization is to obtain homogeneous regions that have similar flood characteristics throughout the region, and therefore flood frequency discharges can be estimated by using regression on known watershed parameters.

In this study, the regionalization results from previous investigations that are summarized by Rao (2004) are used. These studies defined homogeneous regions for this and future studies. Methodologies for defining regions included the L-Moment method, hybrid cluster analysis, fuzzy cluster analysis, and artificial neural networks.

Regionalization by the L-Moment method is an approach proposed by Hosking and Wallis (1997) and applied by Ernst, Rao and Jeong (2002) for Indiana watersheds using annual maximum discharges for each gage (Figure 3.1). The extent of each region is determined by a trial and error procedure, using the sample L-moments as determined from the annual peaks of record. Homogeneity of each region is evaluated by the H_1 statistic, which is less than one for homogeneous regions, between one and two for possibly homogeneous regions, and greater than two for heterogeneous regions. The
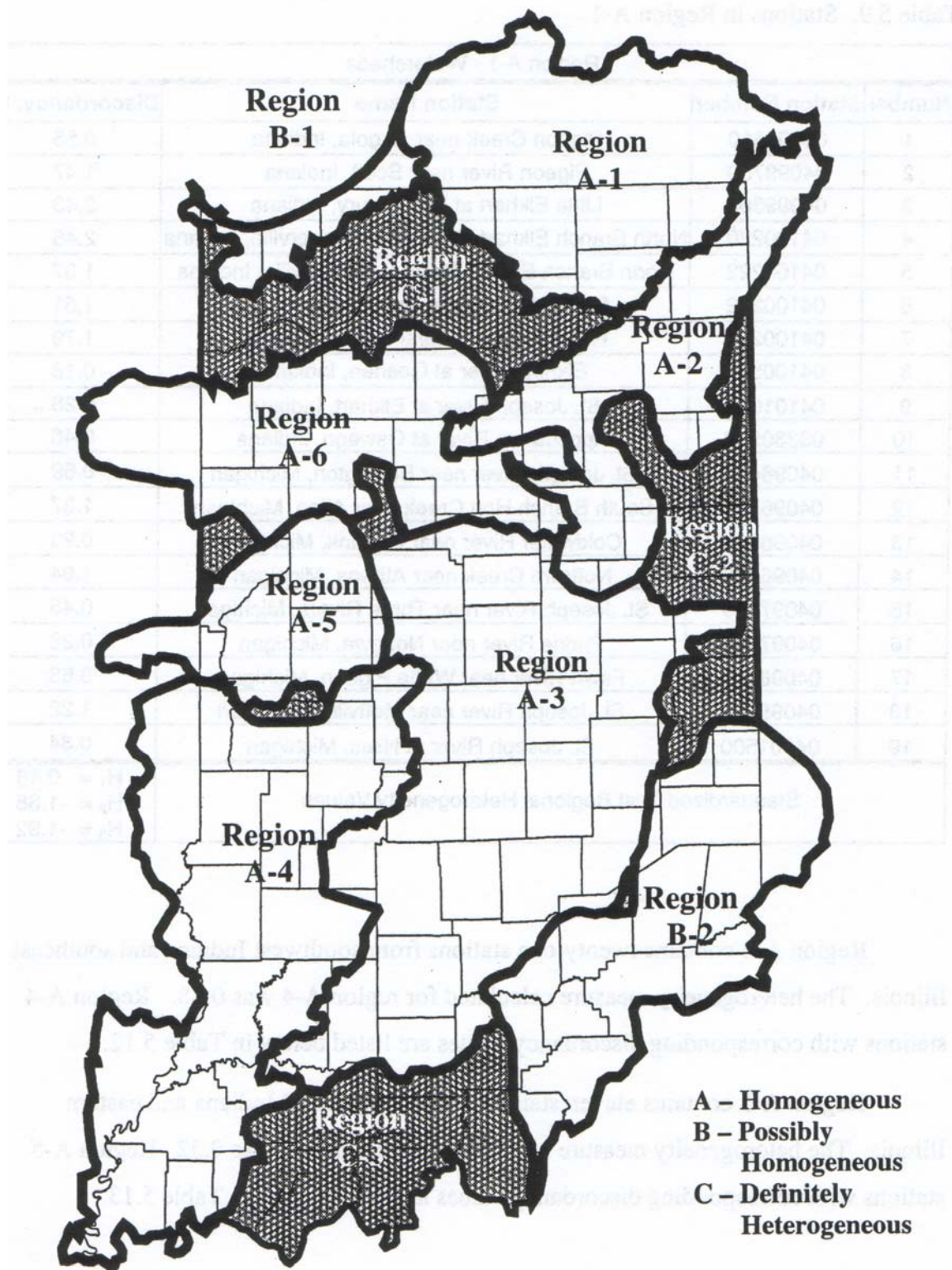
Figure 3.1: Regions as defined by Ernst, Rao, and Jeong (2002)

results from this regionalization are depicted in Figure 3.1. Six regions are defined as homogenous, two are defined as possibly homogeneous, and three regions are defined as heterogeneous. The three heterogeneous regions are located in east central part of the state, the south central karst region, and in the Kankakee River basin in the northwest.

Hybrid cluster analysis is a methodology used in a number of different disciplines, which has been adopted in a hydrologic context. Clustering "is a process by which a set of feature vectors is divided into clusters or groups such that the feature vectors within a cluster area are as similar as possible and the feature vectors of different clusters are as dissimilar as possible" (Rao 2004). Watershed parameters used as feature vectors in the analysis include drainage area, slope, soil runoff coefficient, basin storage, mean annual precipitation, and latitude and longitude. Srinivas and Rao (2003) performed an analysis of this type for Indiana watersheds. Three hierarchical clustering algorithms and one partitional clustering algorithm were evaluated in the analysis to determine regions. The result of this study was a set of five homogeneous regions and one heterogeneous region, which included portions of the Kankakee River basin and drainage to Lake Michigan.

Fuzzy clustering methods and artificial neural networks are two other methodologies investigated by Srinivas and Rao (2003) for regionalization. The fuzzy cluster method utilized for this study was an unsupervised clustering algorithm known as Fuzzy c-means method (FCM). The neural network methodology is the basis of the ANN clustering algorithm, another independent regionalization scheme. The results from these tests resulted in the same regionalization as determined by the hybrid cluster analysis, with five homogeneous regions and a heterogeneous region in the northwest part of the state. This regionalization is shown in Figure 3.2.

For the regression analysis in this study, the regions as defined by hybrid cluster method and confirmed by the fuzzy clustering method and the artificial neural network method were used to define gaging sites to use in the analysis of each region. However, two of the regions so defined were split into two distinct regions. Region 1 and Region 5 were

split based on the presence of a significant amount of natural storage in the northern part of Region 1 and the eastern part of Region 5. These regions are identified as Regions 7 and 8, respectively. Additionally, the Generalized Least Squares method, which is the regression methodology used here, utilizes distance between stations as a feature of the algorithm. Regions 1 and 5, as previously defined, were extended across the state, resulting in long distances between stations. The regression errors were reduced by splitting these two regions, because of the decrease the distance between stations and incorporation of the percentage of the basin covered by water or wetlands as a regression parameter where appropriate.

A difficulty in regionalization is that the actual regional determinations are often based on large scale maps of the state or region examined. In the regions defined by Srinivas and Rao, the regions were delineated based on the gaging stations only, and followed major basin divides only where it was appropriate to do so. However, the scale of the map and ignoring of drainage divides make the map difficult to apply in practice, since a site for investigation might lie close to a boundary, and determination of the proper region could be questioned. To eliminate any ambiguity in applying the appropriate equations, the regionalization for this study is fit to the 14-digit Hydrologic Unit Code (HUC) watersheds for Indiana, as described in DeBroka (1999). The 14-digit HUC watersheds are a nomenclature developed and accepted by state and federal water resource agencies for characterizing watersheds.

For the purposes of application, the original separation of gages into regions as originally determined by Srinivas and Rao has been preserved, but the actual boundaries were modified slightly to follow the 14-digit HUC boundaries whenever possible. This results in a method that is easy to use, since all that is needed to know about a site is the 14-digit HUC basin in which it is located, which is a fairly easy to determine. A few 14-digit HUC basins did have to be split between regions, but these were kept to a minimum. Appendix D (included in the attached CDROM) contains a comprehensive listing of the

14-digit HUC basins for Indiana, with an indication of the region(s) for each basin. The final map of the regions is shown as Figure 3.3.
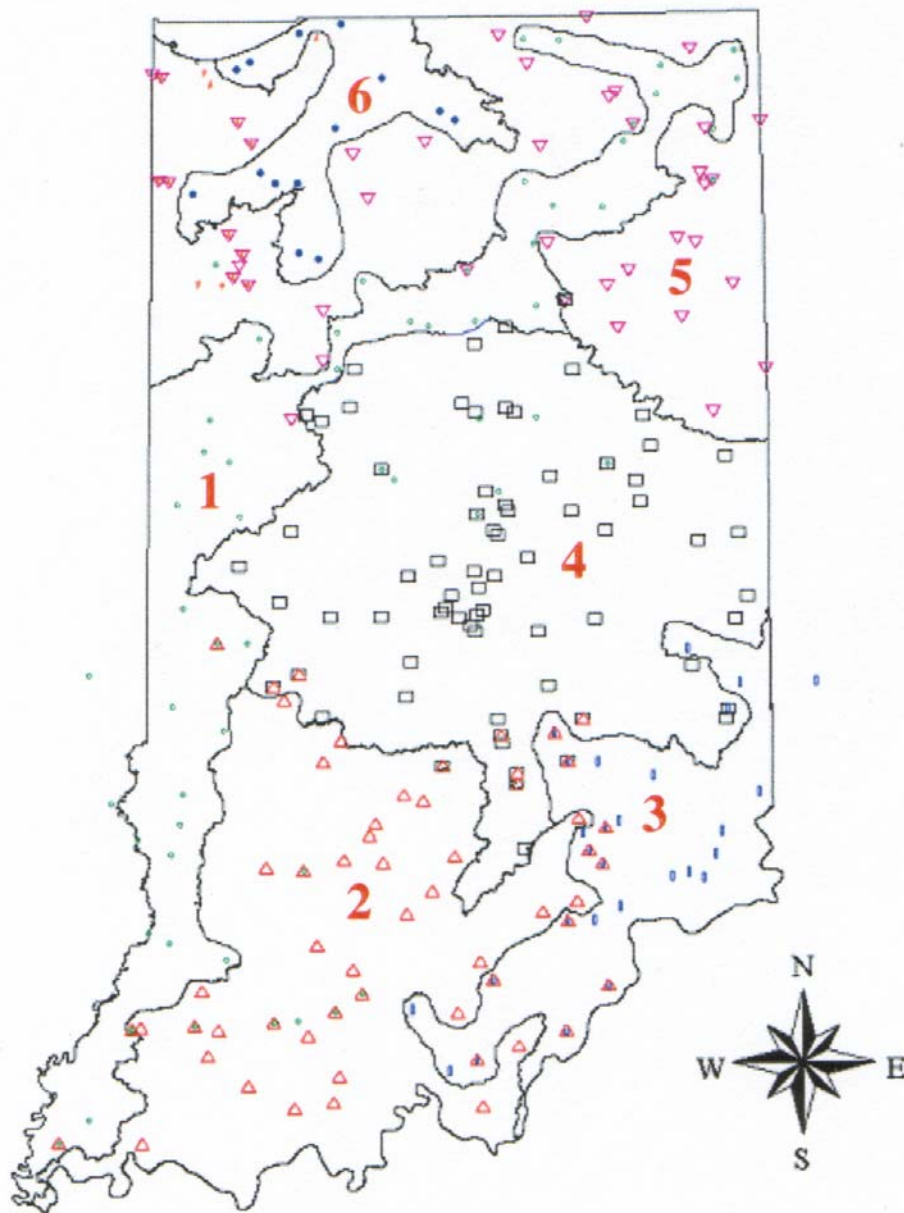
Figure 3.2: Regions for Indiana as defined by Snirvas and Rao (2003)
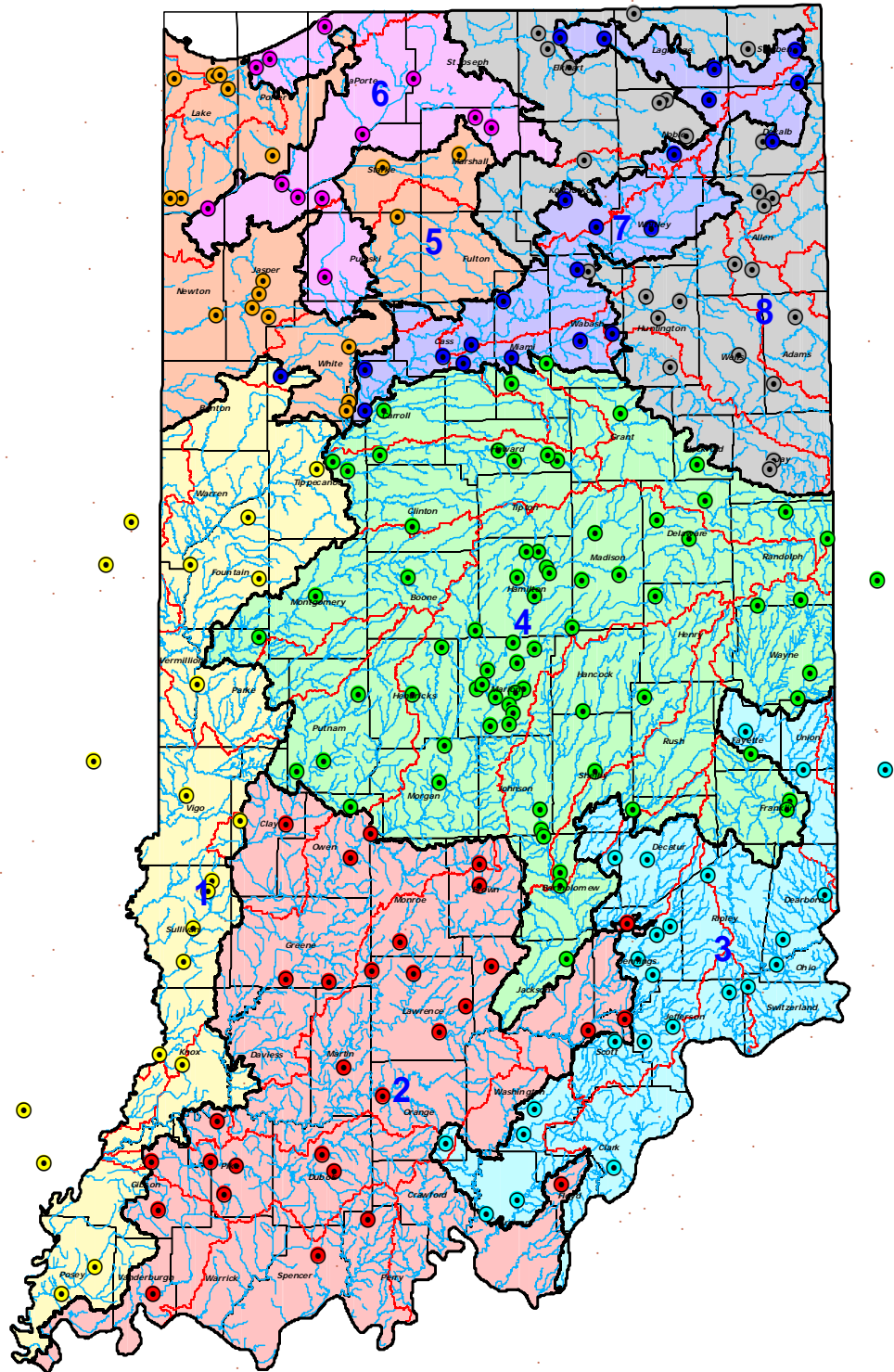
Figure 3.3: Regions as defined for the present analysis

IV. DEVELOPMENT OF FLOOD PREDICTION EQUATIONS

4.1 Station Flood Frequency Analysis

The annual peak discharges for each of the gages in the study were reviewed for data consistency and possible errors. The original IDNR peak discharge file used in previous studies was compared with peak flow files obtained from the USGS NWIS website (http://waterdata.usgs.gov/nwis). Staff of the USGS and the IDNR researched the discrepancies between the two data sources and corrected the data where necessary. Many of the differences between the two data sources were due to changes in rating curves developed by the USGS after the initial publication of the discharge in the annual Water Resources Data compilation. Corrections have been made to the USGS peak flow files, which are now considered the definitive source for peak flow information.

Flood frequency curves for each gaging station were calculated by using standard techniques of the U. S. Water Resources Council (USWRC 1982). The USWRC technique is to fit the annual peak flow data from a station using the log-Pearson III distribution. The discharge values are first transformed by computing the logarithm of each value. The mean, standard deviation (S), and skew coefficient (G) for the logarithm series are computed by using the following equations, where X is the logarithm of the flow and N is the number of years of record in the annual peak data series:

$$\overline{X} = \frac{\Sigma X}{N} \tag{1}$$

$$S = \left[\frac{\Sigma (X - \overline{X})^2}{N - 1} \right]^{0.5} \tag{2}$$

$$G = \frac{N \Sigma (X - \overline{X})^3}{(N-1)(N-2)S^3} \tag{3}$$

The skew coefficient is then weighted by using a regional generalized skew coefficient, in order to eliminate local anomalies that may exist for a particular site. The regional skew coefficient used in this study is -0.2. This value is the standard value used by the IDNR and was agreed to by the other federal agencies (USGS, USACE, NRCS) in the process of developing the coordinated discharge agreement between all of these agencies. Weighting the skew coefficient is done by using Equation 4.

$$G_w = \frac{MSE_{\overline{G}}(G) + MSE_G(\overline{G})}{MSE_{\overline{G}} + MSE_G} \tag{4}$$

The mean square error of the regional skew coefficient is taken from USWRC (1982) to be 0.55. The mean square error of the station skew coefficient is approximated by

$$MGE_G \cong 10^{[A - B[\log_{10}(N/10)]]} \tag{5}$$

$$A = -0.33 + 0.08 \, |G| \quad \text{if} \quad |G \le 0.90|$$

$$-0.52 + 0.30 |G| \quad \text{if} \quad |G > 0.90|$$

$$B = 0.94 - 0.26 |G| \quad \text{if} \quad |G| \le 1.50$$

$$0.55 \quad \text{if} \quad |G| > 1.50$$

The flood frequency values for each return period are then computed using the following equation:

$$\log Q = \overline{X} + KS \tag{6}$$

where K is based on the log-Pearson III distribution and is a function of the weighted skew coefficient and the return interval. K is normally determined from tables published in USWRC (1982).

Adjustments to the annual peak flood data series were also made to account for high and low outliers, and for historic data. Generally, the guidelines presented in USWRC (1982) were used to identify and adjust for outliers. However, in some cases the coordinating agencies had agreed to consider certain data points in the data sets as outliers; these were retained in the analysis. Historic events were reviewed by the USGS and in many cases were also previously accepted by the coordinating agencies.

These calculations were performed using the USGS computer program PEAKFQ. This program is preferred in this study over the USACE program HEC-FFA which had been used by the IDNR, since other similar USGS programs are used to perform the regression analysis. The data sets can be obtained from the USGS NWIS website in WATSTORE format, which is read directly by PEAKFQ. For this study, the original WATSTORE USGS data were adjusted as described for outliers and historic events. This file was then converted to a Watershed Data Management (WDM) file, which is USGS's binary file format for data management. The USGS programs ANNIE and IOWDM are used to create and update a WDM file. The regression package requires input from a WDM file.

Appendix B (included in the attached CDROM) lists the gaging stations used for this study and the respective calculated flood frequency discharges. The 10, 25, 50, 100, 200 and 500 year return periods are used for data from each station.

4.2 Basin Characteristics

Determination of basin characteristics for each of the gaged watersheds is a critical step in a hydrologic regression study. The successful application of the final regression equations will depend on the accurate determination of the basin characteristics by the

user.   It is important for the person applying these equations to determine basin characteristics in a manner similar to the methods used in the original study.   Basin characteristics that are difficult to calculate or are obscure make the equations harder to apply and therefore less useful. Seven basin characteristics were used in this study.

The drainage area of a stream is "the area enclosed by a topographic divide such that direct surface runoff from precipitation normally would drain by gravity into the river basin above a specific point" (Neyer 1986). The USGS (Hoggatt 1965) has determined drainage area divides for the entire state that have been generally accepted by most federal and state agencies. These drainage area divides are available as a GIS coverage from the USGS. These divides originally included delineations at gaging stations active at the time; other delineations for newer and some out of state watersheds were computed from USGS 7 ½ minute quadrangle maps. The Ohio district office of USGS provided delineations used in their recent regression study for the State of Ohio (Koltun, 2003).

However, for some watersheds, the drainage area must be adjusted for areas of the watershed that do not contribute directly to surface runoff. These areas are typically found in the karst area of south central Indiana, where sinkholes and other solution features redirect surface runoff underground, and in the northern lake areas of the state, where isolated surface depressions do not have direct overland connections to the stream network. These areas are termed non-contributing areas by Hoggatt (1965) and are also listed in the USGS basin coverage, and are noted for each 14-digit HUC in Appendix D. Gaging stations where the total drainage area is adjusted by non-contributing areas are noted in the station description in the annual Water Resources Data publications of the USGS. The effective drainage area of a stream is then defined by subtracting any non-contributing areas from the total drainage area.

Slope of a stream is computed by the "10-85" method using the following equation:

$$Slope = \frac{E_{85\%} - E_{10\%}}{.75 * L} \tag{7}$$

E_{10} and E_{85} are the elevations, in feet, of the thalweg of the stream at 10% and 85% of the total length (L, in miles) of the stream upstream from the determination point, respectively. The extreme upper and lower parts of the stream are not considered in computing the slope in this manner to compensate for the possible effect of an exceedingly steep upland area or a very flat lowland area. The slope for each gaging station was taken from previous regression studies for existing gages, and calculated from USGS 7 ½ minute quadrangle maps where no data are available.

The 2 year, 24 hour rainfall intensity is taken from TP-40 (NWS, 1960). The isohyetal lines (taken from IDNR's interpolation of the published isohyetal lines, as published in "Rainfall Frequency for Indiana" at http://www.in.gov/dnr/water/surface_water rainfallfrequency/ index.html) were digitized and then interpolated over a raster grid evenly spaced over the study region. The cell values within a specific watershed were then averaged to compute average rainfall intensity over the watershed.

A runoff coefficient was defined using the STATSGO GIS coverage provided by the NRCS (see http://www.ncgc.nrcs.usda.gov/branch/ssb/products/statsgo/index.html). The STATSGO coverage is a generalized representation of soil characteristics, and is therefore useful for watershed scale studies such as the present one. Each polygonal area in this coverage is assigned a soil characteristic, which has a corresponding hydrologic soil group. The hydrologic soil group is a definition of the rate of infiltration that can be expected from a soil complex, and range from A (low runoff potential) to D (high runoff potential). To compute a runoff coefficient, the following table, based on NRCS guidance, is used to convert the letter designation to a numeric value.

Table 4.1: Soil Runoff Coefficients and Hydrologic Soil Groups

Hydrologic Soil Group	Soil Runoff Coefficient
A	.3
B	.5
C	.7
D	.8

The overall soil runoff coefficient is computed by a weighted average of the soil runoff coefficients found in a watershed, based on the aerial extent of each soil complex region. Two different soil runoff coefficients were computed, since some soil complexes are defined differently depending on whether the soil is drained or undrained. Accordingly, a drained and undrained soil runoff coefficient is computed.

The last three variables that are computed are the percentage of the watershed that is covered by water or wetlands (%W), by urbanized areas (%U), and by forested areas (%F). These data are derived from the National Land Cover Dataset (NLCD) compiled by the USGS EROS data center. The data were compiled from satellite imagery and has a spatial resolution of 30 meters. This information is based on ground information from the early 1990's.

The NLCD is a raster grid with each grid cell coded with land use classification. The land use classes were taken from a modified Anderson Land Use classification, a standard nomenclature for describing different land use types. Table 4.2 lists the possible values from the NLCD system.

For use in this study, the grid data were converted from a raster dataset to polygons in a ARC shapefile. These polygons were then clipped using the watershed area polygons for each gaging station. From these shapefiles, the area of the watershed classified by each code can be determined. A percentage of the watershed covered by each class is then computed by dividing the incremental areas by the total drainage area. %W is then

calculated by adding the percentages for codes 11, 12, 91, and 92. %U is the sum of the percentages for codes 21, 22, and 23. %F is the sum of codes 41, 42 and 43.

Calculation of these percentages are the most difficult aspect of the application of the final equations. The values could be estimated from a USGS 7 ½ minute quadrangle map, but practical experience shows that these estimates can vary widely from user to user, and proper application of the method demands that basin characteristics be

Table 4.2: NCLD Land Cover Class Definitions

NLCD Code	Description
11	Open Water
12	Perennial Ice/Snow
21	Low Intensity Residential
22	High Intensity Residential
23	Commercial/Industrial/Transportation
31	Bare Rock/Sand/Clay
32	Quarries/Strip Mines/Gravel Pits
33	Transitional
41	Deciduous Forest
42	Evergreen Forest
43	Mixed Forest
51	Shrubland
61	Orchards/Vineyards/Other
71	Grasslands/Herbaceous
81	Pasture/Hay
82	Row Crops
83	Small Grains
84	Fallow
85	Urban/Recreational Grasses
91	Woody Wetlands
92	Emergent Herbaceous Wetlands

computed in a similar manner to the methods used to derive the regressed data. Appendix D (included in the attached CDROM) includes a table of pre-computed values of %W and %U for each 14-digit HUC watershed in Indiana. Also to be distributed with the final report is a digital copy of the land use shapefiles (separated by 8-digit HUC

watershed) that can be used in an ARC or CAD environment to compute these percentages.

4.3 Generalized Least Squares Regression

Historically, these types of regression analysis have been done using the ordinary least squares regression method. Ordinary least squares estimates the parameters $\mathbf{B} = (b_1, b_2, \dots b_n)$ for a model of the response variable Y_n (in this case, the log of the discharge for the given return period), given in equation 8

$$Y_n = b_0 + b_1 x_1 + b_2 x_2 + \dots b_n x_n + \varepsilon \tag{8}$$

where $(x_1, x_2 \dots x_n)$ are the various predictor or regressor variables (drainage area, slope, etc.), n is the number of regressor variables in the model and ε represents the error in the model. Typically the regressor variables are also converted to logarithms, and the prediction equation is expressed as a complex power equation. The scheme for ordinary least squares is to estimate the parameters $\mathbf{B}$ to minimize the sum of the squares of the error term.

While ordinary least squares is a valid model, improvements have been made in the scheme to utilize the unique properties of hydrologic annual maximum flow data. Stedinger and Tasker (1989) have developed and extensively tested a model they have termed generalized least squares (GLS). GLS is an extension of ordinary least squares that incorporates the length of record at each gaging station, differences in the variance at different sites, and any possible cross correlation in the data between stations. The model equation is the same as for ordinary least squares, represented in vector form in equation 9

$$\hat{Y} = X\beta + e \tag{9}$$

where **Y** is a (n × 1) vector of flow characteristics at n sites (and $\hat{\mathbf{Y}}$ is an estimate of **Y**), **X** is an (n × p) matrix of (p – 1) basin characteristics augmented by a column of one's, **β** is a (p × 1) vector of regression parameters and *e* is an (n × 1) vector of random errors. The GLS estimation of **β** is given by Stedinger and Tasker as

$$\boldsymbol{\beta} = (\mathbf{X}^T \boldsymbol{\Lambda}^{-1} \mathbf{X})^{-1} \mathbf{X}^T \boldsymbol{\Lambda}^{-1} \mathbf{Y} \tag{10}$$

where **Λ** is the covariance of the model. In the GLS model **Λ** is estimated by

$$\hat{\boldsymbol{\Lambda}} = \hat{\gamma}^2 \mathbf{I} + \hat{\boldsymbol{\Sigma}} \tag{11}$$

where $\hat{\gamma}^2$ is an estimate of the model error variance and $\hat{\boldsymbol{\Sigma}}$ is an (n × n) matrix of sampling covariances with elements:

$$\Sigma_{ij} = \hat{\sigma}_i^2 \left[1 + K_T^2 \left(\frac{\kappa - 1}{4} \right) \right] \Big/ n_i \qquad \text{for } i = j \tag{12}$$

$$\Sigma_{ij} = \hat{\rho}_{ij} \frac{m_{ij} \hat{\sigma}_i \hat{\sigma}_i}{n_i n_i} \left[1 + \hat{\rho}_{ij} K_T^2 \left(\frac{\kappa - 1}{4} \right) \right] \qquad \text{for } i \neq j \tag{13}$$

where:

$\hat{\sigma}_i$ is an estimate of the standard deviation of flows at site i
K_T is the T-year frequency factor for the flow distribution
κ is the kurtosis of the flow distribution
n_i is the record length at site i
m_{ij} is the concurrent record length of sites i and j
$\hat{\rho}_{ij}$ is an estimate of the lag zero correlation of flows between sites i and j

There are a number of additional steps that can be applied to improve the estimate of these variables, which are detailed in Stedinger and Tasker's various reports. One is the estimate of the lag-zero cross correlation coefficient, ρ_{ij}. To eliminate data problems and increase the robustness of the overall solution, a non-linear regression model is used to smooth out data problems by relating the cross correlation coefficient to distance between gaging stations. This regression model is of the form:

$$\rho_{ij} = \exp\left\{\left[\frac{d_{ij}}{\alpha d_{ij} + 1}\right]\ln\theta\right\} \tag{14}$$

where d_{ij} is the distance between stations i an j, and α and θ are model parameters.

The GLS regression scheme is implemented in the USGS computer program GLSNET. This program requires input of the annual maximum flood series for each station, including the adjustments for low and high outliers and historic discharges as appropriate. Each station is also required to have latitude and longitude to compute the cross correlation of each station pair in the regression region. The PEAKFQ program needs to be run on the dataset before GLSNET can be run, since the mean, standard deviation and generalized skew from the flood frequency curve computation and estimation of the flood frequency are part of the GLS method. Basin characteristics are also incorporated into the WDM file as user defined variables, for use as the regressor variables.

4.4 Regression Results

The original data set of gaging stations included 439 gages located in Indiana and in the surrounding states of Illinois, Kentucky, Michigan, and Ohio. Through a process of trial and error, this initial set of stations was reduced to 223 based on the homogeneity of certain stations as computed using previous techniques detailed by Srinivas and Rao (2003). The total homogeneity measure of each of the regions with the final station selection is given in Table 4.3.

As shown in table 4.3, Regions 1, 3, and 4 are homogeneous, Regions 2, 5, 7, and 8 are possibly homogeneous, and Region 6 is heterogeneous. Region 6 is not a surprise, since all of the previous studies in regionalization had identified that region as heterogeneous. The four regions that are possibly homogeneous are a result of the effort to balance the station selection between homogeneity and the regression diagnostics. The

Table 4.3: Homogeneity measures for defined regions

Region No.	# of gages	H_1	H_2	H_3	Region type
1	21	0.66	-1.83	-2.40	Homogeneous
2	30	1.17	-1.18	-2.00	Possible homogeneous
3	24	0.26	0.53	0.12	Homogeneous
4	72	0.79	-0.97	-1.45	Homogeneous
5	18	1.18	-0.30	-0.09	Possible homogeneous
6	12	14.68	5.42	2.47	Heterogeneous
7	22	1.56	0.04	-0.24	Possible homogeneous
8	25	1.07	-0.59	-0.96	Possible homogeneous

selected stations are a compromise between these two goals. It should be noted, however, that 3 of the regions have H_1 values less than 1.2, meaning that they are fairly close to being considered homogeneous by the common standard. These homogeneity measures do not match previous data sets exactly due to the refinement of the peak flow file performed as a part of this study, and the addition of the 2003 water year data.

The final station selection has 223 stations selected for the 8 regions. The location of the gaging sites with respect to the regions is shown in Figure 3.4, while Appendix A and B list the final stations with the basin characteristics (Appendix A) and the results of the flood frequency analysis (Appendix B). The appendices are included in the attached CDROM.

The return periods chosen for evaluation in this study are the 10, 25, 50, 100, 200 and 500 year frequency flood discharges. The 100-year flood is the basis for most of the regulatory programs in the State of Indiana regarding water resources, while the lower return periods provide information regarding more frequent events that are also helpful in design. The 500-year flood is estimated here even though the length of the period of record for most gages does not support the estimation of the discharge for such a large return period. However, the 500-year flood discharge is a parameter in some of the equations for estimating depth of scour at bridge piers and abutments, and therefore it is useful to have an estimate of this discharge. However, this estimate should be used with caution.

The regression variables for each of the regions were chosen from evaluating the regression results using trial and error. Runoff coefficient, $I_{2,24}$ and %F did not contribute positively to any of the regional regression models and therefore were not considered in any of the equations. Runoff coefficient, in particular, seemed to vary from region to region, but did not vary greatly within a region, meaning that it was of little use in a regression analysis. Given that the regionalization was found to follow geologic and soil type regions throughout the state, this conclusion is not surprising.

All regions have effective drainage area (ContDA) as factor in the regression, which is expected. Slope is a factor in all regions except Region 8. This is likely due to the nature of the stations chosen in those regions, but Glatfelter's study found that slope was not a regression variable in the corresponding region in that area. In this case %W is an indirect measure of the slope of the watershed, since higher water storage in a watershed is an indication of gentler slopes. %W is a factor in Regions 7 and 8 (the lake country) and %U is a factor only in Region 4, which is the only region where urban gages (in the Indianapolis metropolitan area) are present in significant numbers. For purposes of the regression, %W and %U are expressed as percentages, not decimals, and that a value of one is added to each variable. This was to eliminate %W and %U values of zero, which resulted in matrices that could not be inverted.

The average model error is the main regression output used to evaluate the quality of the regression. It is calculated from equation 15. The percent error is given in Tasker (1995) as in Equation 15.

$$\%Error = 100\left[\exp(\gamma^2 * 5.3019) - 1\right]^{1/2} \tag{15}$$

Average equivalent years of record is a measure developed to express the accuracy of prediction as an equivalent number of years of record required to achieve results of comparable accuracy. It is calculated by equation 16.

$$EqYOR = \frac{\hat{s}_i^2\left[1 + k_i g_i + \dfrac{k_i^2}{2}(1 + 0.75 g_i^2)\right]}{\hat{\gamma}_i^2 + \hat{\Sigma}_i} \tag{16}$$

Examining the error results, regions 3 and 4 have the smallest percentage errors and the largest equivalent years of record. This corresponds to the heterogeneity measures, which identified those regions as homogeneous. Region 1, the other homogeneous region, has error values slightly higher than Regions 3 and 4, but still better than four of the other five regions. Errors for the other five regions compare to the errors found in Glatfelter's study, with Region 5 having results that compare to the three homogenous regions.

The form of the predictive equations for Regions 1, 2, and 3 include the effective drainage area and slope as the regressed variables. Table 4.4, 4.5, and 4.6 list the values of the regression constant C, and the exponents a_1 and a_2 for use in determining peak discharges using equation 17 respectively for regions 1, 2 and 3.

$$Q_{RetPer} = (C)(DA)^{a_1}(Slope)^{a_2} \tag{17}$$

Table 4.4: Regression results for Region 1

Return Period	Constant (C)	ContDA (a_1)	Slope (a_2)	Avg Model Error	Avg Eq YOR	%Error
10	47.8	0.802	0.535	0.013	4.24	27.1%
25	55.3	0.805	0.561	0.014	5.46	27.8%
50	61.4	0.805	0.573	0.015	6.62	28.3%
100	67.5	0.805	0.585	0.016	6.90	29.5%
200	74.3	0.803	0.592	0.017	7.36	30.6%
500	83.9	0.800	0.599	0.019	7.82	32.2%

Table 4.5: Regression results for Region 2

Return Period	Constant (C)	ContDA (a_1)	Slope (a_2)	Avg Model Error	Avg Eq YOR	%Error
10	69.6	0.798	0.473	0.022	3.12	35.5%
25	102.4	0.777	0.441	0.023	4.23	35.6%
50	133.1	0.762	0.417	0.023	5.01	36.0%
100	169.5	0.748	0.394	0.024	5.70	36.8%
200	213.3	0.734	0.371	0.025	6.24	37.7%
500	283.3	0.716	0.341	0.027	6.80	39.4%

Table 4.6: Regression results for Region 3

Return Period	Constant (C)	ContDA (a_1)	Slope (a_2)	Avg Model Error	Avg Eq YOR	%Error
10	74.6	0.889	0.416	0.008	8.92	20.9%
25	91.5	0.891	0.425	0.007	13.53	19.7%
50	104.5	0.894	0.430	0.007	16.16	19.9%
100	116.8	0.898	0.434	0.008	17.93	20.4%
200	132.5	0.898	0.434	0.009	18.06	22.1%
500	152.1	0.902	0.437	0.011	17.53	24.8%

For Region 4, the urbanization factor %U + 1, is added to the equation for the previous regions.

$$Q_{\mathrm{Re}\,tPer} = (C)(DA)^{a_1}\,(Slope)^{a_2}\,(\%U+1)^{a_3} \tag{18}$$

Table 4.7: Regression results for Region 4

Return Period	Constant (C)	ContDA (a₁)	Slope (a₂)	%U+1 (a₃)	Avg Model Error	Avg Eq YOR	%Error
10	31.1	0.820	0.681	0.080	0.010	7.67	23.1%
25	37.7	0.820	0.698	0.079	0.009	10.64	22.5%
50	42.9	0.819	0.707	0.077	0.009	12.90	22.4%
100	48.4	0.816	0.712	0.075	0.009	15.13	22.4%
200	52.7	0.816	0.722	0.074	0.010	16.59	22.7%
500	58.7	0.815	0.731	0.073	0.010	18.17	23.5%

Equations for Region 5 and 6 are similar to the equations for 1, 2 and 3.

$$Q_{\text{Re}tPer} = (C)(DA)^{a_1}(Slope)^{a_2} \tag{19}$$

Table 4.8: Regression results for Region 5

Return Period	Constant (C)	ContDA (a₁)	Slope (a₂)	Avg Model Error	Avg Eq YOR	%Error
10	35.8	0.776	0.368	0.013	2.96	26.7%
25	45.6	0.764	0.356	0.014	3.70	27.7%
50	53.1	0.756	0.347	0.015	4.24	28.3%
100	60.8	0.748	0.338	0.015	4.75	28.8%
200	68.7	0.742	0.330	0.020	5.23	33.5%
500	79.5	0.734	0.319	0.016	5.79	30.0%

Table 4.9: Regression results for Region 6

Return Period	Constant (C)	ContDA (a₁)	Slope (a₂)	Avg Model Error	Avg Eq YOR	%Error
10	22.4	0.732	0.776	0.025	2.17	37.8%
25	27.9	0.709	0.858	0.026	2.77	38.7%
50	31.5	0.696	0.917	0.027	3.21	39.4%
100	34.6	0.687	0.974	0.028	3.62	40.1%
200	37.3	0.681	1.029	0.029	4.01	40.8%
500	40.3	0.675	1.098	0.030	4.47	41.7%

For Region 7, the factor %W + 1 is added to the equation

$$Q_{RetPer} = (C)(DA)^{a_1}(Slope)^{a_2}(\%W + 1)^{a_3} \tag{20}$$

Table 4.10: Regression results for Region 7

Return Period	Constant (C)	ContDA (a₁)	Slope (a₂)	%W+1 (a₃)	Avg Model Error	Avg Eq YOR	%Error
10	65.0	0.873	0.372	-0.795	0.030	2.36	41.7%
25	89.0	0.858	0.361	-0.801	0.034	2.84	44.4%
50	108.4	0.849	0.354	-0.803	0.037	3.19	46.2%
100	129.3	0.839	0.347	-0.803	0.034	3.53	44.3%
200	151.1	0.831	0.343	-0.802	0.041	3.82	49.4%
500	182.2	0.821	0.336	-0.800	0.044	4.18	51.3%

Region 8 is different from the other equations in that the slope is not a factor in the equation. %W + 1 is reflected in the final equation.

$$Q_{RetPer} = (C)(DA)^{a_1}(\%W + 1)^{a_2} \tag{21}$$

Table 4.11: Regression results for Region 8

Return Period	Constant (C)	ContDA (a₁)	%W+1 (a₂)	Avg Model Error	Avg Eq YOR	%Error
10	106.0	0.835	-0.733	0.029	1.20	41.0%
25	118.2	0.839	-0.719	0.029	1.66	40.4%
50	126.5	0.842	-0.707	0.028	2.04	39.9%
100	134.2	0.843	-0.695	0.027	2.44	39.5%
200	141.1	0.845	-0.683	0.027	2.84	39.1%
500	149.8	0.846	-0.667	0.026	3.40	38.6%

Table 4.12 gives the ranges of values for each of the watershed parameters in these equations. Applying these equations is circumstances where the values of the watershed parameters are outside of the ranges of the data used in the regression study is not recommended, and should be done with caution. The effect of outlier values of the basin characteristics cannot be determined with any certainty, since the data are non existent, and the response of a particular watershed could vary greatly outside the bounds of the study variable ranges.

Table 4.12: Ranges for various watershed characteristics

Region	EffDA (sq mi)	Slope (ft/mi)	%W (%)	%U (%)
1	0.27-13,706	1.4-79		
2	0.15-11,125	1.2-267		
3	0.07-284	3.8-253		
4	0.31-2,444	2.7-48.7		0-83.9
5	5.82-1,869	1.6-8.6		
6	1.5-1,779	0.9-15.8		
7	0.17-4,072	2.4-43.7	0-7.2	
8	0.45-3,370		0-12.1	

Equations for computing confidence limits for each of the predictive equations have also been derived as part of the GLS methodology. A 100(1-α) prediction interval is given in Equations 22 and 23 for a logarithmic transformation of the prediction variable q_0

$$10^{\hat{y}_0 - T} \leq q_0 \leq 10^{\hat{y}_0 + T} \tag{22}$$

where

$$T = t_{\frac{\alpha}{2}, n-p'} \sqrt{\hat{\gamma}_0^2 + x_0 (X' \hat{\Lambda}^{-1} X)^{-1} x_0'} \tag{23}$$

where $t_{\alpha/2, n-p'}$ is the critical value for a t distribution for n-p' degrees of freedom (Tasker, 1995).

V. EVALUATION OF THE PREDICTION EQUATIONS

With any study, testing the results with independent methodologies is an important aspect of determining the reliability of the study. The nature of the input data for any hydrologic study is imprecise, and therefore various means of evaluating the study results are warranted. For this study, the results have been tested using a split sample test, with a comparison to previously determined discharges, and by examining the fit of the regression to the input data points.

As a general examination of the regression results, Figures 5.1 through 5.8 are plots of the peak 100-year flood frequency discharges for gaging stations in each region (calculated using the USWRC methodology) plotted versus the 100-year frequency flood discharge predicted by the respective regional equation. Given a perfect relationship, these discharges would be equal to each other, and therefore would plot on a straight line at a 45 degree angle. By examining the deviation of the plotted points to this line, the relative strength of the predictive equations can be evaluated.

For these plots, the best fit equations are for Regions 3 and 4, which have the smallest errors from the GLS analysis, and have the lowest homogeneity measures. Other regions do not demonstrate as strong a relationship, but generally show an acceptable relationship between calculated and predicted values for the 100-year discharge.
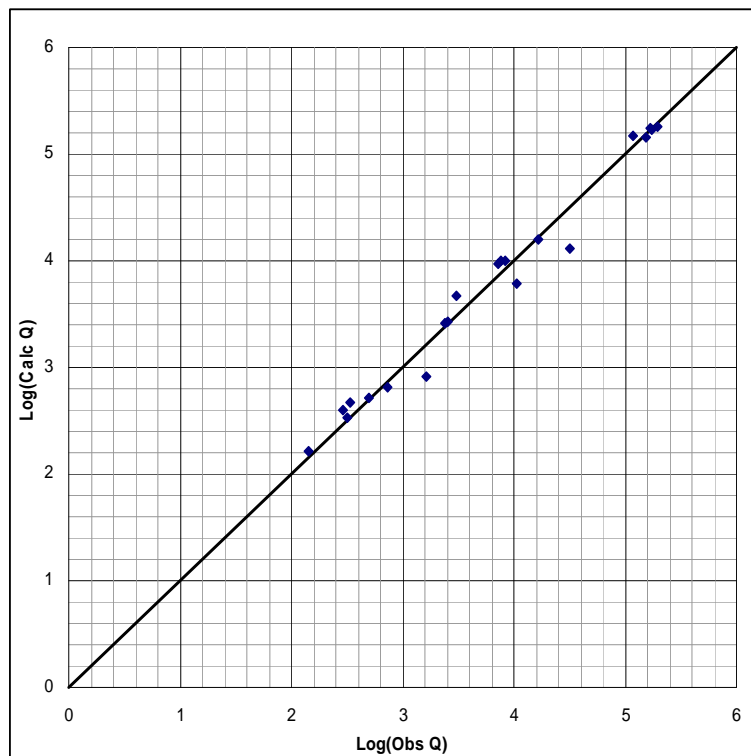
Figure 5.1: Comparison of 100 year observed discharges and regression model discharges for Region 1
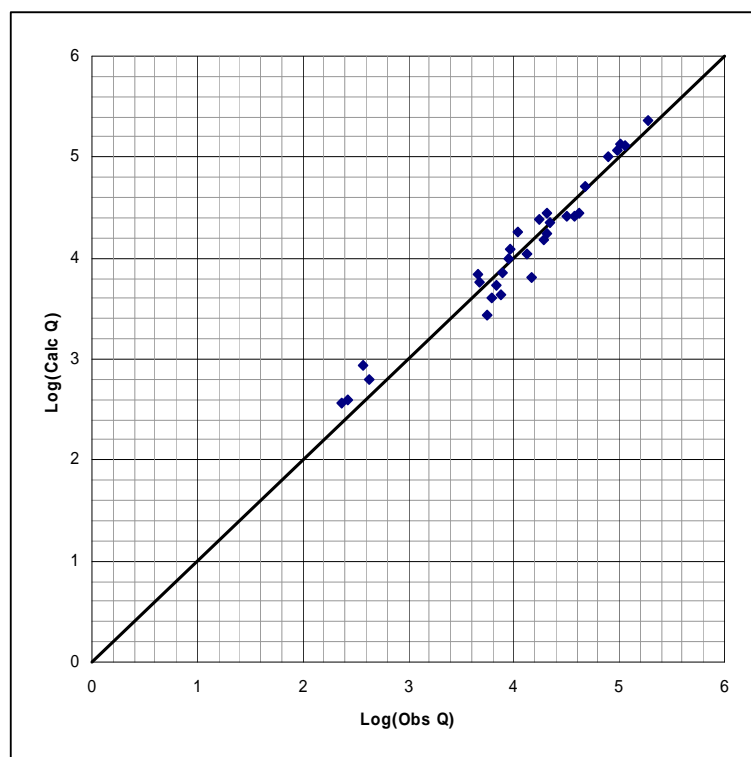
Figure 5.2: Comparison of 100 year observed discharges and regression model discharges for Region 2
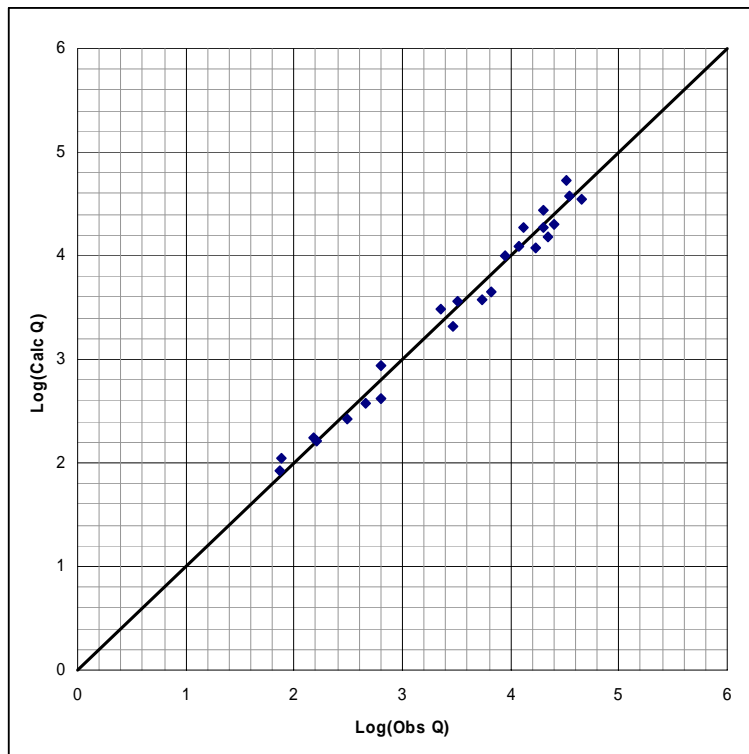
Figure 5.3: Comparison of 100 year observed discharges and regression model discharges for Region 3
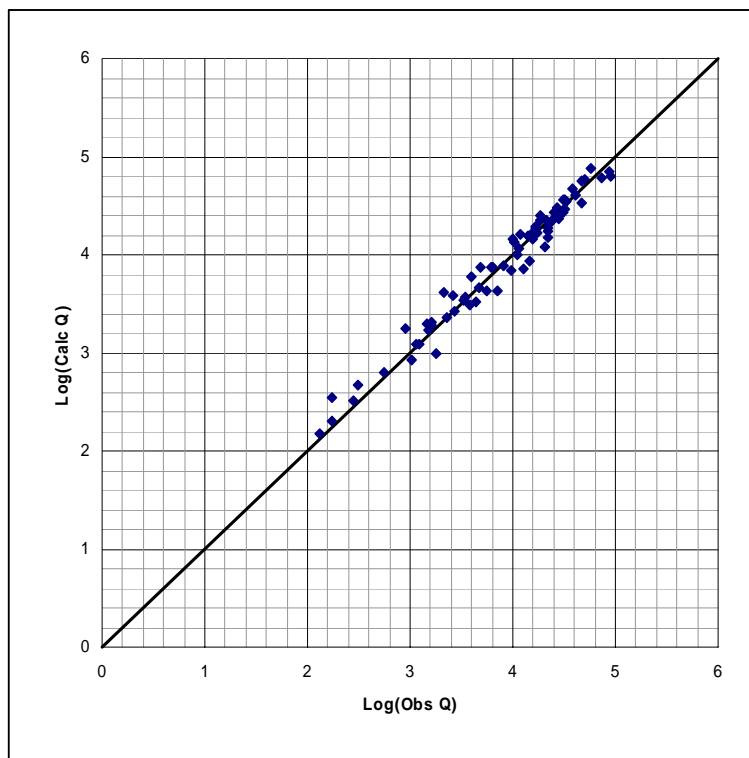
Figure 5.4: Comparison of 100 year observed discharges and regression model discharges for Region 4
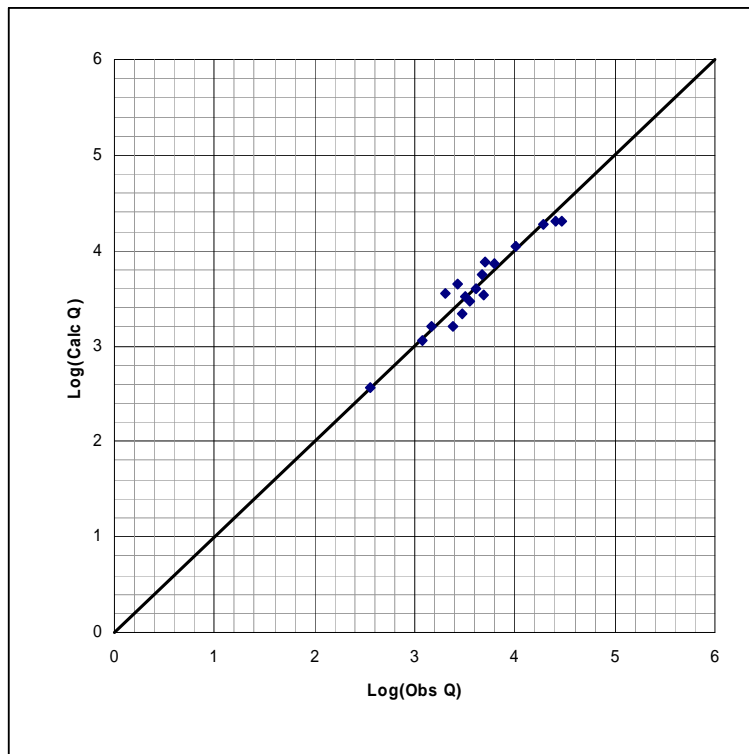
Figure 5.5: Comparison of 100 year observed discharges and regression model discharges for Region 5
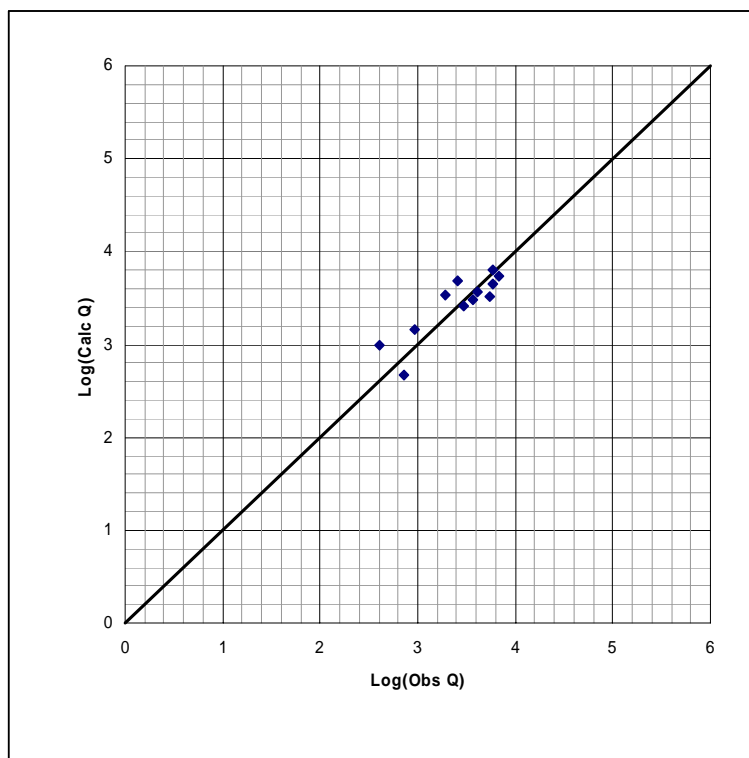
Figure 5.6: Comparison of 100 year observed discharges and regression model discharges for Region 6
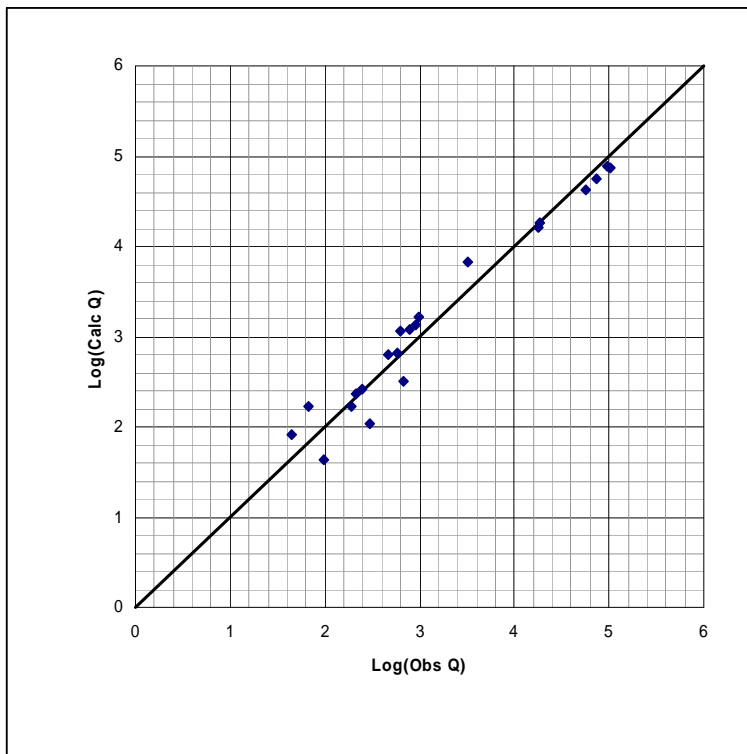
Figure 5.7: Comparison of 100 year observed discharges and regression model discharges for Region 7
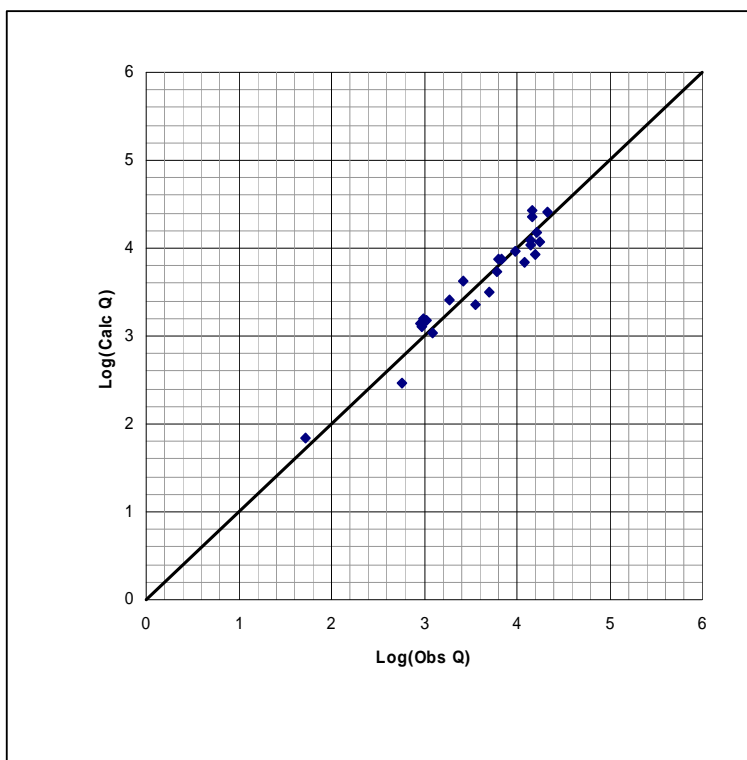
Figure 5.8: Comparison of 100 year observed discharges and regression model discharges for Region 8

5.1 Split Sample Test

A split sample test is useful in identifying how stable and reliable a dataset may be. In a truly homogeneous data sample, a regression model on a significant part of the data set should be comparable to a regression model on the entire data set. For the split sample test in this study, the following methodology was used:

- A random number (between 0 and 1) was assigned to each gaging station, using the Microsoft EXCEL rand() function.
- The stations in each region were then sorted using the random number as the sorting key.
- 20% of the stations in each of the regions were then chosen as the "split" sample, based on the lowest random number generated.
- The GLS regression method was then run using the remaining 80% of the sample set. The regression variables were kept the same as for the original regression analysis. Only the 100 year frequency flood was used for this test.
- The split sample regression equation was then used to predict the flood frequency flows at the stations removed from the test.
- The percent error of the predicted peak discharge was computed based on the peak discharge computed using flood frequency analysis. This percent error was then compared to the overall percent error in the model (as computed in the GLS methodology), and compared to the percent error at the removed stations in the full regression model.

Table 5.1 shows the stations removed for the split sample test with the percent errors noted, and Table 5.2 is a summary of the test by region.

Table 5.1: Stations removed from regression for Spilt Sample test

StatNo	2004Regions	Q100(calc)	Q100 (ss)	%diff	%diff (entire sample)
03335500	1	119,359	164,786	38.1%	24.5%
03336000	1	155,856	155,410	0.3%	6.9%
03360100	1	142	140	1.3%	16.3%
03378550	1	10,666	5,326	50.1%	42.2%
03302300	2	7,489	4,143	44.7%	42.2%
03322100	2	11,092	18,224	64.3%	62.6%
03360000	2	48,371	51,158	5.8%	7.0%
03366500	2	37,426	25,925	30.7%	29.3%
03373700	2	17,716	11,009	37.9%	34.8%
03374000	2	185,277	236,515	27.7%	25.6%
03276640	3	462	292	36.8%	19.4%
03291780	3	8,825	10,208	15.7%	14.0%
03302690	3	75	113	50.1%	49.6%
03302730	3	11,916	12,709	6.7%	4.9%
03369000	3	19,954	19,176	3.9%	5.8%
03274880	4	555	633	14.1%	13.4%
03275500	4	21,766	16,757	23.0%	21.0%
03325500	4	11,548	11,510	0.3%	2.0%
03326000	4	20,639	11,888	42.4%	41.6%
03333600	4	1,596	2,031	27.3%	25.9%
03334500	4	16,635	18,503	11.2%	14.2%
03348020	4	1,633	1,952	19.5%	18.5%
03348350	4	6,401	7,376	15.2%	16.3%
03348700	4	130	153	17.6%	14.0%
03349500	4	4,859	7,400	52.3%	53.5%
03358000	4	13,904	15,301	10.0%	12.3%
03361500	4	18,305	22,121	20.9%	23.8%
03364000	4	73,957	58,382	21.1%	18.3%
03365500	4	89,484	60,543	32.3%	30.1%
03332500	5	19,452	17,480	10.1%	3.1%
03333000	5	25,553	18,919	26.0%	19.7%
04093500	5	4,147	3,909	5.7%	3.2%
05523000	5	1,201	1,156	3.8%	4.7%
03332400	6	2,963	2,725	8.0%	13.2%
05515500	6	1,925	3,687	91.5%	74.5%
03324500	7	17,952	18,948	5.6%	10.4%
03327930	7	666	282	57.7%	52.9%
03328430	7	633	1,451	129.4%	80.9%
03329400	7	794	1,667	110.0%	50.2%
03324300	8	14,066	12,770	9.2%	12.3%
04099750	8	2,648	3,974	50.1%	60.0%
04100220	8	905	1,513	67.2%	54.1%
04180000	8	6,025	5,568	7.6%	12.2%
04181500	8	14,822	23,385	57.8%	54.9%

Table 5.2: Split Sample error percentages

Region	(1)	(2)	(3)	(4)
1	22.4%	22.4%	21.8%	29.5%
2	35.2%	33.6%	33.8%	36.8%
3	22.6%	18.7%	25.0%	20.4%
4	22.0%	21.8%	23.0%	22.4%
5	11.4%	7.7%	23.5%	28.8%
6	49.8%	43.8%	43.7%	40.1%
7	75.7%	48.6%	45.0%	44.3%
8	38.4%	38.7%	34.7%	39.5%
Total	30.9%	27.2%	29.1%	---

In Table 5.2, the columns are as follows:

(1) is the average percent error of the calculated discharge for the split sample using the censored regression equation, compared to the calculated peak discharge using flood frequency analysis

(2) is the average percent error of the calculated peak discharge for the split sample using the full regression equation, compared to the calculated peak discharge using flood frequency analysis.

(3) is the average percent error of the calculated peak discharge for the entire sample using the full regression equation, compared to the calculated peak discharge using flood frequency analysis.

(4) is the average model error as calculated from the GLS regression diagnostics, using equation 15.

For most regions the percent error as calculated by these various methods are comparable to each other. This is to be expected, since the regions are mainly homogeneous or possibly homogeneous, and therefore errors inherent within the analysis should be consistent for subsets of the data. The exceptions to this are Region 5, where the split sample errors are much less then the errors for the entire data set, and Region 7, where they are much greater.

The anomalies for these two regions could be due to a number of reasons. The difference for Region 5 is most likely due to a fortunate selection of stations that fit the data unusually well. Note, for example, that station 03333000, Tippecanoe River near Delphi, is in the split sample, while station 03333050, also named Tippecanoe River near Delphi, is not. The second station is actually a replacement of the first located slightly downstream of the original station, and therefore has similar basin characteristics and a similar flood frequency curve. The reduction in the error for the split sample could be a reason for reevaluating the stations for Region 5 and attempting to further reduce the error for the entire sample. However, since there are only 18 stations in Region 5, eliminating further stations would reduce the diversity of basin characteristics at each of the stations in the region, reducing the predictive qualities of the resulting equation. A balance must be struck between having too many stations in a region; resulting in a heterogeneous region, and too few stations; resulting in equations that are not useful for predicting flood frequency flows for basins that have basin characteristics outside of the range of characteristics in the study.

While the split sample for Region 5 had a lower average error than the entire study, Region 7 had a much higher average error for the split sample than for the entire sample. This may be due to the random nature of the stations chosen for the split sample. Three of the four stations removed from the analysis have drainage areas less than 10 square miles, while 10 of the remaining 16 gages have drainage areas greater than 10 square miles (and mostly much greater than 10 square miles). Also, two of the split sample gages (Weesau Creek near Deadsville and Rattlesnake Creek near Patton) are stations with small drainage areas, but fairly long periods of record (31 and 25 years, respectively). This influences the split sample regression to a degree that it is not predicting the peak discharges for the smaller discharges as well as the general model. One of the main advantages of GLS regression over other types of analysis is that the record length is a factor in determining the influence of a station on the model. The nature of the gaging program is such that gaging stations for smaller streams typically do

not have as long record lengths as do the stations on larger streams. Therefore, stations such as those two randomly removed from this analysis have a great bearing on defining the lower end of the model, causing the split sample equation to err unacceptably in predicting the peak flows for these stations.

5.2 Comparison with the IDNR discharge database

The second test that was performed for reviewing the regression equations was to compare them to the IDNR discharge database. The IDNR is responsible for reviewing and approving discharges for use in modeling for Flood Insurance Studies, Construction in a Floodway permits under IC 14-28-1 and other associated acts. In addition, consultants working on bridge designs for county highway projects or Indiana Department of Transportation (INDOT) projects will often request a discharge determination from IDNR, to assure consistency between their design and other projects along the stream. Comparing the regression equations to the IDNR discharges is valuable not only as a check of the equations themselves, but as an evaluation of the IDNR database, and as an impetus for acceptance of the equations by IDNR.

The IDNR methodology is not a single equation or method, but a compilation of a number of methods, with latitude for engineering judgment built in. When a request comes to IDNR, their staff compiles the basic basin parameters needed to evaluate the watershed, including effective drainage area, slope, basin relief, time of concentration and NRCS curve number. With this information, a program is run to compute peak discharges using the following methods:

- Various permutations of the NRCS unit hydrograph method, with different storm durations, rainfall distributions, and rainfall depths
- The USGS regression equations, as determined by Glatfelter

- Another internal regression equation, based on fitting a power equation to previous requests in the database, with effective drainage area as the regressor value

- A query of the database for previous requests on the same stream
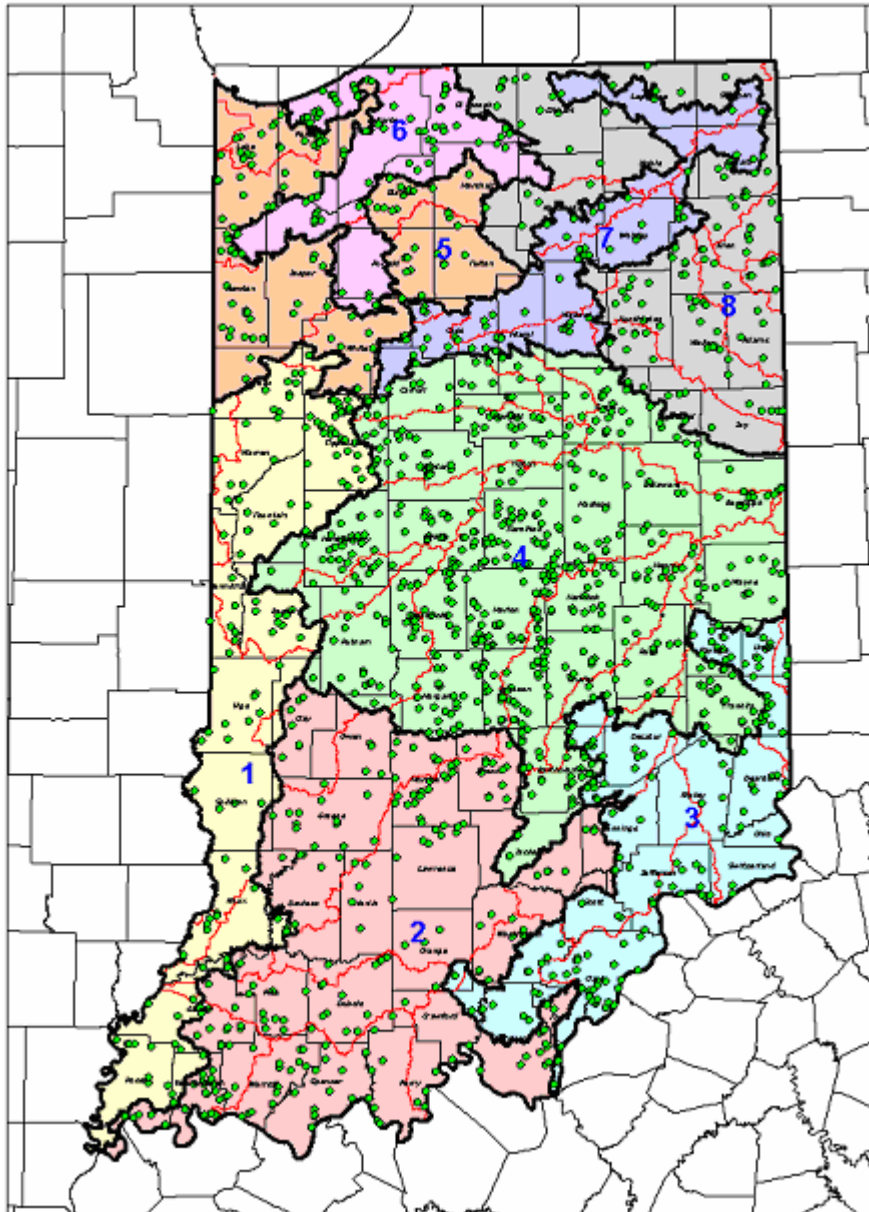
Figure 5.9 Locations of IDNR Discharge requests

- A query of the database for requests on streams in the vicinity with similar basin parameters (effective drainage area, slope)

- A query of gage stations in the vicinity, with flood frequency curves calculated

- A summation of nearby coordinated curves, with discharge values calculated using effective drainage area of the request.

From these data, IDNR engineers review and select a final peak discharge to be used based on an examination of all of the above factors. While this introduces subjectivity to the process, it also allows for the adjustment of the final discharge based on local knowledge of the site, previous determinations in the area, and reasonableness of the final answer.

For this test, the IDNR database was queried for all requests completed since 1995, a total of 1476 data points. The IDNR database includes UTM coordinates as an entry, so these values can be plotted geographically using ARC. Figure 5.9 shows the location of the IDNR requests overlaying the regions determined for this study. The region associated with each request can be assigned using the spatial join function within ARC. The IDNR database also includes entries for effective drainage area and slope (determined using the 10-85 method), which conform to the methodology used to derive the regression parameters.

%U is estimated indirectly using the curve number calculations carried out for each request. IDNR staff estimate various land use features in the watershed by inspection of the USGS 7 ½ minute quadrangle maps and assigning each land use category a percentage of the watershed. For this study, the percentages used for "suburban residential", "urban residential" and "urban industrial" are added and used as an estimate for %U. %W is another matter; in reviewing the IDNR data, it was apparent that using the 7 ½ minute quadrangle maps to estimate the percentage of water and wetland areas in a watershed was inconsistently applied. Therefore, the %W is estimated (for only the northern regions) by determining the 14-digit HUC watershed the request point lied in,

then using %W for the entire 14 digit HUC watershed from Appendix D. The sheer volume of discharges in the database precluded calculating the %W for each watershed individually. A spot check of a selection of watersheds confirmed that for the majority of cases, the %W for the 14 digit HUC watershed was an adequate estimate for the %W of the subject watershed.

With the parameters calculated for each entry in the IDNR database, it is simple to apply the regression equations for each region and calculate the peak discharge, along with the 95% confidence limits. This discharge can then be compared to the discharge IDNR determined, and conclusions drawn. Figures 5.10 through 5.17 are plots of the IDNR discharges, the regression peak discharges and the upper and lower 95% confidence limits. A trend line, in the form of the standard power equation, is fit to examine the overall trend. Various observations from these plots are as follows:

- For the southern regions (1, 2 and 3), the regression discharges are lower than the IDNR by about 10% -15%. Note that Region 3 features the closest relationship between IDNR discharges and the regression discharges. This confirms the homogeneity test results and the regression diagnostics since Region 3 has the highest homogeneity measures and the lowest error for the regression statistics. Therefore, the conclusion is that for whatever method used, the estimate of the discharges for Region 3 are most likely to be accurate.

- For Region 4 (the central region), the IDNR discharges are about a 10%-15% higher than the predicted discharges. This is most likely due to a number of factors, including the failure of the regression equations to include a factor for urbanization (in Regions 1-3); the inclination for IDNR discharges to err on the side of conservatism, and/or the perpetration of older discharge values (which are estimated conservatively) over the years as they become the basis for newer determinations.
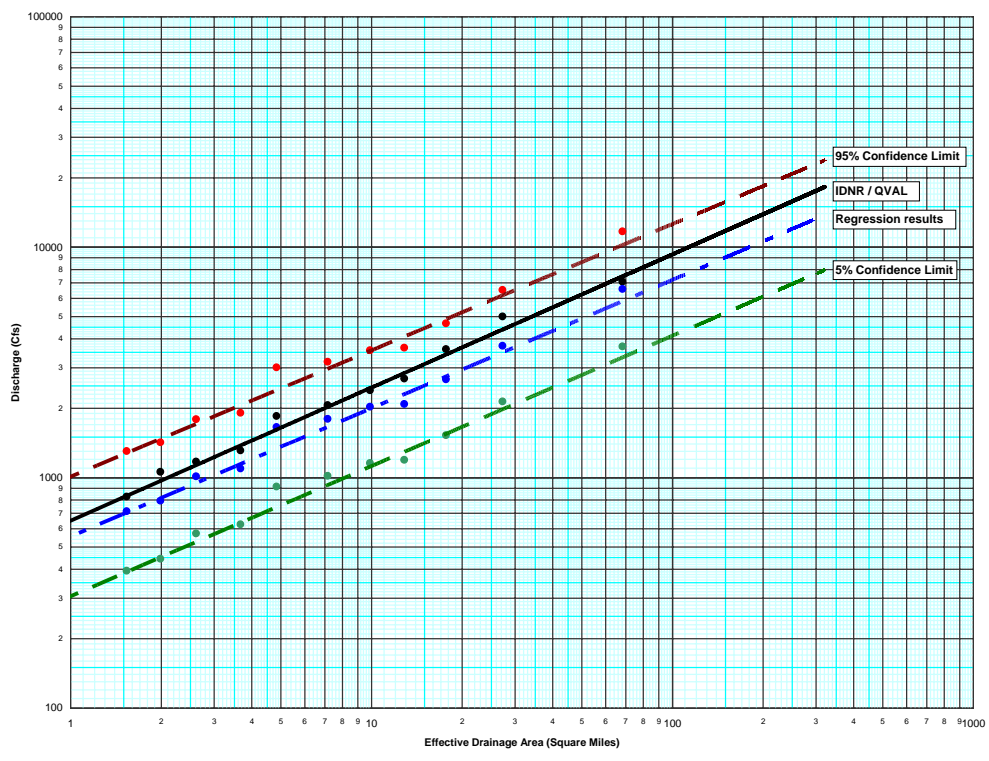
Figure 5.10: IDNR discharge requests compared with regression results for Region 1
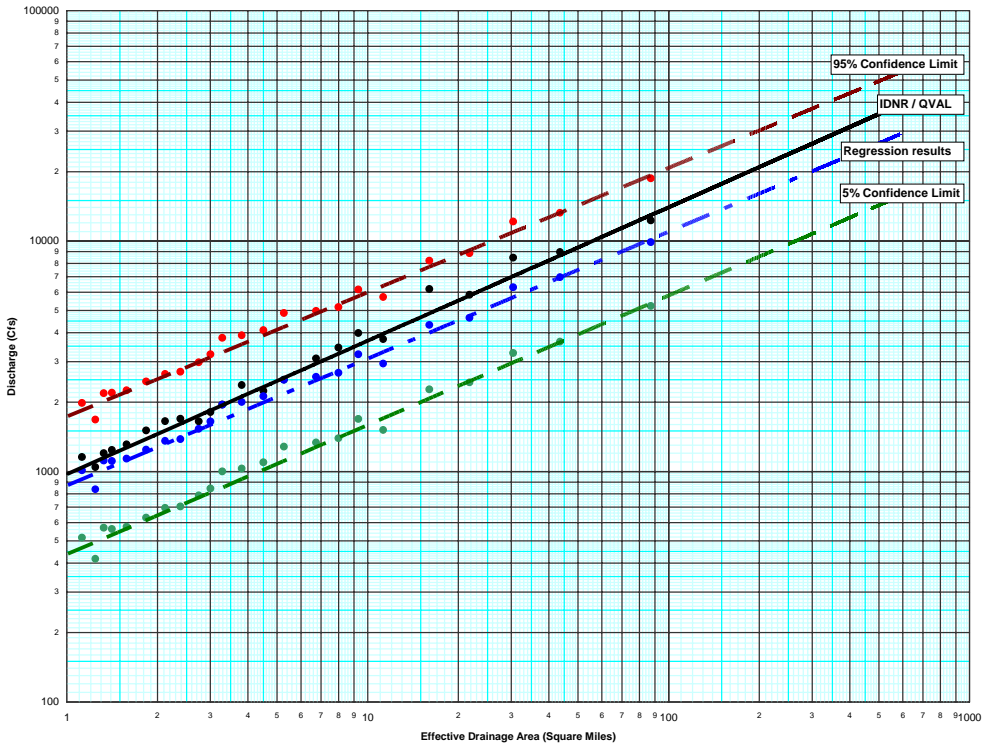
Figure 5.11: IDNR discharge requests compared with regression results for Region 2
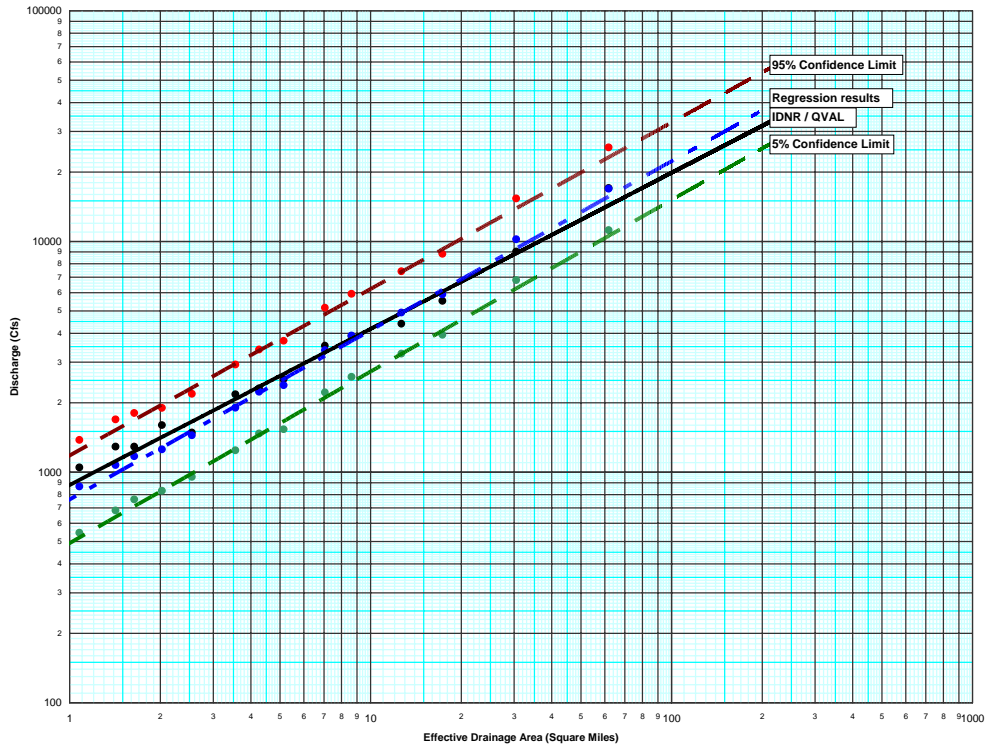
Figure 5.12: IDNR discharge requests compared with regression results for Region 3
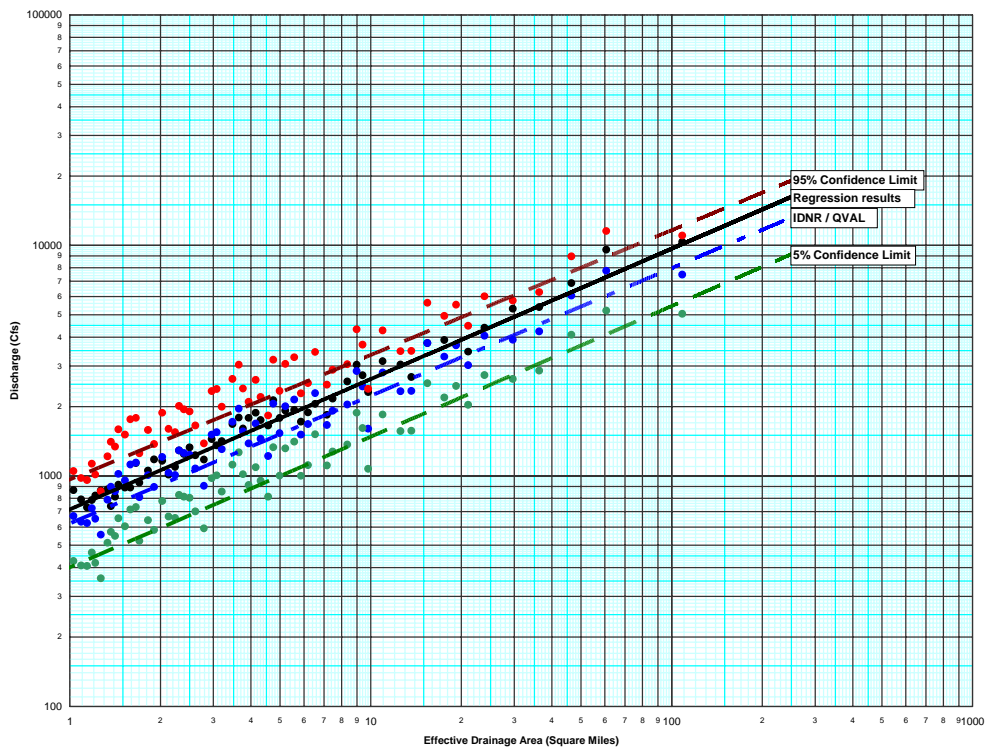
Figure 5.13: IDNR discharge requests compared with regression results for Region 4
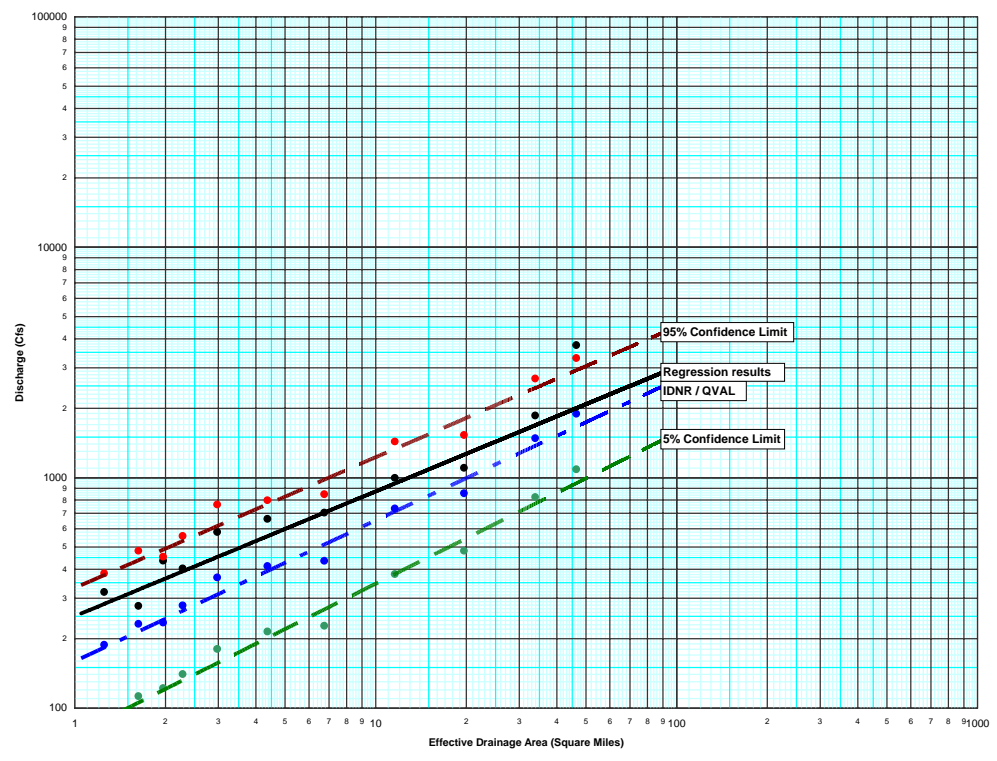
Figure 5.14: IDNR discharge requests compared with regression results for Region 5
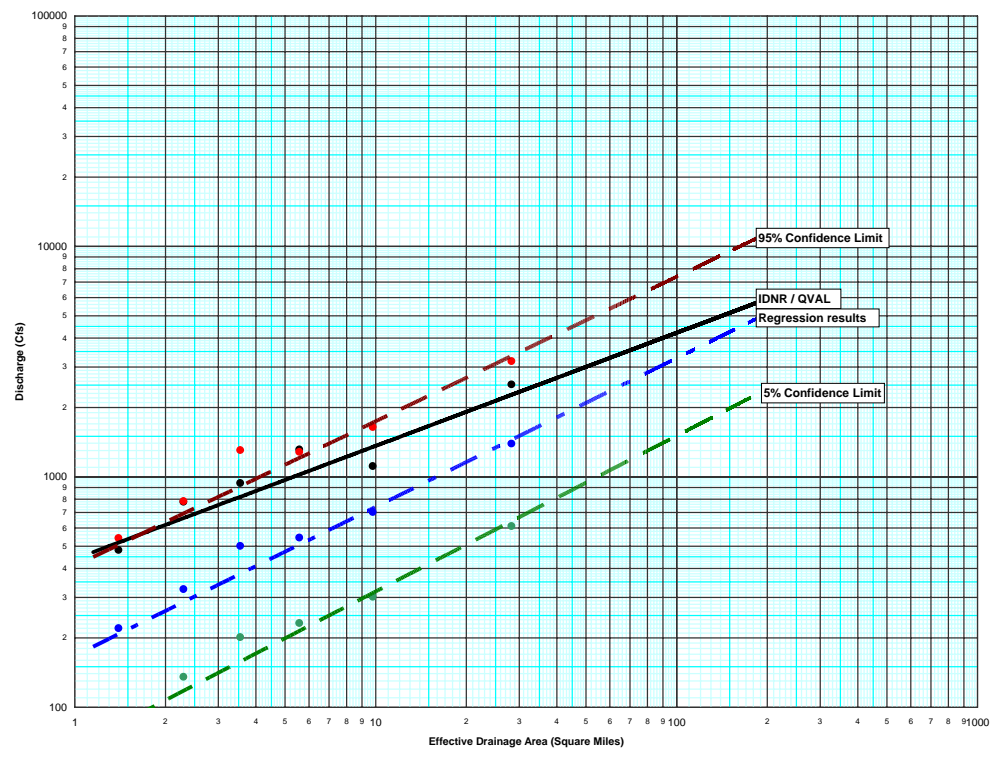
Figure 5.15: IDNR discharge requests compared with regression results for Region 6
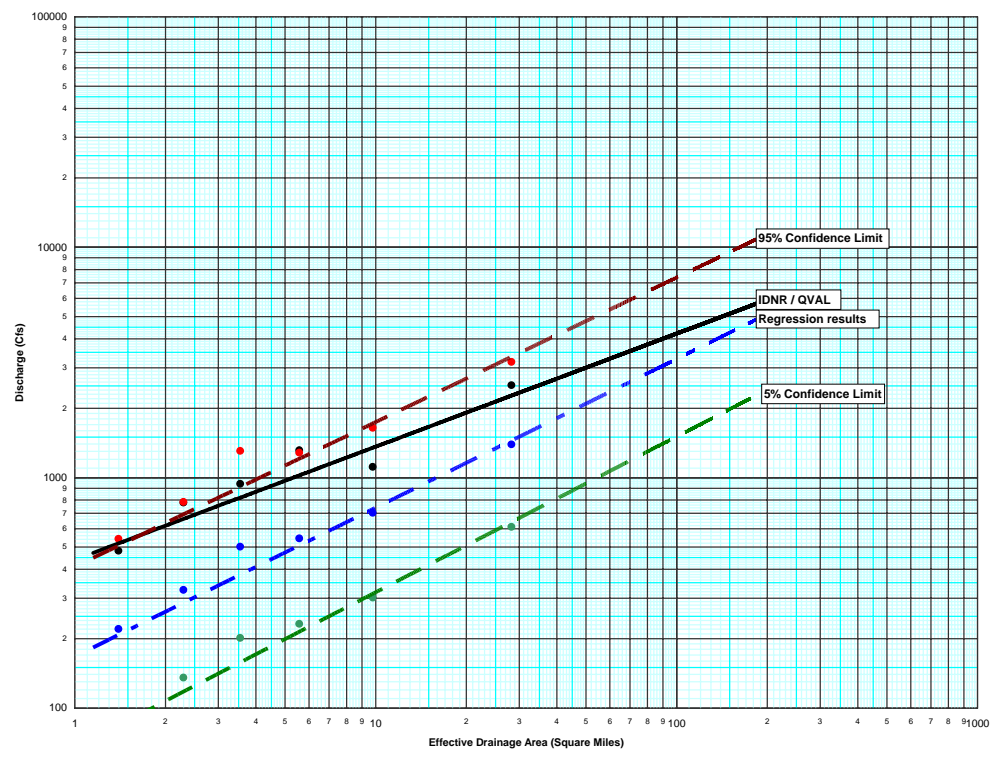
Figure 5.16: IDNR discharge requests compared with regression results for Region 7
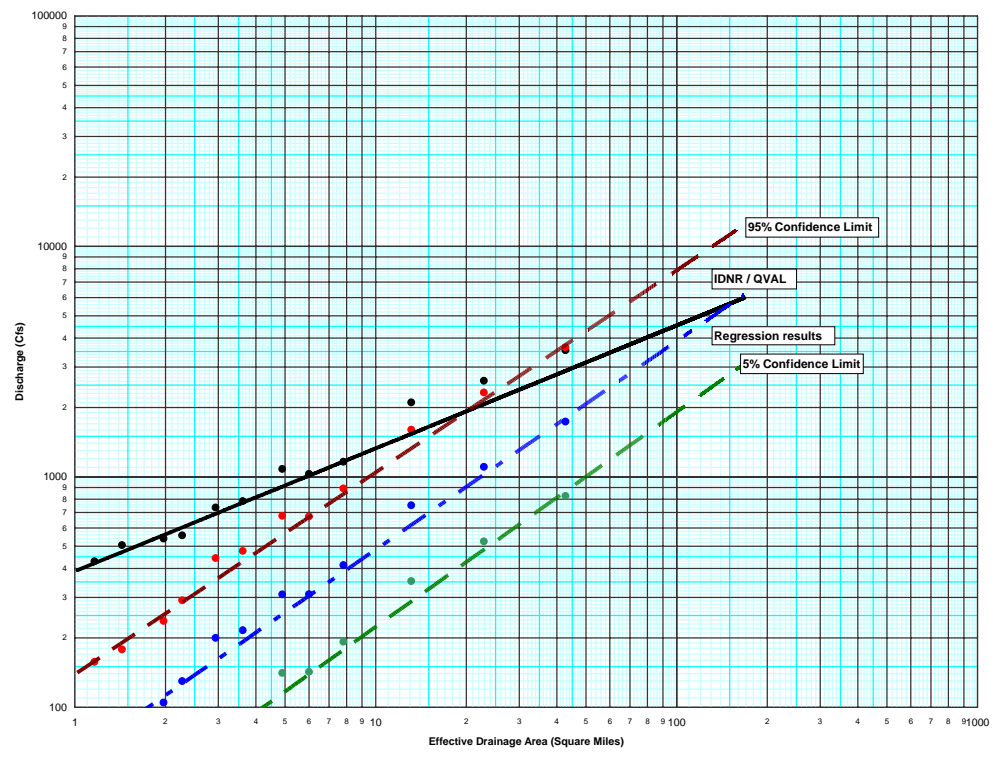
Figure 5.17: IDNR discharge requests compared with regression results for Region 8

- The differences between discharges for the northern regions (5 through 8) are larger (in the same direction) than for the southern regions, 30% and greater. Also, the slope of the trend line is different between the two methods, with the larger differences for smaller drainage areas. This is due to the reasons listed above for the southern regions, and also due the method for estimating %W, which would tend to be misestimated for smaller drainage areas. Region 8 has the largest difference between the two methods, for smaller drainage areas they hardly agree at all. They are off by so much that caution should be applied to estimating discharges for small watersheds in this region, for common sense would indicate that peak discharges for the 100 year frequency flood would be greater than what is predicted by the equations.

- Generally, the IDNR database is focused on smaller streams with relatively small drainage areas, since the location of these determinations reflects development pressures, which are greater around smaller streams than they are on larger rivers. However, the regression equations are based largely on larger streams with larger drainage areas, which is where the stream gages with the most years of record are located. Therefore, this analysis highlights the problems related to estimate the flood discharge from small areas by using regression equations.

5.3 Adjustment for Urbanization Effects

One of the weaknesses of the regression equations presented here is that, with the exception of Region 4, the urbanization factor is not included as a variable. This is due to the fact that for the majority of regions, the gaging stations are located in rural areas, and therefore do not have large enough urbanization effects to reflect in the analysis. The exception is Region 4, which has a number of stations in the metropolitan Indianapolis area that have high urbanization factors.

Urbanization impacts flood discharges, since rooftop areas and paved surfaces prevent rainfall from infiltrating the soil as would happen with undeveloped areas, and therefore

results in an increase in peak discharge. This can be seen by examining the regression equations for Region 4; the coefficient for the urbanization factor is positive, meaning that the discharges are larger for larger urbanization factors.

For planning and design purposes, it is important to have a method for estimating the effects of urbanization in a watershed. For many purposes it is advantageous to determine "future conditions" hydrology, for the purposes of estimating discharges based on a full urbanization of the watershed. Determination of these types of discharges are used to mitigate the effects of urbanization, whether it is for localized or regional detention structures, other larger scale flood control structures, or more restrictive floodplain regulations in downstream areas. In section 5.4 of this report the application of these equations for future conditions are demonstrated.

For Region 4, the regression equations already have the urbanization factor built into them, and therefore an extension of this method is unnecessary. For the other regions, the comparison between the regression equations and the IDNR database discharges are used to estimate an "urbanization adjustment factor" similar to the adjustment in Region 4. For this purpose, the regions are grouped into two sets, a southern region (Regions 1-3) and a northern region (Regions 5-8). For each of these regions, the IDNR database values used in the general comparison are further queried for evaluations that are less than 20 square miles and have urbanization factors greater than 15%. The results for each region are shown as a log-log plot with fitted lines in Figures 5.10 and 5.11. The regression values were then adjusted by the following formula:

$$Q_{adj} = Q_{regr}(\%U + 1)^x \tag{24}$$

where x is the exponent related to the urbanization factor, which is to be determined. One is added to the urbanization factor only to have it in a similar form to the other percentage factors in the regression equations, which have one added to them to avoid zero values in the regression. Using EXCEL, the trend line for the adjusted discharge

values is then plotted assuming a constant value for x. The value of x is then varied until the adjusted trend line matches the IDNR trend line, as shown in Figures 5.10 and 5.11.

Appling this method to the two combined regions, the value for x is determined to be .06 for the southern basins and .15 for the northern basins. This is compared to a value of .072 to .08 determined by regression for Region 4. It makes sense that x is lower for the southern regions than for the northern regions. The effect of adding impervious surfaces to a watershed in the northern region would be greater since infiltration losses are greater and natural wetland depression areas are common in that area. The effect would be generally less in the southern region, where depth to bedrock is often shallow, and therefore infiltration is less than what would be expected in a northern watershed. However, the slope of the respective fit lines for the northern region is markedly different between the regression discharge line and the IDNR discharge line.
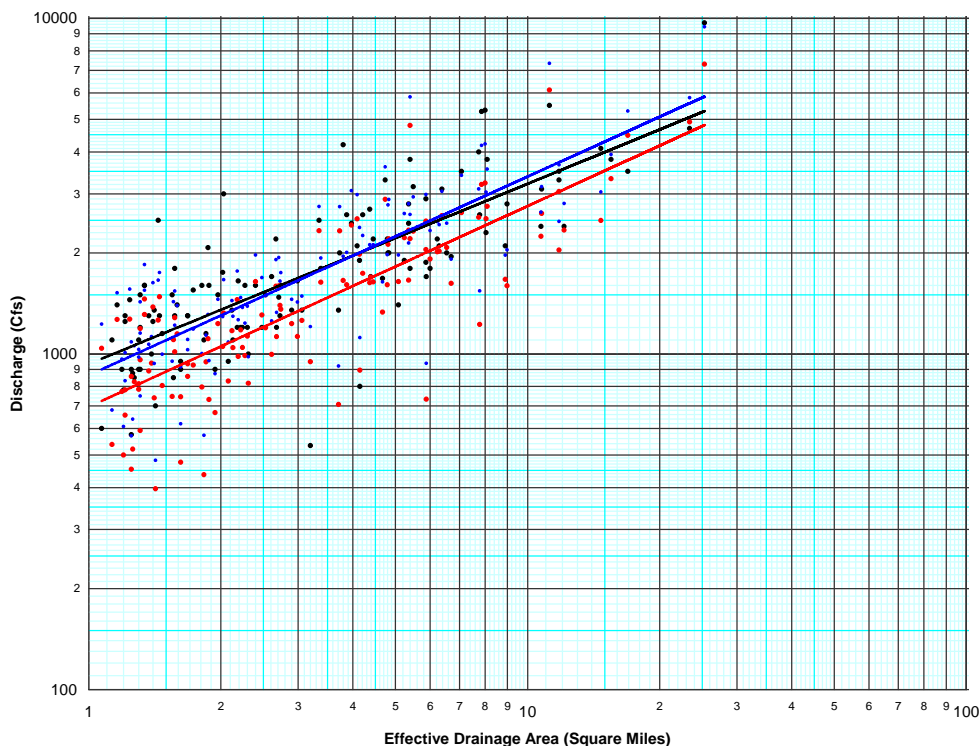
Figure 5.10: Adjustment of the regression results for urbanization effects for southern basins
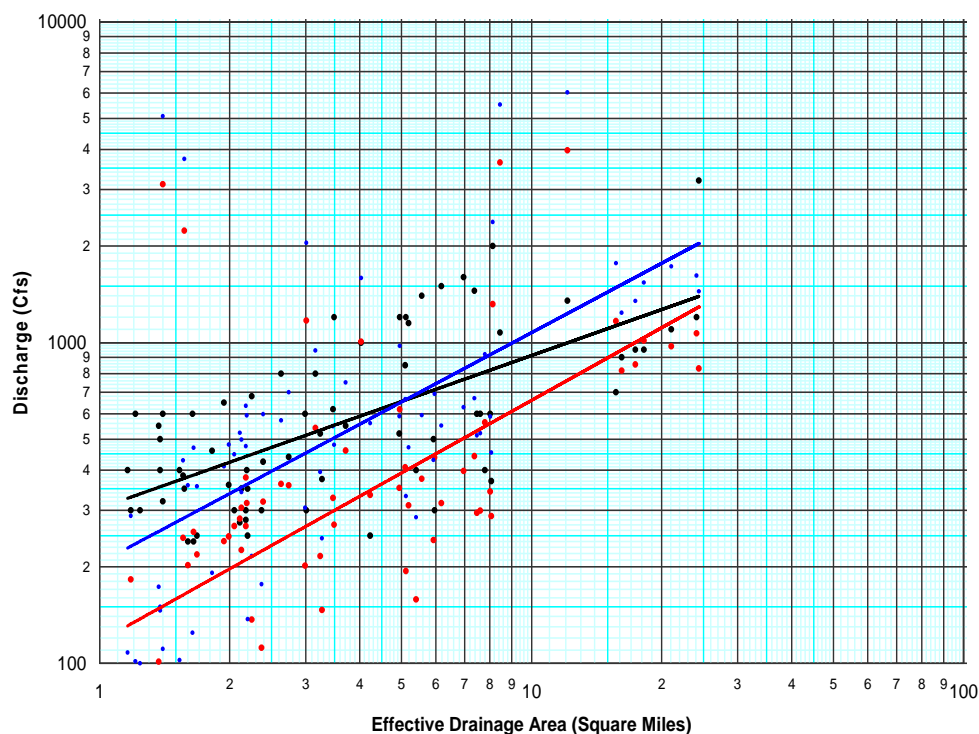
Figure 5.11: Adjustment of the regression results for urbanization effects for northern basins

5.4 Gaps in Regionalization

Many times there can be local gaps in the regions that are too small to be considered a separate region, but do not fit the more generalized regional relationship. This is especially true for hydrologic regionalization, where the variation of basin characteristics in adjacent watersheds is common. An example of this phenomenon is seen in examination of an area in western Hancock and southeastern Marion County. Figure 5.20 shows a map of the gaging stations in this area, with two stations highlighted. These two stations, 03361650, Sugar Creek at New Palestine, and 03361850, Buck Creek near Acton, are similar stations in size, location and each have a period of record of 36 years through 2003.

Table 5.3: Summary of 100-year discharges for Sugar Creek and Buck Creek

Gage No	Name	DA (sq mi)	Q(calc) (cfs)	Q(regr) (cfs)
03361650	Sugar Creek at New Palestine	93.9	2585	20800
03361850	Buck Creek near Acton	78.8	6644	14200

From the results in Table 5.3 it can be seen that the 100-year peak discharges predicted by the regression equations for these two gages (which are in Region 4) are much greater than the 100-year peak discharges calculated from the flood frequency curve for these gages. Western Hancock County is noted for having poor natural drainage, with small differences in relief and soils classified as silt loams or silty clay loams. Whatever the reason, this portion of Region 4 is noted as a local anomaly as compared with the majority of the region. Therefore, application of the predictor equations without further investigation would result in an overestimation of the flood frequency discharges. It is advisable to review predicted discharge values with other methods, previous determinations, and nearby gage information.
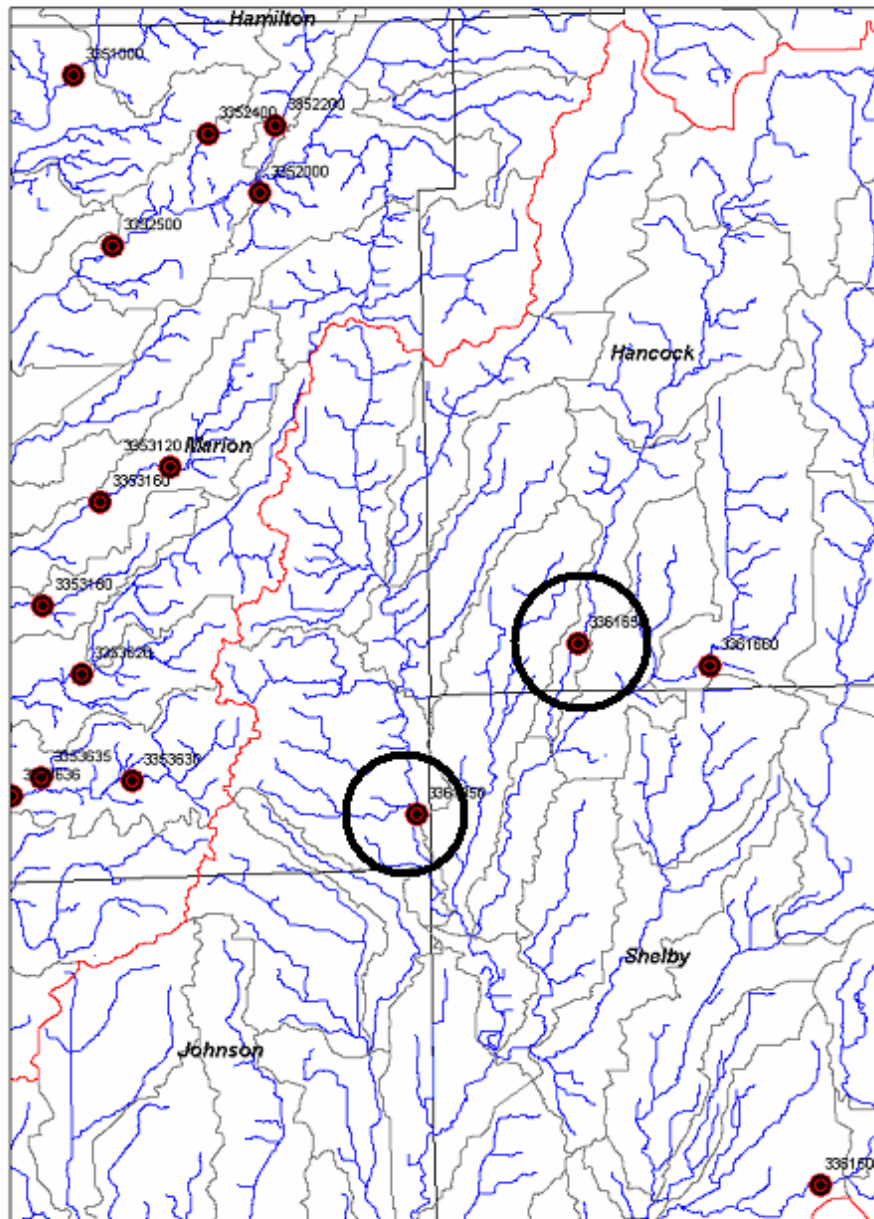
Figure 5.20: Gage locations in southeastern Marion County and western Hancock County

VI. APPLICATION OF THE PREDICTION EQUATIONS

6.1 EXCEL Spreadsheet for Calculating Peak Discharges

To accommodate the application of the various equations from this study, a Microsoft EXCEL spreadsheet has been developed. The spreadsheet features entries to document the various site characteristics of the peak discharge site, for archival purposes and for ease of review. Many of these entries are designed as restricted cells, where only certain entries are allowed. This requirement is important for the normalization of the site location data in a database application to track determinations (such as the IDNR's Discharge Determination Database). Normalization of input data in a database system results in accurate querying, which increases confidence that relevant data is extracted with any query. An example of the spreadsheet is given in Figure 5.1.

The calculation of the peak discharge values are keyed on the variables that are included in the regression equations, Region, Effective Drainage Area, Slope, %Water, and %Urbanization. The resulting discharges for all of the return periods featured in this study are presented to three significant figures, which is an appropriate level of precision for these equations. Many engineers make the mistake of presenting the results of hydrologic studies to a precision that is not justified by the general accuracy of the methods applied. Also calculated by the spreadsheet are 95% confidence interval limits, which would be difficult to calculate by hand, since the equation for these limits features matrix algebra and Student's T distribution. Lastly, the urbanization adjustment described in Chapter 4 is also calculated where appropriate. The ease of applying the spreadsheet to determine peak discharges allows for sensitivity analyses and for the determination of future conditions hydrology for urbanizing basins.

	Purdue University						
PURDUE	School of Civil Engineering						
UNIVERSITY	Estimating Peak Discharges for Streams in Indiana						
	June 2004						
Stream Name	Sand Creek						
Location	at County Road 500 West						
at/near	near			**Section**		19	
Town	Westport			**Township**		8N	
County	Decatur (16)			**Range**		9E	
Region	3			**HUC 8**		5120206	
Contributing DA	122.37	mi^2		**DNR Basin**		21	
Slope (10-85)	10.82	ft/mi		East Fork White River (below Columbus)			
%Water	0.487			**UTM East**		623243	
%Urban	2.45			**UTM North**		4332358	
				UTM Datum		NAD 27	

				Confidence Limits		
	Computed Q			0.05 limit	0.95 limit	
	(cfs)			(cfs)	(cfs)	
10 Year	14400			9810	21200	
25 Year	18300			12700	26400	
50 Year	21300			14700	31000	
100 Year	24600			16700	36100	
200 Year	27900			18400	42300	
500 Year	32800			20600	52200	

Urbanization Adjustment	
	Computed Q
	(cfs)
10 Year	15600
25 Year	19800
50 Year	23100
100 Year	26700
200 Year	30200
500 Year	35500

Figure 6.1: Output of regression equation results from EXCEL Spreadsheet

Example 1: Sand Creek in Decatur County

The first example of the application of these equations will go into the details of determining the various parameters needed to determine peak discharges.   The site chosen for this example is Sand Creek at the County Road 500 West bridge in Decatur County, south of Westport. Figure 6.2 is the USGS 7 ½ minute quadrangle map for this location. Based on the region map, this site is in region 3.
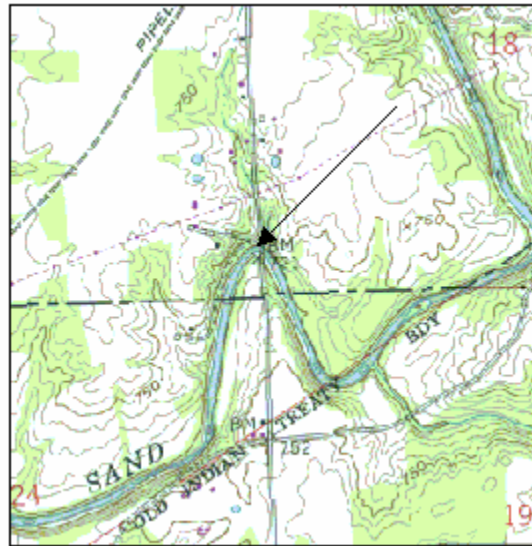
Figure 6.2: USGS 7 ½ minute quadrangle map of Sand Creek at Decatur County Road 500 bridge

Figure 6.3 is the depiction of the drainage area delineation above the bridge.   The basin delineation is derived from the 14-digit HUC subbasin delineations published by USGS (DeBroka, 1999). From these GIS ARC coverages, basins that are above and including this area are separated out into a separate coverage. The subbasin at the site is then clipped to remove areas that drain to Sand Creek below the bridge. These separate subbasins are then merged into one combined polygon, and GIS tools are used to determine the total drainage area. For this basin, the drainage area is 122.37 square miles.
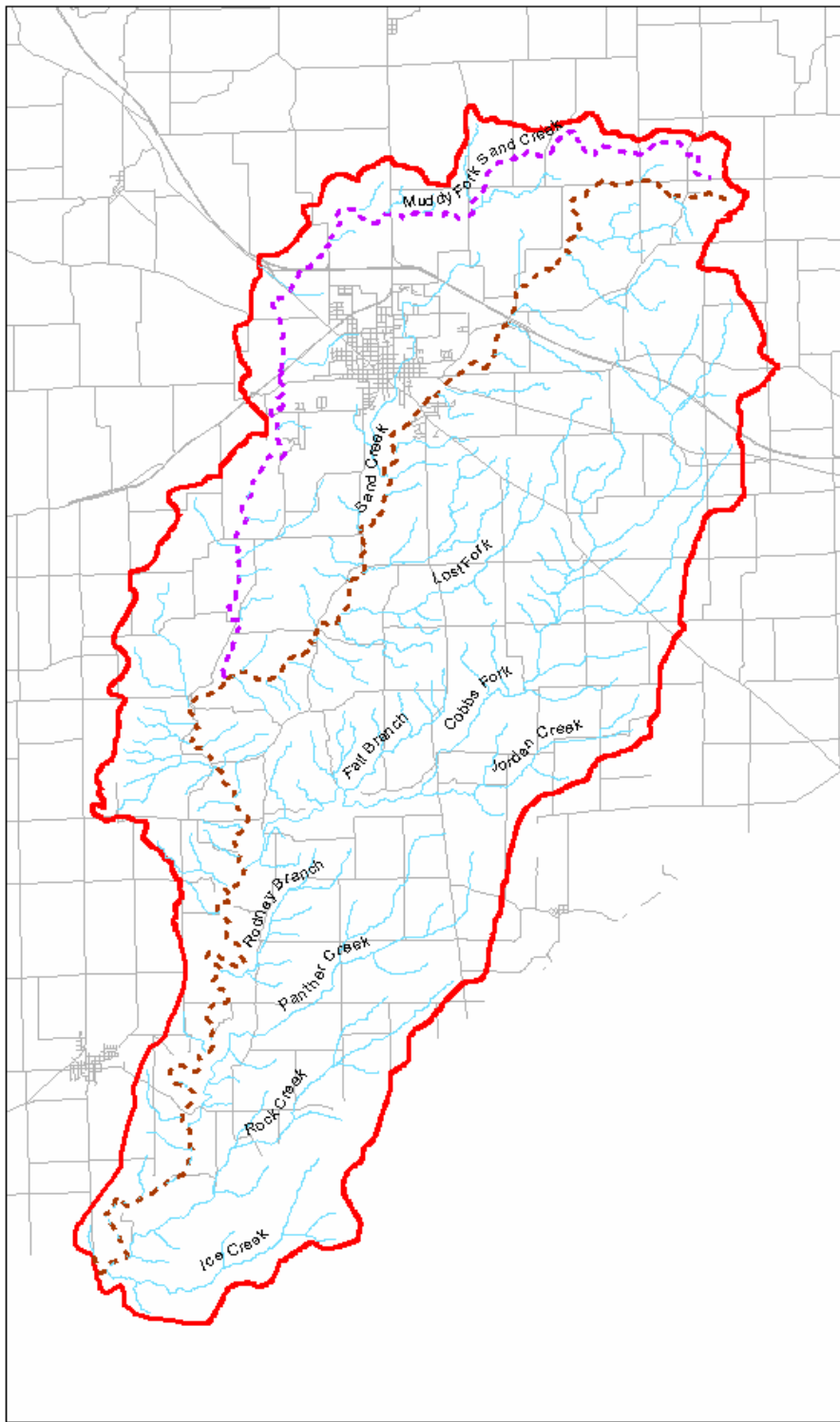
Figure 6.3: Basin delineation of the Sand Creek watershed at Decatur County Road 500 bridge

The slope of the stream channel is calculated using the USGS 7½ minute quadrangle maps and various GIS coverages of stream features and hypsography derived from the 7½ minute quadrangle maps. The first step in calculating the slope is to determine the longest drainage path to the site. The total length of Sand Creek above this site to the drainage area divide is 31.43 miles. However, the basin should be examined to determine if a tributary drainage path might actually be longer than the main stem drainage path. In this case, measuring the drainage path of Muddy Fork Sand Creek tributary results in a length of 34.46 miles.

Once the length is determined, then the slope is determined by finding the elevations at 10% and 85% of the length, and then dividing the elevation difference by the length. To determine the elevations from the USGS 7 ½ quadrangle maps, find where contours cross the stream upstream and downstream of these points, then interpolate between the two elevations to estimate the needed elevation. Slope is then calculated by the equation

$$Slope_{10-85} = \frac{E_{85} - E_{10}}{.75L} \tag{23}$$

For the main stem slope, the calculation is:

$$Slope_{10-85} = \frac{961 - 706}{.75 \; x \; 31.43} = 10.82 \, ft/mi$$

For the stream slope using the Muddy Fork Sand Creek path:

$$Slope_{10-85} = \frac{967 - 706}{.75 \; x \; 34.46} = 10.10 \, ft/mi$$

For this example, 10.82 feet / mile is used as the critical slope.

The other variables needed are the percentage of the watershed that is urbanized, and the percentage of the watershed that is standing water or wetland areas. To determine these

parameters, the land use coverage for this 8-digit HUC coverage (05120206) derived for use with these equations is used. The drainage area coverage created in the initial step is used to clip the relevant polygons out of the land use coverage. Since the areas listed in the clipped coverage table are not updated during the clipping process, the areas of each particular polygon are then recalculated. Then the coverage can be queried on the "Gridcode" field for values representing wetlands and water (values 11, 91 and 92) and urbanized areas (21, 22 and 23). These areas are then added and divided by the total drainage area to determine the percentage of water and urbanization. For this example, %W = .48, indicating very little standing water or wetlands, and %U = 2.45, which represents the city of Greensburg, which is in the upper part of the watershed.

These parameters are then entered into the spreadsheet, which is updated automatically. Table 6.1 presents the computed discharges and the upper and lower 95% confidence limits.

Table 6.1: Regression results for Example 1

	Computed Q	Confidence Limits	
		0.05 limit	0.95 limit
	(cfs)	(cfs)	(cfs)
10 Year	14400	9810	21200
25 Year	18300	12700	26400
50 Year	21300	14700	31000
100 Year	24600	16700	36100
200 Year	27900	18400	42300
500 Year	32800	20600	52200

Example 2 -- Bigler Ditch / Black Creek in Noble County

In determining the boundary of the various regions, consideration of basin divides was one of the factors incorporated into the region divides. However, there are areas where a region divide does cross a stream. Proper application of the regression equations require that the location of the point of the discharge determination indicate the equation to be applied. Therefore, allowances may need to be made for determinations made on these streams.

Bigler Ditch / Black Creek in DeKalb County is one such stream. Figure 6.4 shows the location of each of the sites used in this example. The upstream portions of this stream system are in Region 7, while the downstream reaches are in Region 8. For this example, 4 points are chosen along the stream, 2 in each region. Table 6.2 lists the watershed parameters for each site:

Table 6.2 Basin Parameters and Calculated Discharges for Bigler Ditch / Black Creek Discharge points

Site	Location	Region	DA (sq mi)	Slope (ft/mi)	%W %	%U %	Q100 (cfs)
1	County Road 300 South	7	5.13	21.06	2.41	0	548
2	County Road 300 South	7	12.87	12.34	3.62	0	771
3	County Road 400 South	8	15.5	12.02	3.64	0	465
4	State Road 205	8	21.7	6.58	2.95	0	691

Reviewing the results from the application of the equations at these sites indicates an unreasonable result, where the discharges are lower for the downstream sites than for site 2 upstream. There are no discernable reasons for discharges to be lower for larger drainage areas, therefore these results should be questioned. The regionalization is not of a sufficient accuracy to definitively determine where the break between Region 7 and Region 8 actually is located. Such problems exist irrespective of the method of regionalization used.

A number of different schemes could be applied to address this situation; in this case, what is done would be to determine the discharge values at each point using both equations. Then each of these points can be plotted on a log-log plot of drainage area vs. discharge, and a power equation is fitted to each of the points for each region. An average of the two power equations are then determined by fitting a power equation to all eight points. Figure 6.4 is the log-log plot of the different power equations, and Table 6.5 lists the results from these different calculations.
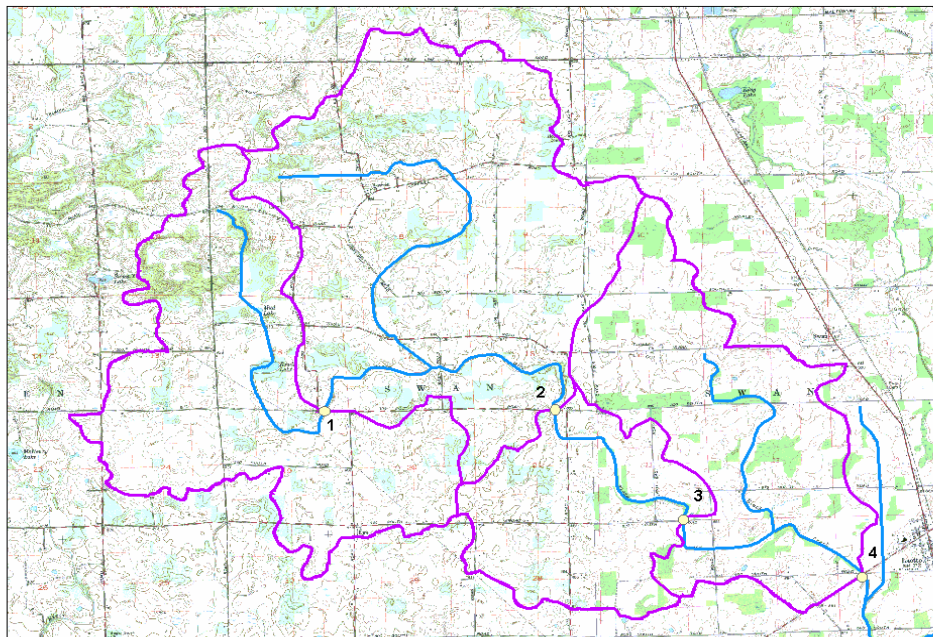
Figure 6.4: Bigler Ditch / Black Creek watershed delineation with discharge determination points
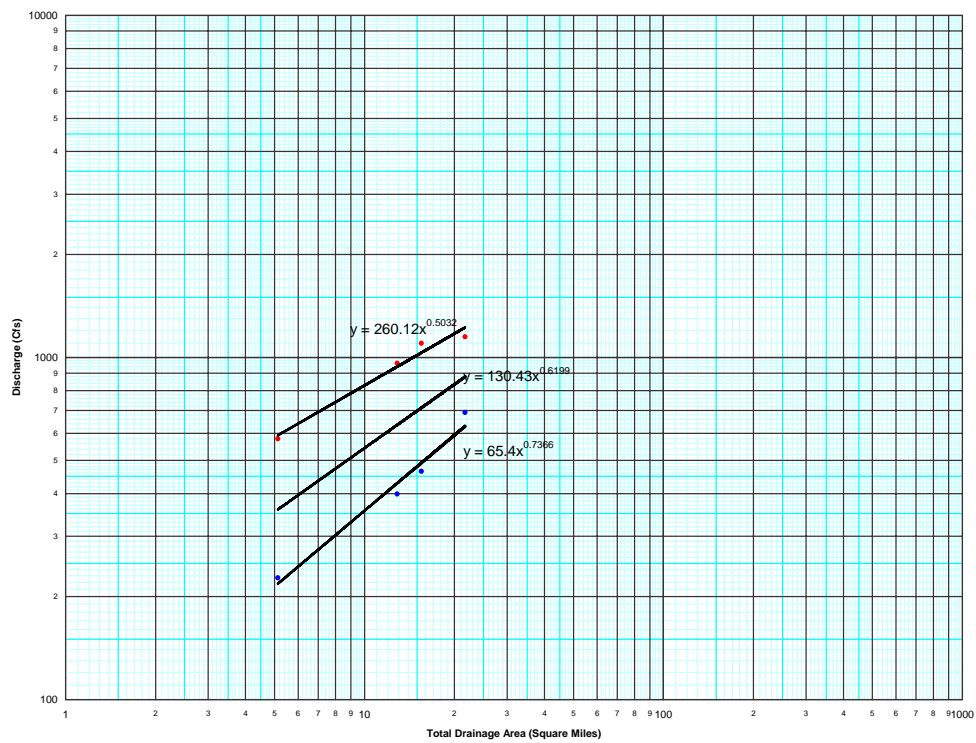
Figure 6.5: Log-Log plot of calculated discharges using Region 7 and 8 equations

Table 6.3 Calculated Discharges for each Bigler Ditch / Black Creek discharge point

Site	Location	Q100 (7) (cfs)	Q100 (8) (cfs)	Q100 (cfs)
1	County Road 300 South (u/s)	548	227	359
2	County Road 300 South (d/s)	771	399	636
3	County Road 400 South	891	465	713
4	State Road 205	1091	691	879

For regional studies or watershed-scale investigations (such as a Flood Insurance Study), peak discharges are usually determined at a number of points along the stream. For site specific studies (such as sizing a bridge), the modeler should recognize this problem, and determine an appropriate remedy to be sure the appropriate discharge is used for design.

Example 3 -- Mill Creek in Putnam County

Appendix D gives a list of basin characteristics for each 14-digit HUC subbasin in the state of Indiana. This list can be used to determine the basin characteristics for a site without clipping the land use coverages, which can be hundreds of thousands of different polygons for large watersheds. For this example, the site is Mill Creek above Rhodes Creek in northern Putnam County (Figure 6.6).

Ten 14-digit HUC subbasins are in the Mill Creek watershed above Rhodes Creek. No clipping of the original subbasins is necessary, since the location chosen is at a 14 digit boundary. Figure 6.7 is a map of the subbasins making up the entire drainage area. From Appendix D, Effective Drainage Area, %Water and %Urbanization are estimated. Slope is computed in the normal way using USGS 7 ½ minute quadrangle maps, which is calculated as 21.64 ft/mi.
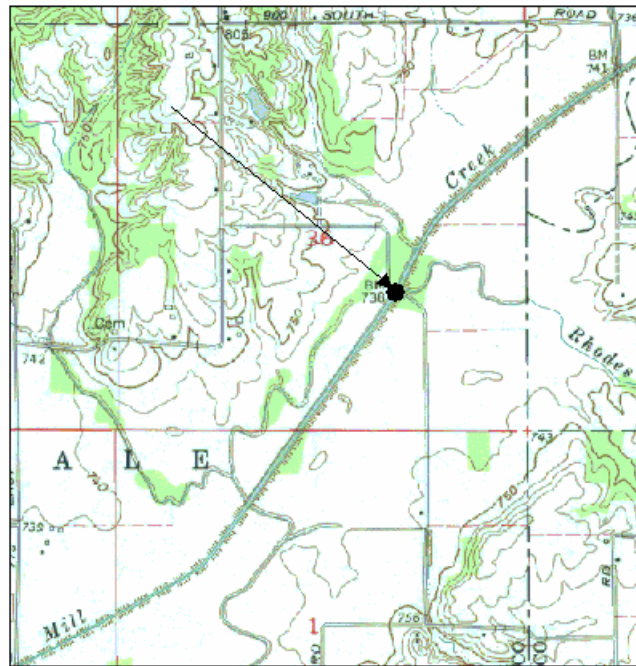
Figure 6.6: USGS 7 ½ minute quadrangle of Mill Creek above Rhodes Creek

Table 6.4 is an excerpt from Appendix D for the appropriate subbasins.

From the table, the Effective Drainage Area is computed simply by adding all of the subbasin areas (no adjustments for non contributing areas are necessary, since the values in the table are all zero). %W and %U are calculated by multiplying the percentages for each subbasin by the subbasin area, which results in the amount of area that is either water or urban areas. These areas are then added together, and divided by the total area to determine the percentage for the entire area. The summary of the parameters is given in Table 6.4, and the results from the predictive equations are given in Table 6.5.
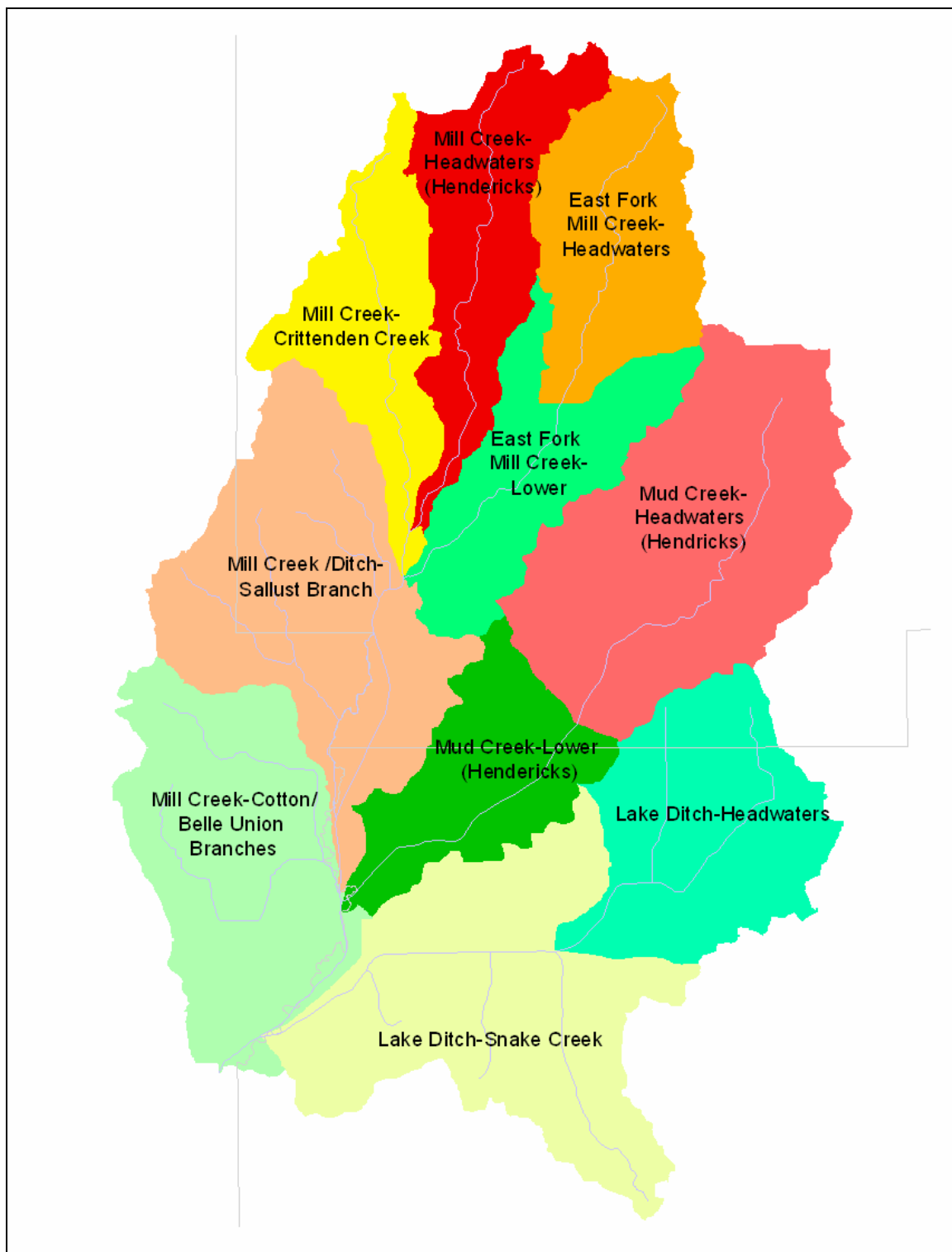
Figure 6.7: 14 Digit HUC subbasins for Mill Creek Watershed

Table 6.4: Excerpt from Appendix D for Mill Creek basin

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120203060010	Mill Creek-Headwaters (Hendericks)	12.68	0.23	1.14	0.00	4
05120203060020	Mill Creek-Crittenden Creek	11.58	0.19	0.16	0.00	4
05120203060030	East Fork Mill Creek-Headwaters	12.82	0.12	0.31	0.00	4
05120203060040	East Fork Mill Creek-Lower	11.68	0.09	0.09	0.00	4
05120203060050	Mill Creek /Ditch-Sallust Branch	23.61	0.34	1.42	0.00	4
05120203060060	Mud Creek-Headwaters (Hendricks)	25.61	0.04	1.45	0.00	4
05120203060070	Mud Creek-Lower (Hendericks)	10.83	0.15	1.03	0.00	4
05120203060080	Lake Ditch-Headwaters	15.95	0.09	0.75	0.00	4
05120203060090	Lake Ditch-Snake Creek	24.89	0.53	0.37	0.00	4
05120203060100	Mill Creek-Cotton/Belle Union Branches	20.14	0.18	0.47	0.00	4
Sum		169.78	0.22	0.79	0.00	4

Table 6.5: Regression results for Mill Creek above Rhodes Creek

	Computed Q (cfs)	Confidence Limits	
		0.05 limit (cfs)	0.95 limit (cfs)
10 Year	17800	11700	27300
25 Year	22700	14900	34500
50 Year	26300	17300	40100
100 Year	29800	19500	45500
200 Year	33400	21700	51500
500 Year	38200	24400	59700

Another problem that many engineers and planners may face is estimating the effects of urbanization on flood frequency flows for future conditions planning. Typically, development of a watershed area results in a loss in infiltration of rainfall, due to impervious areas from paved surfaces and rooftops. This normally results in higher peak discharges, since rainfall that would be lost now becomes runoff, and increases the volume of water in the stream. Therefore estimating future conditions hydrology is an important planning tool to mitigate damages that would occur from upstream development.

Table 6.6: Excerpt from Appendix D for Mill Creek basin, with increase in urbanization

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120203060010	Mill Creek-Headwaters (Hendericks)	12.68	0.23	1.14	0.00	4
05120203060020	Mill Creek-Crittenden Creek	11.58	0.19	0.16	0.00	4
05120203060030	East Fork Mill Creek-Headwaters	12.82	0.12	75.00	0.00	4
05120203060040	East Fork Mill Creek-Lower	11.68	0.09	75.00	0.00	4
05120203060050	Mill Creek /Ditch-Sallust Branch	23.61	0.34	1.42	0.00	4
05120203060060	Mud Creek-Headwaters (Hendricks)	25.61	0.04	75.00	0.00	4
05120203060070	Mud Creek-Lower (Hendericks)	10.83	0.15	1.03	0.00	4
05120203060080	Lake Ditch-Headwaters	15.95	0.09	0.75	0.00	4
05120203060090	Lake Ditch-Snake Creek	24.89	0.53	0.37	0.00	4
05120203060100	Mill Creek-Cotton/Belle Union Branches	20.14	0.18	0.47	0.00	4
Sum		169.78	0.22	22.67	0.00	4

Table 6.7: Regression results for Mill Creek above Rhodes Creek, with increase in urbanization

	Computed Q (cfs)	Confidence Limits	
		0.05 limit (cfs)	0.95 limit (cfs)
10 Year	21900	14300	33600
25 Year	27800	18200	42500
50 Year	32100	21000	49200
100 Year	36200	23500	55700
200 Year	40500	26100	62900
500 Year	46000	29100	72600

For this example, the assumption is that the northeast portion of this watershed will be urbanizing, since that area is closest to metropolitan Indianapolis. Since the determination point is in Region 4, urbanization is a factor in the regression equations for this region. Similar types of calculations for other regions can be calculated using the urbanization factor presented in Chapter 4. For three subwatersheds (05120203060030, 05120203060040, and 05120203060060) the %Urbanization was increased from the computed value to 75%, which is a typical value for full suburban development with

some green space. This increases the value of %U from .8% to 22.7% for the entire watershed. Table 6.7 lists the discharges resulting from this change in %U.

Increasing the urbanization factor in this manner increases the calculated peak discharges significantly. The 10 year peak discharge increases by 23%, and the 100 year peak discharge increases by 21.5%. This is to be expected, since the changes in the watershed as modeled would impact the stream flows in Mill Creek by increasing the amount of runoff from rainfall events over the watershed. Detention ponds and other stormwater retention features may reduce this effect somewhat, but the original equations were derived from watersheds that also feature stormwater ponds and sewers (land use data compiled in 1990). Estimation of peak discharges based on stormwater retention are more appropriately evaluated using watershed modeling software, such as the Corps of Engineers HEC-HMS program or the NRCS program TR-20.

VII. CONCLUSIONS

This method for determining peak discharges based on log-Pearson (III) distribution for streams in Indiana builds on previous efforts and incorporates the latest techniques for developing predictive equations. This study updates the last study by Glatfelter with 20 additional years of gage data. Regionalization for determining homogeneous regions is based on a comprehensive review of state of the art techniques, and does not rely on one method, but is confirmed by a number of methods. The derived equations, based on log-Pearson (III) distribution, estimate peak discharge rates for the 10, 25, 50, 100, 200 and 500 year frequency flood. Various tests of the equations are presented here, with a comparison to the methodology employed by the Indiana Department of Natural Resources. An additional technique for estimating the effect of urbanization of the watershed on the peak discharge is also presented.

In hydrology, there are uncertainties and limitations to any methodology chosen to estimate peak discharges. Many of the variables involved are interrelated and are not easily quantified. This methodology is useful in that it is fairly easy to apply, and tools are presented to make the computations that much easier. There is also an advantage with a regression method over other methods, in that a measurable error and confidence limits are associated with the method, and allows for an estimation of the reliability of an estimate. However, as with any hydrologic method, an investigation of the results of this method is preferable before using them to calculate discharges for design and modeling work. Of course, such a course of action is preferable whichever estimation method is used. These equations should be applied to small drainage areas with caution. Checking the peak discharges determined with this equation with previously determined peak discharges is also desirable.

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APPENDICES

Appendix A

The entries in table A.1 are as follows:

DSN – Station number in Watershed Data Management file system

Station No – USGS gaging station number

HUC8 – 8 digit hydrologic unit code watershed gaging station is located in

Station Name – Station name as given by the USGS

Lat – Latitude of gaging station

Long – Longitude of gaging station

Region – Region gaging station is located in

EffDA – Effective Drainage Area above gaging station (in square miles)

Slope – 10-85 slope above gaging station (in feet/mile)

I(2,24) – 2 year, 24 hour rainfall depth (in inches)

RCD – Runoff Coefficient, drained condition

RCU – Runoff Coefficient, undrained condition

%W – Percent of watershed that is covered by standing water or wetland areas

%U – Percent of watershed that is urban area

%F – Percent of watershed that is forest area

DSN	Station No	HUC8	Station Name	Lat	Long	Region	EffDA	Slope	I(2,24)	RCD	RCU	%W	%U	%F
9	03263700	05080001	Bridge Creek near Greenville, Ohio	40.0703	84.6296	4	4.83	8.7	2.84	0.656	0.689	0.2	0.5	4.6
27	03272900	05080002	Collins Creek at Collinsville, Ohio	39.5182	84.6148	3	0.94	120.0	2.92	0.604	0.604	0.1	0.1	23.8
30	03274650	05080003	Whitewater River near Economy, Indiana	40.0043	85.1156	4	10.4	11.8	2.87	0.668	0.704	0.6	0.5	7.6
33	03274880	05080003	Greens Fork Tributary near Lynn, Indiana	40.0204	84.9398	4	0.78	48.7	2.87	0.668	0.704	0.2	0.0	1.7
34	03274950	05080003	Little Williams Creek at Connersville, Indiana	39.6378	85.1719	3	9.16	28.8	2.94	0.514	0.517	0.2	1.4	15.2
35	03275000	05080003	Whitewater River near Alpine, Indiana	39.5734	85.1565	4	522	8.7	2.90	0.583	0.623	1.0	1.7	9.5
36	03275500	05080003	East Fork Whitewater River at Richmond, Indiana	39.8067	84.9085	4	121	12.8	2.88	0.611	0.659	1.0	5.9	13.4
37	03275600	05080003	East Fork Whitewater River at Abington, Indiana	39.7325	84.9596	4	200	12.1	2.89	0.593	0.632	1.1	6.4	14.4
39	03275900	05080003	Templeton Creek near Fairfield, Indiana	39.5223	84.9474	3	5.39	23.6	2.95	0.546	0.553	0.2	0.0	8.0
40	03276000	05080003	East Fork Whitewater River at Brookville, Indiana	39.4338	85.0030	4	380	9.2	2.91	0.553	0.580	3.0	3.2	17.7
41	03276500	05080003	Whitewater River at Brookville, Indiana	39.4070	85.0123	4	1224	7.3	2.93	0.594	0.622	1.5	1.9	20.1
42	03276640	05090203	Tanners Creek Tributary near Lawrenceburg, Indiana	39.1548	84.8724	3	0.25	253.0	3.00	0.657	0.657	0.7	0.0	48.5
43	03276700	05090203	South Hogan Creek near Dillsboro, Indiana	39.0296	85.0384	3	38.1	22.2	3.02	0.710	0.710	0.6	3.0	37.2
44	03276770	05090203	Laughery Creek Tributary near Napoleon, Indiana	39.2217	85.3354	3	0.11	45.3	3.02	0.769	0.769	0.0	0.0	11.7
45	03276950	05090203	Uhlman Creek Tributary near Avonburg, Indiana	38.8934	85.1845	3	0.16	94.6	3.05	0.698	0.698	1.3	0.0	2.4
46	03277000	05090203	Laughery Creek near Farmers Retreat, Indiana	38.9524	85.0709	3	248	6.6	3.02	0.716	0.716	0.8	1.6	34.8
51	03291780	05140101	Indian-Kentuck Creek near Canaan, Indiana	38.8782	85.2574	3	27.5	30.3	3.05	0.705	0.705	0.2	0.1	40.6
59	03294000	05140101	Silver Creek near Sellersburg, Indiana	38.3710	85.7267	3	189	5.5	3.13	0.649	0.652	1.0	3.4	45.5
65	03302300	05140104	Little Indian Creek near Galena, Indiana	38.3222	85.9311	2	16.1	19.0	3.16	0.622	0.622	0.5	8.0	38.3
67	03302500	05140104	Indian Creek at SR 335 near Corydon, Indiana	38.2761	86.1099	3	129	6.3	3.16	0.566	0.567	0.2	3.9	31.2
69	03302690	05140104	Middle Fork Blue River Tributary near Farabee, Indiana	38.5456	86.0371	3	0.07	222.0	3.14	0.538	0.538	0.0	4.4	25.3

Table A.1: Stream Gaging Stations used in the analysis

DSN	Station No	HUC8	Station Name	Lat	Long	Region	EffDA	Slope	I(2,24)	RCD	RCU	%W	%U	%F
70	03302730	05140104	South Fork Blue River near Palmyra, Indiana	38.4687	86.0817	3	64.3	8.6	3.14	0.612	0.624	0.4	0.8	43.3
72	03303000	05140104	Blue River near White Cloud, Indiana	38.2376	86.2286	3	476	3.8	3.15	0.576	0.581	0.3	0.8	34.8
74	03303250	05140201	Sigler Creek Tributary at Uniontown, Indiana	38.2221	86.6974	2	0.15	267.0	3.21	0.608	0.644	0.0	0.0	43.6
76	03303400	05140201	Crooked Creek near Santa Claus, Indiana	38.1182	86.8898	2	7.86	23.7	3.24	0.639	0.642	0.6	0.1	40.3
80	03322011	05140202	Pigeon Creek near Fort Branch, Indiana	38.2521	87.5195	2	35.4	9.2	3.26	0.614	0.631	0.6	1.9	5.4
81	03322100	05140202	Pigeon Creek at Evansville, Indiana	38.0040	87.5388	2	323	2.4	3.27	0.656	0.673	3.1	4.0	12.8
84	03322900	05120101	Wabash River at Linn Grove, Indiana	40.6560	85.0329	8	453	2.4	2.78	0.649	0.693	4.8	1.4	5.6
85	03323000	05120101	Wabash River at Bluffton, Indiana	40.7421	85.1713	8	532	2.0	2.78	0.653	0.697	4.3	1.4	5.6
86	03323500	05120101	Wabash River at Huntington, Indiana	40.8553	85.4978	8	721	2.0	2.77	0.657	0.704	3.6	1.3	5.7
87	03324000	05120101	Little River near Huntington, Indiana	40.9033	85.4062	8	263	4.4	2.73	0.673	0.725	1.7	3.5	7.4
88	03324050	05120101	Clear Creek near Huntington, Indiana	40.9156	85.5450	8	49	7.2	2.74	0.679	0.724	0.9	0.0	6.4
89	03324200	05120102	Salamonie River at Portland, Indiana	40.4275	85.0390	8	85.6	5.8	2.81	0.683	0.719	1.4	1.6	7.7
90	03324210	05120102	Blaine Run at Blaine, Indiana	40.4042	85.0553	8	0.45	21.7	2.81	0.692	0.734	0.0	0.1	1.9
92	03324300	05120102	Salamonie River near Warren, Indiana	40.7125	85.4536	8	425	2.4	2.80	0.683	0.723	1.3	1.1	6.4
94	03324500	05120102	Salamonie River at Dora, Indiana	40.8117	85.6843	7	557	2.7	2.79	0.675	0.715	1.8	0.8	7.6
95	03325000	05120101	Wabash River at Wabash, Indiana	40.7903	85.8203	7	1768	4.6	2.77	0.664	0.710	2.5	1.6	7.4
96	03325311	05120103	Little Mississinewa River at Union City, Indiana	40.1958	84.8296	4	9.67	11.4	2.84	0.640	0.698	0.5	0.2	1.8
97	03325500	05120103	Mississinewa River near Ridgeville, Indiana	40.2801	84.9954	4	133	7.6	2.83	0.672	0.715	1.0	1.0	4.1
98	03326000	05120103	Mississinewa River near Eaton, Indiana	40.3187	85.3194	4	310	3.0	2.83	0.671	0.714	1.4	1.0	5.0
99	03326070	05120103	Big Lick Creek near Hartford City, Indiana	40.4222	85.3512	4	29.2	4.2	2.82	0.686	0.724	0.9	2.0	6.0
100	03326500	05120103	Mississinewa River at Marion, Indiana	40.5762	85.6595	4	682	2.9	2.83	0.673	0.714	1.4	3.1	5.9
101	03327000	05120103	Mississinewa River at Peoria, Indiana	40.7231	85.9580	4	808	3.3	2.82	0.663	0.704	1.9	2.8	7.3
102	03327500	05120101	Wabash River at Peru, Indiana	40.7424	86.0967	7	2686	2.8	2.79	0.662	0.707	2.2	2.2	7.7

Table A.1: Stream Gaging Stations used in the analysis

DSN	Station No	HUC8	Station Name	Lat	Long	Region	EffDA	Slope	I(2,24)	RCD	RCU	%W	%U	%F
103	03327520	05120101	Pipe Creek near Bunker Hill, Indiana	40.6686	86.0966	4	159	3.3	2.82	0.689	0.730	0.5	0.9	2.7
104	03327530	05120101	Minnow Creek Tributary near Logansport, Indiana	40.7294	86.2965	7	0.5	27.0	2.82	0.586	0.628	1.5	1.3	6.8
105	03327790	05120104	Eel River Tributary near Columbia City, Indiana	41.1168	85.5222	7	0.17	43.7	2.72	0.678	0.712	2.1	0.0	55.2
106	03327930	05120104	Koontz Ditch near Sidney, Indiana	41.1245	85.7437	7	2.5	32.5	2.73	0.603	0.643	2.9	0.0	9.4
107	03328000	05120104	Eel River at North Manchester, Indiana	40.9939	85.7818	8	417	2.1	2.71	0.636	0.700	2.5	1.2	8.1
108	03328020	05120104	Otter Creek Tributary near North Manchester, Indiana	41.0001	85.8269	7	0.92	32.6	2.75	0.516	0.563	0.7	0.0	4.4
109	03328430	05120104	Weesau Creek near Deedsville, Indiana	40.9097	86.1266	7	8.87	9.3	2.78	0.592	0.634	0.7	0.1	5.5
110	03328500	05120104	Eel River near Logansport, Indiana	40.7827	86.2643	7	789	2.4	2.74	0.612	0.672	2.3	1.0	8.3
111	03329000	05120105	Wabash River at Logansport, Indiana	40.7473	86.3778	7	3779	2.7	2.78	0.651	0.699	2.1	2.0	7.7
112	03329400	05120105	Rattlesnake Creek near Patton, Indiana	40.7129	86.6969	7	6.83	8.8	2.84	0.539	0.704	0.2	0.0	0.4
113	03329500	05120105	Wabash River at Delphi, Indiana	40.5914	86.6984	7	4072	2.6	2.78	0.644	0.693	2.1	1.9	7.6
114	03329700	05120105	Deer Creek near Delphi, Indiana	40.5904	86.6217	4	274	5.6	2.84	0.614	0.672	0.9	0.7	2.6
118	03330500	05120106	Tippecanoe River at Oswego, Indiana	41.3208	85.7892	8	113	3.6	2.70	0.556	0.678	11.3	1.6	11.7
119	03331110	05120106	Walnut Creek near Warsaw, Indiana	41.2047	85.8699	7	19.6	5.5	2.73	0.488	0.622	5.3	0.7	11.9
120	03331500	05120106	Tippecanoe River near Ora, Indiana	41.1569	86.5637	5	856	1.6	2.74	0.492	0.591	6.0	1.6	8.1
123	03332400	05120106	Big Monon Creek near Francesville, Indiana	40.9845	86.8618	6	152	2.4	2.80	0.405	0.589	1.6	0.4	10.5
124	03332500	05120106	Tippecanoe River near Monticello, Indiana	40.7806	86.7599	5	1732	1.6	2.78	0.474	0.592	4.0	1.0	7.6
125	03332780	05120106	Big Creek near Wolcott, Indiana	40.6903	87.0409	1	1.35	21.9	2.87	0.519	0.650	0.1	0.0	1.3
126	03333000	05120106	Tippecanoe River near Delphi, Indiana	40.6177	86.7604	5	1865	1.7	2.78	0.476	0.592	4.0	1.1	7.3
127	03333050	05120106	Tippecanoe River near Delphi, Indiana	40.5924	86.7712	5	1869	1.7	2.78	0.476	0.593	3.9	1.1	7.3
129	03333450	05120107	Wildcat Creek near Jerome, Indiana	40.4409	85.9185	4	146	3.3	2.86	0.598	0.742	1.0	0.6	1.2
130	03333500	05120107	Wildcat Creek at Greentown, Indiana	40.4570	85.9569	4	168	3.3	2.86	0.604	0.741	1.0	0.6	1.3
131	03333600	05120107	Kokomo Creek near Kokomo, Indiana	40.4412	86.0891	4	24.7	4.5	2.85	0.598	0.724	1.8	0.7	1.8
133	03333700	05120107	Wildcat Creek at Kokomo, Indiana	40.4731	86.1573	4	242	2.7	2.85	0.604	0.728	1.5	5.5	1.7
134	03334000	05120107	Wildcat Creek at Owasco, Indiana	40.4640	86.6380	4	396	3.3	2.86	0.599	0.701	1.9	4.7	2.9

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DSN	Station No	HUC8	Station Name	Lat	Long	Region	EffDA	Slope	I(2,24)	RCD	RCU	%W	%U	%F
135	03334200	05120107	Prairie Creek Tributary near Frankfort, Indiana	40.2529	86.5099	4	2.61	7.8	2.91	0.534	0.684	0.0	0.4	0.2
136	03334500	05120107	South Fork Wildcat Creek near Lafayette, Indiana	40.4183	86.7681	4	243	7.1	2.90	0.590	0.656	1.3	2.4	2.6
138	03335000	05120107	Wildcat Creek near Lafayette, Indiana	40.4407	86.8298	4	794	3.5	2.87	0.593	0.673	1.5	3.3	3.1
139	03335500	05120108	Wabash River at Lafayette, Indiana	40.4220	86.8963	1	7267	2.5	2.80	0.575	0.644	2.8	1.5	11.2
143	03335790	05120108	Big Shawnee Creek Tributary near Attica, Indiana	40.2801	87.1746	1	1	21.0	2.93	0.523	0.637	0.0	0.0	1.1
144	03336000	05120108	Wabash River at Covington, Indiana	40.1400	87.4056	1	8218	2.1	2.81	0.572	0.642	2.8	1.6	11.0
147	03336645	05120109	Middle Fork Vermilion River Above Oakwood, Illinois	40.1373	87.7458	1	432	2.7	2.98	0.637	0.718	1.5	0.8	3.4
153	03338780	05120109	North Fork Vermilion River near Bismarck, Illinois	40.2655	87.6433	1	262	3.9	2.94	0.568	0.661	0.5	1.1	1.6
156	03339108	05120108	East Fork Coal Creek near Hillsboro, Indiana	40.1017	87.1288	1	33.4	11.6	2.95	0.586	0.668	1.9	0.9	7.5
158	03339280	05120110	Prairie Creek near Lebanon, Indiana	40.1045	86.5225	4	33.2	4.7	2.94	0.605	0.709	0.9	10.6	0.9
159	03339500	05120110	Sugar Creek at Crawfordsville, Indiana	40.0481	86.9002	4	509	5.3	2.93	0.595	0.689	1.1	1.4	1.8
160	03340000	05120110	Sugar Creek near Byron, Indiana	39.9305	87.1259	4	670	5.4	2.94	0.600	0.722	1.0	1.6	5.6
161	03340500	05120108	Wabash River at Montezuma, Indiana	39.7923	87.3748	1	11118	1.8	2.85	0.571	0.645	2.6	1.6	10.2
166	03341500	05120111	Wabash River at Terre Haute, Indiana	39.4666	87.4202	1	12263	1.7	2.87	0.571	0.643	2.7	1.6	11.2
167	03341700	05120111	Big Creek Tributary near Dudley, Illinois	39.5652	87.7904	1	1.08	44.4	3.10	0.636	0.696	0.0	0.9	25.4
170	03342100	05120111	Busseron Creek near Hymera, Indiana	39.2153	87.3116	1	16.7	11.0	3.10	0.680	0.680	2.8	0.3	22.3
171	03342150	05120111	West Fork Busseron Creek near Hymera, Indiana	39.1863	87.3291	1	14.4	12.9	3.11	0.679	0.679	5.4	1.5	29.7
175	03342300	05120111	Busseron Creek near Sullivan, Indiana	39.0757	87.3867	1	138	5.2	3.12	0.673	0.674	10.6	1.8	32.3
176	03342500	05120111	Busseron Creek near Carlisle, Indiana	38.9749	87.4258	1	228	2.9	3.13	0.666	0.672	8.5	2.2	25.0
177	03343000	05120111	Wabash River at Vincennes, Indiana	38.7071	87.5191	1	13706	1.4	2.90	0.575	0.643	2.9	1.7	12.1
185	03346650	05120202	River Deshee Tributary near Frichton, Indiana	38.6756	87.4299	1	0.82	36.1	3.20	0.518	0.518	0.0	4.3	2.8
187	03347000	05120201	White River at Muncie, Indiana	40.2042	85.3872	4	241	4.7	2.86	0.640	0.694	2.1	3.2	5.6
189	03348000	05120201	White River at Anderson, Indiana	40.1067	85.6727	4	406	4.4	2.87	0.622	0.689	1.7	6.7	5.8
190	03348020	05120201	Killbuck Creek near Gaston, Indiana	40.2623	85.5150	4	25.5	3.6	2.85	0.667	0.730	0.9	4.7	4.4

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DSN	Station No	HUC8	Station Name	Lat	Long	Region	EffDA	Slope	I(2,24)	RCD	RCU	%W	%U	%F
191	03348350	05120201	Pipe Creek at Frankton, Indiana	40.2272	85.7663	4	113	4.5	2.85	0.653	0.711	2.0	3.1	3.2
192	03348500	05120201	White River near Noblesville, Indiana	40.1296	85.9629	4	828	4.1	2.87	0.618	0.694	1.6	6.2	4.6
193	03348700	05120201	White River Tributary near Strawtown, Indiana	40.1130	85.9529	4	0.42	13.0	2.90	0.582	0.676	3.3	0.0	8.7
194	03349000	05120201	White River at Noblesville, Indiana	40.0469	86.0166	4	858	3.9	2.87	0.616	0.692	1.8	6.4	4.6
195	03349500	05120201	Cicero Creek near Arcadia, Indiana	40.1762	85.9958	4	131	4.0	2.89	0.574	0.734	1.4	1.6	0.9
196	03349700	05120201	Little Cicero Creek near Arcadia, Indiana	40.1757	86.0462	4	40.4	6.2	2.90	0.591	0.694	1.5	0.6	1.3
197	03350100	05120201	Hinkle Creek near Cicero, Indiana	40.1013	86.0861	4	18.5	18.7	2.91	0.581	0.657	1.0	0.3	2.2
198	03350650	05120201	Stony Creek Tributary near Lapel, Indiana	40.0884	85.8225	4	0.6	26.5	2.90	0.600	0.722	0.9	0.0	3.1
200	03351000	05120201	White River near Nora, Indiana	39.9101	86.1050	4	1219	3.7	2.88	0.603	0.689	1.9	6.4	4.0
201	03351310	05120201	Crooked Creek at Indianapolis, Indiana	39.8298	86.2064	4	17.9	14.8	2.95	0.575	0.636	0.7	52.8	7.3
202	03351400	05120201	Sugar Creek near Middletown, Indiana	40.0410	85.5251	4	5.8	18.7	2.90	0.619	0.726	0.6	0.5	2.9
203	03351500	05120201	Fall Creek near Fortville, Indiana	39.9546	85.8672	4	169	7.2	2.90	0.578	0.669	0.9	4.2	5.4
205	03352200	05120201	Mud Creek at Indianapolis, Indiana	39.8919	86.0162	4	42.4	6.1	2.92	0.579	0.663	0.7	3.9	6.4
207	03352500	05120201	Fall Creek at Millersville, Indiana	39.8516	86.0888	4	298	5.3	2.92	0.575	0.664	1.9	7.8	7.4
208	03353000	05120201	White River at Indianapolis, Indiana	39.7517	86.1745	4	1635	3.5	2.89	0.595	0.680	1.9	10.7	4.8
209	03353120	05120201	Pleasant Run at Arlington Avenue at Indianapolis, Indiana	39.7760	86.0644	4	7.58	17.4	2.96	0.585	0.672	0.3	82.6	2.5
210	03353160	05120201	Pleasant Run at Brookville Road at Indianapolis, Indiana	39.7646	86.0951	4	10.1	16.7	2.96	0.580	0.656	0.3	83.9	2.7
211	03353180	05120201	Bean Creek at Indianapolis, Indiana	39.7292	86.1209	4	4.4	10.8	2.97	0.571	0.623	0.0	75.3	3.2
212	03353200	05120201	Eagle Creek at Zionsville, Indiana	39.9486	86.2558	4	106	15.2	2.93	0.590	0.688	0.9	1.4	4.2
213	03353500	05120201	Eagle Creek at Indianapolis, Indiana	39.7783	86.2506	4	174	6.8	2.94	0.580	0.670	2.1	7.2	7.0
217	03353600	05120201	Little Eagle Creek at Speedway, Indiana	39.7877	86.2281	4	24.3	14.4	2.96	0.568	0.638	0.5	50.4	5.0
218	03353620	05120201	Lick Creek at Indianapolis, Indiana	39.7058	86.1040	4	15.6	11.5	2.97	0.585	0.670	0.4	47.0	5.9
220	03353635	05120201	Derbyshire Creek at Southport, Indiana	39.6708	86.1224	4	1.76	23.7	2.98	0.578	0.653	0.0	49.7	2.2
222	03353637	05120201	Little Buck Creek near Indianapolis, Indiana	39.6665	86.1967	4	17	11.6	2.98	0.544	0.591	0.1	69.7	3.0
223	03353668	05120201	White Lick Creek Tributary near Brownsburg, Indiana	39.8982	86.3927	4	0.31	28.0	2.96	0.562	0.594	0.7	0.2	0.2
224	03353700	05120201	West Fork White Lick Creek at Danville, Indiana	39.7601	86.5133	4	28.8	10.6	2.97	0.581	0.678	0.5	1.8	3.7

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DSN	Station No	HUC8	Station Name	Lat	Long	Region	EffDA	Slope	I(2,24)	RCD	RCU	%W	%U	%F
225	03353800	05120201	White Lick Creek at Mooresville, Indiana	39.6084	86.3821	4	212	9.0	2.98	0.577	0.656	0.6	5.6	6.2
226	03354000	05120201	White River near Centerton, Indiana	39.4998	86.4071	4	2444	3.1	2.92	0.587	0.668	1.7	12.6	6.2
227	03354500	05120202	Beanblossom Creek at Beanblossom, Indiana	39.2627	86.2479	2	14.6	19.8	3.05	0.643	0.658	1.0	0.2	68.2
229	03356780	05120202	Limestone Creek Tributary near Gosport, Indiana	39.3533	86.6829	2	0.72	113.0	3.05	0.666	0.666	0.0	0.1	26.7
230	03357000	05120202	White River at Spencer, Indiana	39.2802	86.7617	2	2988	2.8	2.94	0.590	0.662	1.7	10.7	14.5
231	03357350	05120203	Plum Creek near Bainbridge, Indiana	39.7617	86.7291	4	3	24.2	2.99	0.587	0.603	0.1	1.3	5.0
232	03357500	05120203	Big Walnut Creek near Reelsville, Indiana	39.5357	86.9766	4	326	6.6	2.99	0.582	0.626	0.8	1.3	16.1
233	03358000	05120203	Mill Creek near Cataract, Indiana	39.4335	86.7634	4	245	5.8	3.01	0.594	0.640	0.4	0.6	8.5
235	03359500	05120203	Deer Creek near Putnamville, Indiana	39.5676	86.8670	4	59	12.6	3.02	0.585	0.601	0.3	1.4	18.5
236	03360000	05120203	Eel River at Bowling Green, Indiana	39.3825	87.0206	2	830	5.8	3.01	0.601	0.636	0.9	1.1	19.7
237	03360100	05120203	Clear Branch at Cory, Indiana	39.3890	87.1995	1	0.27	28.0	3.07	0.704	0.704	0.0	0.0	0.3
238	03360400	05120202	Doans Creek Tributary near Doans, Indiana	38.9200	86.8483	2	0.2	174.0	3.13	0.634	0.634	0.5	0.2	39.9
239	03360500	05120202	White River at Newberry, Indiana	38.9281	87.0170	2	4688	2.4	2.96	0.601	0.654	1.5	7.2	19.1
242	03361000	05120204	Big Blue River at Carthage, Indiana	39.7431	85.5759	4	184	5.8	2.91	0.616	0.684	1.4	4.3	8.8
243	03361500	05120204	Big Blue River at Shelbyville, Indiana	39.5289	85.7824	4	421	4.8	2.94	0.599	0.683	1.3	2.8	6.7
245	03361660	05120204	Little Sugar Creek Tributary at Carrollton, Indiana	39.7062	85.8277	4	0.7	18.3	2.96	0.592	0.695	0.0	10.1	0.2
248	03362000	05120204	Youngs Creek near Edinburgh, Indiana	39.4187	86.0048	4	107	4.3	3.01	0.573	0.663	0.6	6.9	2.6
249	03362500	05120204	Sugar Creek near Edinburgh, Indiana	39.3607	85.9980	4	474	4.5	2.97	0.579	0.676	0.8	4.4	4.2
250	03363000	05120204	Driftwood River near Edinburgh, Indiana	39.3390	85.9869	4	1060	5.9	2.96	0.585	0.675	1.1	3.7	5.4
252	03363500	05120205	Flatrock River at St. Paul, Indiana	39.4174	85.6340	4	303	5.7	2.95	0.604	0.670	0.9	1.2	4.6
253	03363900	05120205	Flatrock River at Columbus, Indiana	39.2352	85.9271	4	534	5.0	2.97	0.591	0.671	1.0	1.6	4.2
254	03364000	05120205	East Fork White River at Columbus, Indiana	39.1999	85.9269	4	1707	3.8	2.97	0.588	0.672	1.2	3.1	7.8
257	03364500	05120206	Clifty Creek at Hartsville, Indiana	39.2747	85.7017	3	91.4	10.3	3.02	0.592	0.653	0.6	0.4	6.5
258	03364570	05120206	Fall Fork Clifty Creek Tributary near Horace, Indiana	39.2688	85.5749	3	0.83	28.5	3.02	0.635	0.696	0.0	0.0	1.9
259	03365000	05120206	Sand Creek near Brewersville, Indiana	39.0843	85.6587	2	155	8.9	3.02	0.021	0.021	0.5	2.1	17.1

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260	03365500	05120206	East Fork White River at Seymour, Indiana	38.9825	85.8997	4	2341	2.8	2.99	0.593	0.666	1.1	2.8	8.6
261	03366000	05120207	Graham Creek near Vernon, Indiana	38.9298	85.5625	3	77.2	9.4	3.05	0.726	0.726	2.3	0.3	44.5
262	03366200	05120207	Harberts Creek near Madison, Indiana	38.7820	85.4856	3	9.31	18.3	3.07	0.768	0.768	4.6	6.1	40.8
263	03366400	05120207	Lewis Creek Tributary near Kent, Indiana	38.7372	85.5943	3	0.2	71.0	3.09	0.739	0.739	0.0	0.0	14.2
264	03366500	05120207	Muscatatuck River near Deputy, Indiana	38.8042	85.6738	2	293	7.6	3.07	0.729	0.729	3.1	0.9	37.5
265	03367000	05120207	Muscatatuck River near Austin, Indiana	38.7705	85.8224	2	359	6.2	3.07	0.721	0.722	3.2	0.9	35.6
266	03367600	05120207	Flat Creek Tributary at New Frankfort, Indiana	38.7379	85.7143	3	0.34	62.7	3.10	0.769	0.769	0.3	0.6	27.6
267	03368000	05120207	Brush Creek near Nebraska, Indiana	39.0703	85.4861	3	11.4	28.1	3.04	0.732	0.732	0.3	0.2	29.6
268	03369000	05120207	Vernon Fork Muscatatuck River near Butlerville, Indiana	39.0485	85.5443	3	85.9	12.2	3.03	0.718	0.718	0.8	0.1	27.4
269	03369500	05120207	Vernon Fork Muscatatuck River at Vernon, Indiana	38.9763	85.6201	3	198	9.2	3.04	0.718	0.718	0.8	0.1	27.4
272	03371500	05120208	East Fork White River near Bedford, Indiana	38.7700	86.4092	2	3861	2.5	3.03	0.625	0.674	1.6	2.3	18.8
273	03371520	05120208	Back Creek at Leesville, Indiana	38.8470	86.3018	2	24.1	24.7	3.11	0.572	0.576	0.1	0.1	38.8
274	03371600	05120208	South Fork Salt Creek at Kurtz, Indiana	38.9629	86.2034	2	38.2	13.0	3.09	0.636	0.661	0.7	0.4	59.0
276	03371650	05120208	North Fork Salt Creek at Nashville, Indiana	39.2014	86.2472	2	76.1	13.5	3.05	0.617	0.650	1.3	0.6	83.4
282	03372700	05120208	Clear Creek near Harrodsburg, Indiana	39.0342	86.5670	2	55.2	19.1	3.09	0.554	0.554	0.3	24.9	28.0
283	03373000	05120208	Salt Creek near Peerless, Indiana	38.9427	86.5106	2	573	2.0	3.08	0.590	0.617	3.6	2.9	71.0
284	03373200	05120208	Indian Creek near Springville, Indiana	38.9506	86.6754	2	60.7	12.5	3.10	0.626	0.626	0.0	0.6	51.1
286	03373500	05120208	East Fork White River at Shoals, Indiana	38.6674	86.7925	2	4927	2.0	3.04	0.592	0.607	1.2	2.1	44.1
289	03373700	05120208	Lost River near West Baden Springs, Indiana	38.5860	86.6342	2	287	6.1	3.15	0.574	0.574	0.3	1.0	36.1
291	03374000	05120202	White River at Petersburg, Indiana	38.5117	87.2884	2	11125	1.9	3.00	0.609	0.653	1.7	4.2	24.0
292	03374455	05120209	Patoka River near Hardinsburg, Indiana	38.4447	86.3868	3	12.8	23.6	3.17	0.634	0.634	0.1	0.1	79.4
294	03375500	05120209	Patoka River at Jasper, Indiana	38.4136	86.8771	2	262	2.4	3.18	0.601	0.618	5.4	0.2	57.2
295	03375800	05120209	Hall Creek near St. Anthony, Indiana	38.3625	86.8287	2	21.8	18.2	3.20	0.621	0.642	0.3	0.2	24.0

Table A.1: Stream Gaging Stations used in the analysis

DSN	Station No	HUC8	Station Name	Lat	Long	Region	EffDA	Slope	I(2,24)	RCD	RCU	%W	%U	%F
298	03376300	05120209	Patoka River at Winslow, Indiana	38.3802	87.2172	2	603	1.3	3.20	0.628	0.638	3.4	1.1	39.4
299	03376340	05120209	Patoka River Tributary near Glezen, Indiana	38.3949	87.3180	2	0.84	39.1	3.23	0.684	0.684	1.4	0.1	15.3
300	03376350	05120209	South Fork Patoka River near Spurgeon, Indiana	38.2970	87.2606	2	42.8	9.9	3.24	0.669	0.674	3.1	0.6	59.1
301	03376500	05120209	Patoka River near Princeton, Indiana	38.3914	87.5498	2	822	1.2	3.21	0.634	0.643	4.1	1.1	37.3
303	03378000	05120113	Bonpas Creek at Browns, Illinois	38.3865	87.9752	1	228	2.9	3.26	0.701	0.733	3.0	0.5	11.8
304	03378550	05120113	Big Creek near Wadesville, Indiana	38.0832	87.7696	1	104	3.8	3.29	0.593	0.610	1.3	1.1	6.7
305	03378590	05120113	Olive Creek Tributary near Solitude, Indiana	38.0037	87.8992	1	0.31	79.5	3.33	0.559	0.578	0.0	0.0	0.0
311	03379650	05120114	Madden Creek near West Salem, Illinois	38.5374	88.0574	1	1.62	36.1	3.27	0.755	0.757	0.3	0.0	4.6
328	04093000	04040001	Deep River at Lake George Outlet At Hobart, Indiana	41.5361	87.2569	5	124	3.6	2.78	0.628	0.694	5.1	18.8	17.6
329	04093200	04040001	Little Calumet River at Gary, Indiana	41.5719	87.3203	5	5.82	4.0	2.77	0.368	0.442	15.3	56.9	11.5
330	04093500	04040001	Burns Ditch at Gary, Indiana	41.5747	87.2892	5	160	3.2	2.78	0.609	0.684	5.2	19.8	17.8
331	04094000	04040001	Little Calumet River at Porter, Indiana	41.6221	87.0874	6	66.2	6.2	2.75	0.556	0.628	11.9	5.0	32.2
332	04094500	04040001	Salt Creek near McCool, Indiana	41.5963	87.1442	6	74.6	4.7	2.77	0.614	0.684	9.4	17.5	24.2
334	04095300	04040001	Trail Creek at Michigan City, Indiana	41.7168	86.8598	6	54.1	6.4	2.73	0.476	0.572	9.5	8.7	39.5
351	04099060	04050001	Pigeon Creek Tributary near Ellis, Indiana	41.6288	84.9157	7	1.22	14.0	2.60	0.675	0.710	1.8	0.0	10.3
352	04099510	04050001	Pigeon Creek near Angola, Indiana	41.6348	85.1097	8	106	6.0	2.61	0.548	0.633	7.1	1.9	11.3
353	04099610	04050001	Pretty Lake Inlet near Stroh, Indiana	41.5804	85.2501	7	1.96	5.6	2.63	0.516	0.563	6.7	0.0	17.1
354	04099750	04050001	Pigeon River near Scott, Indiana	41.7487	85.5766	8	361	3.5	2.62	0.495	0.564	7.8	1.2	11.6
355	04099808	04050001	Little Elkhart River at Middlebury, Indiana	41.6751	85.7000	7	97.6	8.1	2.65	0.511	0.608	1.2	1.0	5.0
356	04099850	04050001	Pine Creek near Elkhart, Indiana	41.6815	85.8831	7	31	12.0	2.66	0.505	0.546	3.4	1.6	12.7
357	04100165	04050001	Wible Lake Inlet near Kendallville, Indiana	41.4875	85.2704	7	2.47	18.2	2.65	0.509	0.662	5.5	2.1	7.6
358	04100220	04050001	North Branch Elkhart River near Cosperville, Indiana	41.4924	85.4478	8	134	3.9	2.65	0.494	0.597	12.1	2.9	10.3
359	04100222	04050001	North Branch Elkhart River at Cosperville, Indiana	41.4818	85.4753	8	142	3.9	2.65	0.493	0.595	11.9	2.8	10.2
360	04100252	04050001	Forker Creek near Burr Oak, Indiana	41.3329	85.4229	7	19.2	9.6	2.67	0.632	0.671	7.2	0.0	19.7

Table A.1: Stream Gaging Stations used in the analysis

DSN	Station No	HUC8	Station Name	Lat	Long	Region	EffDA	Slope	I(2,24)	RCD	RCU	%W	%U	%F
361	04100295	04050001	Rimmell Branch near Albion, Indiana	41.3851	85.3707	8	10.7	10.6	2.66	0.627	0.720	4.9	0.0	8.1
364	04100500	04050001	Elkhart River at Goshen, Indiana	41.5933	85.8485	8	594	2.8	2.68	0.505	0.589	6.3	3.0	6.3
365	04100800	04050001	Yellow Creek at Dunlap, Indiana	41.6455	85.9334	8	32.4	9.2	2.68	0.506	0.562	1.3	5.9	6.9
366	04101000	04050001	St. Joseph River at Elkhart, Indiana	41.6919	85.9758	8	3370	2.2	2.61	0.475	0.552	8.8	2.1	14.9
373	04177720	04100003	Fish Creek at Hamilton, Indiana	41.5319	84.9038	7	37.5	16.0	2.61	0.635	0.670	7.0	1.2	16.7
375	04179000	04100003	St. Joseph River at Cedarville, Indiana	41.1961	85.0236	8	763	1.6	2.60	0.626	0.688	4.5	1.1	14.5
376	04179500	04100003	Cedar Creek at Auburn, Indiana	41.3659	85.0520	8	87.3	8.0	2.64	0.632	0.693	2.3	1.5	7.4
377	04179510	04100003	Cecil Metcaff Ditch near Auburn, Indiana	41.3652	85.0180	7	0.78	9.4	2.65	0.692	0.734	0.0	0.0	2.7
378	04180000	04100003	Cedar Creek near Cedarville, Indiana	41.2186	85.0768	8	270	6.0	2.65	0.641	0.705	3.5	2.3	9.3
379	04180500	04100003	St. Joseph River near Fort Wayne, Indiana	41.1782	85.0558	8	1060	2.3	2.61	0.631	0.692	4.3	1.4	13.1
380	04181500	04100004	St. Marys River at Decatur, Indiana	40.8483	84.9375	8	621	2.1	2.74	0.678	0.728	0.5	1.5	6.3
381	04182000	04100004	St. Marys River near Fort Wayne, Indiana	40.9882	85.1114	8	762	1.7	2.74	0.679	0.727	0.5	1.4	6.3
382	04182590	04100004	Harber Ditch at Fort Wayne, Indiana	41.0076	85.1827	8	21.9	3.9	2.72	0.690	0.731	1.1	6.0	3.9
402	05515000	07120001	Kankakee River near North Liberty, Indiana	41.5634	86.4944	6	174	1.2	2.70	0.424	0.564	4.5	2.8	13.2
404	05515500	07120001	Kankakee River at Davis, Indiana	41.4005	86.7017	6	537	1.3	2.72	0.445	0.575	4.7	2.8	12.2
405	05516000	07120001	Yellow River near Bremen, Indiana	41.4196	86.1710	6	135	5.0	2.70	0.556	0.702	2.5	1.7	6.3
406	05516150	07120001	Walt Kimble Ditch near Lapaz, Indiana	41.4497	86.2377	6	1.5	11.0	2.72	0.590	0.724	2.3	0.0	4.0
407	05516500	07120001	Yellow River at Plymouth, Indiana	41.3403	86.3043	5	294	2.2	2.71	0.538	0.664	2.7	1.6	5.8
408	05517000	07120001	Yellow River at Knox, Indiana	41.3029	86.6207	5	435	2.3	2.72	0.510	0.617	3.7	1.7	8.9
409	05517400	07120001	West Arm Payne Ditch near North Judson, Indiana	41.2151	86.8704	6	2.58	15.8	2.79	0.337	0.366	3.7	0.1	27.8
410	05517500	07120001	Kankakee River at Dunns Bridge, Indiana	41.2197	86.9692	6	1352	0.9	2.73	0.453	0.587	4.4	1.9	11.4
411	05517530	07120001	Kankakee River near Kouts, Indiana	41.2538	87.0337	6	1376	1.3	2.73	0.452	0.588	4.4	1.9	11.5
413	05517890	07120001	Cobb Ditch near Kouts, Indiana	41.3386	87.0750	5	30.3	8.6	2.78	0.632	0.691	2.7	2.0	15.2
414	05518000	07120001	Kankakee River at Shelby, Indiana	41.1825	87.3422	6	1779	0.9	2.75	0.455	0.594	4.1	2.0	11.2
415	05519000	07120001	Singleton Ditch at Schneider, Indiana	41.2124	87.4482	5	123	3.2	2.80	0.596	0.683	3.6	4.8	9.4
416	05519500	07120001	West Creek near Schneider, Indiana	41.2137	87.4963	5	54.7	2.3	2.81	0.660	0.712	1.9	4.3	12.6
419	05522000	07120002	Iroquois River near North Marion, Indiana	40.9700	87.1144	5	144	2.9	2.82	0.411	0.636	3.1	0.2	10.8

Table A.1: Stream Gaging Stations used in the analysis

DSN	Station No	HUC8	Station Name	Lat	Long	Region	EffDA	Slope	I(2,24)	RCD	RCU	%W	%U	%F
420	05522500	07120002	Iroquois River at Rensselaer, Indiana	40.9334	87.1288	5	203	2.5	2.82	0.437	0.646	2.6	0.2	9.2
421	05523000	07120002	Bice Ditch near South Marion, Indiana	40.8668	87.0920	5	21.8	6.4	2.86	0.460	0.578	2.0	0.5	4.6
422	05523500	07120002	Slough Creek near Collegeville, Indiana	40.8915	87.1547	5	83.7	2.2	2.85	0.442	0.566	1.7	0.1	7.8
425	05524500	07120002	Iroquois River near Foresman, Indiana	40.8702	87.3064	5	449	2.0	2.84	0.482	0.629	2.2	0.6	7.7
436	05536190	07120003	Hart Ditch at Munster, Indiana	41.5611	87.4808	5	70.7	7.4	2.80	0.554	0.629	4.0	27.2	18.7

Table A.1: Stream Gaging Stations used in the analysis

Appendix B

The entries in table B.1 are as follows:

DSN – Station number in Watershed Data Management file system

Station No – USGS gaging station number

Station Name – Station name as given by the USGS

N – Number of annual peak flow years for a station

Q10 – 10-year frequency flood discharge

Q25 – 25 year frequency flood discharge

Q50 – 50 year frequency flood discharge

Q100 – 100 year frequency flood discharge

Q200 – 200 year frequency flood discharge

Q500 – 500 year frequency flood discharge

DSN	Station No	Station Name	N	Q10	Q25	Q50	Q100	Q200	Q500
9	03263700	Bridge Creek near Greenville, Ohio	31	678	830	935	1,030	1,130	1,240
27	03272900	Collins Creek at Collinsville, Ohio	17	422	507	568	626	682	753
30	03274650	Whitewater River near Economy, Indiana	33	1,040	1,220	1,350	1,470	1,580	1,720
33	03274880	Greens Fork Tributary near Lynn, Indiana	10	258	365	455	555	664	826
34	03274950	Little Williams Creek at Connersville, Indiana	23	1,630	2,190	2,670	3,210	3,810	4,730
35	03275000	Whitewater River near Alpine, Indiana	75	24,800	31,300	36,200	41,200	46,200	52,900
36	03275500	East Fork Whitewater River at Richmond, Indiana	29	11,800	15,600	18,600	21,800	25,000	29,600
37	03275600	East Fork Whitewater River at Abington, Indiana	38	12,400	15,000	16,800	18,600	20,400	22,700
39	03275900	Templeton Creek near Fairfield, Indiana	10	1,150	1,740	2,270	2,890	3,620	4,750
40	03276000	East Fork Whitewater River at Brookville, Indiana	47	23,000	31,700	39,100	47,500	56,900	71,000
41	03276500	Whitewater River at Brookville, Indiana	84	54,000	66,900	76,600	86,300	96,000	109,000
42	03276640	Tanners Creek Tributary near Lawrenceburg, Indiana	17	223	308	381	462	551	683
43	03276700	South Hogan Creek near Dillsboro, Indiana	33	8,740	11,600	14,100	16,900	20,000	24,700
44	03276770	Laughery Creek Tributary near Napoleon, Indiana	10	50	60	67	74	82	92
45	03276950	Uhlman Creek Tributary near Avonburg, Indiana	10	87	117	140	163	187	220
46	03277000	Laughery Creek near Farmers Retreat, Indiana	41	20,400	25,900	30,200	34,800	39,600	46,400
51	03291780	Indian-Kentuck Creek near Canaan, Indiana	34	6,320	7,410	8,150	8,830	9,450	10,200
59	03294000	Silver Creek near Sellersburg, Indiana	49	11,400	14,500	17,100	19,900	22,900	27,300
65	03302300	Little Indian Creek near Galena, Indiana	35	5,010	6,030	6,770	7,490	8,190	9,110
67	03302500	Indian Creek at SR 335 near Corydon, Indiana	50	13,700	18,000	21,500	25,500	29,800	36,200
69	03302690	Middle Fork Blue River Tributary near Farabee, Indiana	10	39	53	64	75	87	104
70	03302730	South Fork Blue River near Palmyra, Indiana	15	5,440	7,670	9,640	11,900	14,500	18,600
72	03303000	Blue River near White Cloud, Indiana	78	22,000	26,500	29,700	32,900	36,000	40,100
74	03303250	Sigler Creek Tributary at Uniontown, Indiana	17	141	178	206	234	262	301
76	03303400	Crooked Creek near Santa Claus, Indiana	34	3,050	4,020	4,790	5,590	6,440	7,640
80	03322011	Pigeon Creek near Fort Branch, Indiana	14	3,420	3,970	4,360	4,730	5,100	5,570
81	03322100	Pigeon Creek at Evansville, Indiana	25	7,540	8,980	10,000	11,100	12,100	13,500
84	03322900	Wabash River at Linn Grove, Indiana	40	8,790	10,300	11,300	12,300	13,200	14,400
85	03323000	Wabash River at Bluffton, Indiana	62	10,200	12,400	14,000	15,500	17,100	19,000
86	03323500	Wabash River at Huntington, Indiana	51	12,600	14,900	16,500	18,000	19,400	21,000
87	03324000	Little River near Huntington, Indiana	60	4,920	5,510	5,910	6,290	6,650	7,110
88	03324050	Clear Creek near Huntington, Indiana	14	2,680	3,050	3,300	3,520	3,730	3,980
89	03324200	Salamonie River at Portland, Indiana	36	3,700	4,250	4,630	5,010	5,370	5,840
90	03324210	Blaine Run at Blaine, Indiana	10	40	45	49	52	55	59
92	03324300	Salamonie River near Warren, Indiana	46	10,700	12,200	13,200	14,100	14,900	15,800
94	03324500	Salamonie River at Dora, Indiana	78	12,500	14,800	16,400	18,000	19,400	21,300
95	03325000	Wabash River at Wabash, Indiana	80	37,200	45,000	50,600	55,900	61,100	67,600
96	03325311	Little Mississinewa River at Union City, Indiana	15	568	704	803	898	991	1,110
97	03325500	Mississinewa River near Ridgeville, Indiana	57	7,310	9,020	10,300	11,500	12,800	14,500

Table B.1: Results from peak series frequency analysis

DSN	Station No	Station Name	N	Q10	Q25	Q50	Q100	Q200	Q500
98	03326000	Mississinewa River near Eaton, Indiana	20	12,200	15,500	18,000	20,600	23,300	26,900
99	03326070	Big Lick Creek near Hartford City, Indiana	32	1,560	1,870	2,090	2,300	2,510	2,790
100	03326500	Mississinewa River at Marion, Indiana	80	19,700	23,200	25,500	27,700	29,600	31,900
101	03327000	Mississinewa River at Peoria, Indiana	49	19,400	24,300	28,000	31,800	35,600	40,600
102	03327500	Wabash River at Peru, Indiana	62	48,800	59,000	66,400	73,600	80,700	89,800
103	03327520	Pipe Creek near Bunker Hill, Indiana	34	4,300	5,100	5,670	6,220	6,750	7,430
104	03327530	Minnow Creek Tributary near Logansport, Indiana	10	111	173	229	295	370	486
105	03327790	Eel River Tributary near Columbia City, Indiana	10	47	65	81	98	116	144
106	03327930	Koontz Ditch near Sidney, Indiana	10	343	463	561	666	778	937
107	03328000	Eel River at North Manchester, Indiana	80	6,820	8,000	8,850	9,670	10,500	11,500
108	03328020	Otter Creek Tributary near North Manchester, Indiana	17	152	187	215	244	275	318
109	03328430	Weesau Creek near Deedsville, Indiana	31	419	505	569	633	696	780
110	03328500	Eel River near Logansport, Indiana	61	12,500	15,000	16,900	18,900	20,900	23,600
111	03329000	Wabash River at Logansport, Indiana	88	66,400	81,000	91,600	102,000	113,000	126,000
112	03329400	Rattlesnake Creek near Patton, Indiana	25	459	591	692	794	897	1,040
113	03329500	Wabash River at Delphi, Indiana	33	62,900	76,200	85,800	95,100	104,000	116,000
114	03329700	Deer Creek near Delphi, Indiana	60	8,740	11,800	14,500	17,500	20,900	26,100
118	03330500	Tippecanoe River at Oswego, Indiana	53	621	750	850	953	1,060	1,210
119	03331110	Walnut Creek near Warsaw, Indiana	34	330	427	503	583	667	785
120	03331500	Tippecanoe River near Ora, Indiana	59	7,220	8,550	9,500	10,400	11,300	12,400
123	03332400	Big Monon Creek near Francesville, Indiana	21	2,390	2,640	2,810	2,960	3,100	3,270
124	03332500	Tippecanoe River near Monticello, Indiana	50	14,700	16,800	18,200	19,500	20,600	22,100
125	03332780	Big Creek near Wolcott, Indiana	10	246	338	412	491	574	693
126	03333000	Tippecanoe River near Delphi, Indiana	51	19,000	21,900	23,800	25,600	27,200	29,200
127	03333050	Tippecanoe River near Delphi, Indiana	15	20,300	24,300	27,100	29,800	32,500	35,800
129	03333450	Wildcat Creek near Jerome, Indiana	42	5,950	7,450	8,550	9,630	10,700	12,000
130	03333500	Wildcat Creek at Greentown, Indiana	18	4,600	5,910	6,970	8,110	9,330	11,100
131	03333600	Kokomo Creek near Kokomo, Indiana	44	909	1,160	1,370	1,600	1,850	2,230
133	03333700	Wildcat Creek at Kokomo, Indiana	48	7,620	9,130	10,200	11,100	12,000	13,200
134	03334000	Wildcat Creek at Owasco, Indiana	53	9,760	12,200	14,000	15,700	17,400	19,600
135	03334200	Prairie Creek Tributary near Frankfort, Indiana	17	206	249	281	312	343	383
136	03334500	South Fork Wildcat Creek near Lafayette, Indiana	61	10,100	12,800	14,700	16,600	18,500	21,000
138	03335000	Wildcat Creek near Lafayette, Indiana	49	18,700	22,500	25,100	27,500	29,900	32,700
139	03335500	Wabash River at Lafayette, Indiana	100	84,600	99,600	110,000	119,000	128,000	139,000
143	03335790	Big Shawnee Creek Tributary near Attica, Indiana	10	180	222	255	290	327	378
144	03336000	Wabash River at Covington, Indiana	77	100,000	123,000	140,000	156,000	171,000	190,000
147	03336645	Middle Fork Vermilion River Above Oakwood, Illinois	25	10,900	13,200	15,000	16,700	18,400	20,700
153	03338780	North Fork Vermilion River near Bismarck, Illinois	15	15,800	21,500	26,200	31,400	37,100	45,400

Table B.1: Results from peak series frequency analysis

DSN	Station No	Station Name	N	Q10	Q25	Q50	Q100	Q200	Q500
156	03339108	East Fork Coal Creek near Hillsboro, Indiana	23	2,330	2,630	2,820	3,010	3,170	3,380
158	03339280	Prairie Creek near Lebanon, Indiana	16	2,890	3,320	3,610	3,870	4,100	4,380
159	03339500	Sugar Creek at Crawfordsville, Indiana	68	19,600	24,300	27,700	31,100	34,500	38,900
160	03340000	Sugar Creek near Byron, Indiana	31	23,500	27,600	30,300	32,800	35,000	37,700
161	03340500	Wabash River at Montezuma, Indiana	80	115,000	140,000	157,000	172,000	187,000	205,000
166	03341500	Wabash River at Terre Haute, Indiana	113	127,000	156,000	177,000	196,000	215,000	239,000
167	03341700	Big Creek Tributary near Dudley, Illinois	15	378	503	608	722	847	1,030
170	03342100	Busseron Creek near Hymera, Indiana	37	1,710	2,060	2,320	2,580	2,850	3,230
171	03342150	West Fork Busseron Creek near Hymera, Indiana	20	1,740	2,020	2,220	2,420	2,610	2,860
175	03342300	Busseron Creek near Sullivan, Indiana	20	5,050	5,970	6,630	7,270	7,890	8,680
176	03342500	Busseron Creek near Carlisle, Indiana	60	5,530	6,680	7,560	8,440	9,340	10,600
177	03343000	Wabash River at Vincennes, Indiana	82	104,000	129,000	148,000	166,000	185,000	210,000
185	03346650	River Deshee Tributary near Frichton, Indiana	10	224	271	306	340	375	420
187	03347000	White River at Muncie, Indiana	81	9,830	12,200	13,900	15,500	17,200	19,200
189	03348000	White River at Anderson, Indiana	84	14,100	17,900	20,800	23,600	26,400	30,200
190	03348020	Killbuck Creek near Gaston, Indiana	24	853	1,140	1,370	1,630	1,910	2,320
191	03348350	Pipe Creek at Frankton, Indiana	35	4,100	5,060	5,750	6,400	7,030	7,810
192	03348500	White River near Noblesville, Indiana	61	20,500	25,400	28,900	32,400	35,700	40,100
193	03348700	White River Tributary near Strawtown, Indiana	10	82	101	116	130	145	163
194	03349000	White River at Noblesville, Indiana	57	19,400	24,100	27,600	31,100	34,700	39,500
195	03349500	Cicero Creek near Arcadia, Indiana	27	3,030	3,730	4,280	4,860	5,470	6,330
196	03349700	Little Cicero Creek near Arcadia, Indiana	26	1,990	2,550	3,000	3,470	3,960	4,640
197	03350100	Hinkle Creek near Cicero, Indiana	26	2,950	3,960	4,770	5,630	6,540	7,810
198	03350650	Stony Creek Tributary near Lapel, Indiana	10	162	206	241	277	314	366
200	03351000	White River near Nora, Indiana	76	25,400	30,900	34,800	38,400	41,900	46,200
201	03351310	Crooked Creek at Indianapolis, Indiana	34	2,480	3,290	3,970	4,700	5,510	6,680
202	03351400	Sugar Creek near Middletown, Indiana	21	909	1,150	1,320	1,500	1,680	1,920
203	03351500	Fall Creek near Fortville, Indiana	62	5,680	7,280	8,540	9,880	11,300	13,300
205	03352200	Mud Creek at Indianapolis, Indiana	24	1,390	1,700	1,930	2,160	2,390	2,690
207	03352500	Fall Creek at Millersville, Indiana	76	9,030	12,200	14,500	16,700	18,900	21,600
208	03353000	White River at Indianapolis, Indiana	94	33,700	40,600	45,300	49,800	54,000	59,200
209	03353120	Pleasant Run at Arlington Avenue at Indianapolis, Indiana	45	1,800	2,190	2,470	2,740	3,000	3,340
210	03353160	Pleasant Run at Brookville Road at Indianapolis, Indiana	23	2,490	3,230	3,820	4,430	5,080	5,980
211	03353180	Bean Creek at Indianapolis, Indiana	23	722	911	1,060	1,210	1,370	1,590
212	03353200	Eagle Creek at Zionsville, Indiana	47	8,080	9,730	10,800	11,900	12,800	13,900
213	03353500	Eagle Creek at Indianapolis, Indiana	65	12,000	15,900	18,900	22,000	25,100	29,400
217	03353600	Little Eagle Creek at Speedway, Indiana	44	2,520	3,100	3,510	3,930	4,330	4,870
218	03353620	Lick Creek at Indianapolis, Indiana	32	2,100	2,600	2,960	3,320	3,670	4,140

Table B.1: Results from peak series frequency analysis

DSN	Station No	Station Name	N	Q10	Q25	Q50	Q100	Q200	Q500
220	03353635	Derbyshire Creek at Southport, Indiana	12	1,010	1,310	1,540	1,770	2,000	2,300
222	03353637	Little Buck Creek near Indianapolis, Indiana	14	1,840	2,170	2,410	2,650	2,890	3,220
223	03353668	White Lick Creek Tributary near Brownsburg, Indiana	17	113	138	156	173	190	213
224	03353700	West Fork White Lick Creek at Danville, Indiana	47	3,520	4,770	5,840	7,060	8,430	10,500
225	03353800	White Lick Creek at Mooresville, Indiana	47	14,700	17,900	20,200	22,600	25,000	28,100
226	03354000	White River near Centerton, Indiana	60	41,000	48,200	53,200	57,800	62,100	67,500
227	03354500	Beanblossom Creek at Beanblossom, Indiana	42	3,170	4,240	5,130	6,100	7,140	8,660
229	03356780	Limestone Creek Tributary near Gosport, Indiana	10	225	282	326	372	419	483
230	03357000	White River at Spencer, Indiana	47	53,300	63,900	71,100	77,800	83,900	91,400
231	03357350	Plum Creek near Bainbridge, Indiana	34	698	870	1,000	1,130	1,260	1,450
232	03357500	Big Walnut Creek near Reelsville, Indiana	53	14,800	17,700	19,700	21,600	23,400	25,700
233	03358000	Mill Creek near Cataract, Indiana	54	8,930	10,900	12,400	13,900	15,500	17,600
235	03359500	Deer Creek near Putnamville, Indiana	16	9,680	11,700	13,100	14,500	16,000	17,800
236	03360000	Eel River at Bowling Green, Indiana	74	27,000	34,800	41,300	48,400	56,100	67,300
237	03360100	Clear Branch at Cory, Indiana	10	93	113	128	142	157	176
238	03360400	Doans Creek Tributary near Doans, Indiana	17	138	185	224	265	310	374
239	03360500	White River at Newberry, Indiana	98	67,000	82,000	92,900	104,000	114,000	128,000
242	03361000	Big Blue River at Carthage, Indiana	54	6,770	8,240	9,330	10,400	11,500	12,900
243	03361500	Big Blue River at Shelbyville, Indiana	61	12,000	14,500	16,400	18,300	20,200	22,700
245	03361660	Little Sugar Creek Tributary at Carrollton, Indiana	10	115	139	157	175	193	216
248	03362000	Youngs Creek near Edinburgh, Indiana	60	7,120	9,280	11,000	12,800	14,600	17,300
249	03362500	Sugar Creek near Edinburgh, Indiana	61	15,600	19,600	22,700	25,800	29,000	33,300
250	03363000	Driftwood River near Edinburgh, Indiana	50	28,100	35,500	41,300	47,200	53,400	61,800
252	03363500	Flatrock River at St. Paul, Indiana	72	13,300	16,700	19,300	21,800	24,200	27,500
253	03363900	Flatrock River at Columbus, Indiana	36	15,700	19,400	22,300	25,200	28,300	32,500
254	03364000	East Fork White River at Columbus, Indiana	59	44,300	55,900	64,900	74,000	83,300	95,900
257	03364500	Clifty Creek at Hartsville, Indiana	57	7,000	9,200	11,100	13,100	15,400	18,700
258	03364570	Fall Fork Clifty Creek Tributary near Horace, Indiana	10	321	443	539	640	744	888
259	03365000	Sand Creek near Brewersville, Indiana	39	12,800	15,800	18,200	20,600	23,100	26,500
260	03365500	East Fork White River at Seymour, Indiana	81	59,700	72,500	81,300	89,500	97,100	107,000
261	03366000	Graham Creek near Vernon, Indiana	20	11,600	15,300	18,500	22,000	26,000	32,000
262	03366200	Harberts Creek near Madison, Indiana	35	1,670	1,930	2,110	2,290	2,460	2,690
263	03366400	Lewis Creek Tributary near Kent, Indiana	10	115	131	142	152	161	172
264	03366500	Muscatatuck River near Deputy, Indiana	56	25,100	30,100	33,800	37,400	41,000	45,800
265	03367000	Muscatatuck River near Austin, Indiana	39	25,600	32,100	37,000	41,900	46,800	53,400
266	03367600	Flat Creek Tributary at New Frankfort, Indiana	10	162	215	259	306	358	432
267	03368000	Brush Creek near Nebraska, Indiana	48	3,510	4,630	5,600	6,700	7,950	9,870
268	03369000	Vernon Fork Muscatatuck River near Butlerville, Indiana	61	11,800	14,900	17,300	20,000	22,700	26,700

Table B.1: Results from peak series frequency analysis

DSN	Station No	Station Name	N	Q10	Q25	Q50	Q100	Q200	Q500
269	03369500	Vernon Fork Muscatatuck River at Vernon, Indiana	63	25,600	33,000	39,000	45,300	52,100	61,800
272	03371500	East Fork White River near Bedford, Indiana	63	65,300	78,700	88,000	96,900	105,000	116,000
273	03371520	Back Creek at Leesville, Indiana	33	7,050	9,730	12,000	14,600	17,600	22,000
274	03371600	South Fork Salt Creek at Kurtz, Indiana	11	5,740	6,630	7,270	7,890	8,490	9,280
276	03371650	North Fork Salt Creek at Nashville, Indiana	20	6,700	7,720	8,440	9,120	9,780	10,600
282	03372700	Clear Creek near Harrodsburg, Indiana	12	8,270	10,200	11,700	13,200	14,700	16,900
283	03373000	Salt Creek near Peerless, Indiana	27	19,800	24,600	28,300	31,900	35,500	40,300
284	03373200	Indian Creek near Springville, Indiana	20	6,210	7,320	8,080	8,800	9,490	10,300
286	03373500	East Fork White River at Shoals, Indiana	101	70,400	87,600	101,000	114,000	128,000	146,000
289	03373700	Lost River near West Baden Springs, Indiana	30	9,820	12,800	15,200	17,700	20,300	24,000
291	03374000	White River at Petersburg, Indiana	81	125,000	150,000	168,000	185,000	202,000	223,000
292	03374455	Patoka River near Hardinsburg, Indiana	34	2,920	3,820	4,580	5,440	6,390	7,830
294	03375500	Patoka River at Jasper, Indiana	58	9,030	12,600	15,700	19,200	23,100	29,100
295	03375800	Hall Creek near St. Anthony, Indiana	32	3,980	5,030	5,890	6,820	7,820	9,270
298	03376300	Patoka River at Winslow, Indiana	29	11,300	15,100	18,300	21,800	25,600	31,300
299	03376340	Patoka River Tributary near Glezen, Indiana	17	243	310	364	420	478	560
300	03376350	South Fork Patoka River near Spurgeon, Indiana	27	3,410	3,900	4,240	4,580	4,900	5,320
301	03376500	Patoka River near Princeton, Indiana	69	11,100	14,600	17,500	20,500	23,900	28,700
303	03378000	Bonpas Creek at Browns, Illinois	63	5,160	6,190	6,960	7,710	8,470	9,480
304	03378550	Big Creek near Wadesville, Indiana	38	7,470	8,780	9,740	10,700	11,600	12,800
305	03378590	Olive Creek Tributary near Solitude, Indiana	10	179	231	272	315	361	425
311	03379650	Madden Creek near West Salem, Illinois	21	861	1,150	1,390	1,650	1,940	2,360
328	04093000	Deep River at Lake George Outlet At Hobart, Indiana	57	3,040	3,790	4,350	4,910	5,470	6,220
329	04093200	Little Calumet River at Gary, Indiana	12	218	275	317	360	402	459
330	04093500	Burns Ditch at Gary, Indiana	48	2,740	3,310	3,730	4,150	4,560	5,090
331	04094000	Little Calumet River at Porter, Indiana	59	2,310	2,990	3,530	4,100	4,700	5,550
332	04094500	Salt Creek near McCool, Indiana	47	2,100	2,710	3,170	3,660	4,160	4,850
334	04095300	Trail Creek at Michigan City, Indiana	25	2,570	3,570	4,430	5,400	6,470	8,090
351	04099060	Pigeon Creek Tributary near Ellis, Indiana	10	100	134	160	189	219	262
352	04099510	Pigeon Creek near Angola, Indiana	58	650	784	884	985	1,090	1,220
353	04099610	Pretty Lake Inlet near Stroh, Indiana	17	23	31	37	44	51	60
354	04099750	Pigeon River near Scott, Indiana	35	1,890	2,200	2,430	2,650	2,870	3,150
355	04099808	Little Elkhart River at Middlebury, Indiana	24	2,070	2,540	2,880	3,210	3,530	3,950
356	04099850	Pine Creek near Elkhart, Indiana	24	493	669	815	973	1,140	1,390
357	04100165	Wible Lake Inlet near Kendallville, Indiana	10	46	55	61	67	73	81
358	04100220	North Branch Elkhart River near Cosperville, Indiana	24	656	761	835	905	972	1,060
359	04100222	North Branch Elkhart River at Cosperville, Indiana	32	722	851	944	1,040	1,130	1,250
360	04100252	Forker Creek near Burr Oak, Indiana	34	281	351	406	465	528	617
361	04100295	Rimmell Branch near Albion, Indiana	22	430	494	538	580	620	670
364	04100500	Elkhart River at Goshen, Indiana	76	4,740	5,610	6,220	6,800	7,370	8,080

Table B.1: Results from peak series frequency analysis

DSN	Station No	Station Name	N	Q10	Q25	Q50	Q100	Q200	Q500
365	04100800	Yellow Creek at Dunlap, Indiana	11	733	826	893	956	1,020	1,100
366	04101000	St. Joseph River at Elkhart, Indiana	82	15,100	17,700	19,700	21,700	23,700	26,400
373	04177720	Fish Creek at Hamilton, Indiana	34	632	744	824	900	975	1,070
375	04179000	St. Joseph River at Cedarville, Indiana	28	8,600	10,700	12,300	14,000	15,800	18,200
376	04179500	Cedar Creek at Auburn, Indiana	39	1,350	1,570	1,730	1,890	2,050	2,250
377	04179510	Cecil Metcaff Ditch near Auburn, Indiana	10	113	151	182	214	249	297
378	04180000	Cedar Creek near Cedarville, Indiana	57	4,720	5,300	5,680	6,030	6,340	6,710
379	04180500	St. Joseph River near Fort Wayne, Indiana	35	12,200	14,000	15,200	16,500	17,700	19,300
380	04181500	St. Marys River at Decatur, Indiana	71	9,900	11,900	13,400	14,800	16,200	18,000
381	04182000	St. Marys River near Fort Wayne, Indiana	74	10,800	12,600	13,800	14,900	15,900	17,200
382	04182590	Harber Ditch at Fort Wayne, Indiana	27	969	1,090	1,170	1,250	1,320	1,410
402	05515000	Kankakee River near North Liberty, Indiana	51	747	832	888	941	991	1,050
404	05515500	Kankakee River at Davis, Indiana	76	1,620	1,760	1,840	1,930	2,000	2,090
405	05516000	Yellow River near Bremen, Indiana	27	1,710	2,020	2,260	2,520	2,780	3,160
406	05516150	Walt Kimble Ditch near Lapaz, Indiana	10	267	417	556	718	907	1,200
407	05516500	Yellow River at Plymouth, Indiana	55	3,300	3,890	4,340	4,790	5,250	5,890
408	05517000	Yellow River at Knox, Indiana	60	3,670	4,250	4,660	5,060	5,450	5,940
409	05517400	West Arm Payne Ditch near North Judson, Indiana	9	161	245	322	412	517	682
410	05517500	Kankakee River at Dunns Bridge, Indiana	55	4,830	5,290	5,600	5,890	6,160	6,500
411	05517530	Kankakee River near Kouts, Indiana	29	4,980	5,380	5,660	5,930	6,190	6,510
413	05517890	Cobb Ditch near Kouts, Indiana	36	1,010	1,200	1,330	1,450	1,560	1,710
414	05518000	Kankakee River at Shelby, Indiana	81	5,790	6,300	6,620	6,910	7,170	7,470
415	05519000	Singleton Ditch at Schneider, Indiana	52	2,110	2,530	2,850	3,150	3,450	3,840
416	05519500	West Creek near Schneider, Indiana	23	1,640	1,960	2,190	2,410	2,620	2,900
419	05522000	Iroquois River near North Marion, Indiana	45	1,480	1,710	1,870	2,020	2,160	2,340
420	05522500	Iroquois River at Rensselaer, Indiana	55	2,080	2,340	2,510	2,660	2,790	2,960
421	05523000	Bice Ditch near South Marion, Indiana	45	858	1,000	1,100	1,200	1,290	1,410
422	05523500	Slough Creek near Collegeville, Indiana	33	2,060	2,450	2,720	2,980	3,230	3,550
425	05524500	Iroquois River near Foresman, Indiana	55	4,610	5,360	5,880	6,360	6,820	7,380
436	05536190	Hart Ditch at Munster, Indiana	60	2,540	2,990	3,310	3,610	3,900	4,260

Table B.1: Results from peak series frequency analysis

Appendix C

The entries in table C.1 are as follows:

RequestID – IDNR record number of determination

RequestDate – Date of request

Q(DNR) – IDNR determined 100-year frequency discharge

EffDA – Effective Drainage Area

Slope – Slope of Watercourse (10-85)

%W – Estimated percentage of watershed covered by water or wetlands

%U – Estimated percentage of watershed urbanized

WaterBody – Name of stream

Basin – IDNR basin request lies in

Region – Region (from this study) request lies in

Q100 – 100 year frequency discharge as determined by this study

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
8060	15-Dec-95	9500	172.00	3.49	3.4	5.0	Pipe Creek	9	4	9001
8065	03-Jan-95	1000	2.39	16.60		5.0	Harr Wills Ditch	13	4	834
8069	13-Jan-95	1050	1.08	40.00		5.0	Vernon Fork	22	3	621
8073	05-Jan-95	1000	1.04	32.58		100.0	Lynn Creek	18	4	845
8076	17-Jan-95	1450	1.14	70.32		0.0	Jahn Creek	24	2	1000
8079	17-Jan-95	1400	3.95	24.18		0.0	Rocky Run	15	1	1313
8089	25-Jan-95	900	1.35	36.36		0.0	Unnamed Tributary Little Blue River	19	4	799
8092	27-Jan-95	1000	1.63	38.10		10.0	UNT West Fork White Lick Creek	18	4	1154
8093	27-Jan-95	4200	14.29	9.75		1.0	Tough Creek	21	3	3418
8095	02-Feb-95	1600	2.51	26.92		0.0	Crooked Creek	18	4	1070
8097	02-Feb-95	1600	2.33	34.51		40.0	Dollar Hide Creek	18	4	1590
8099	06-Feb-95	800	1.13	25.50		10.0	Unnamed Tributary White Lick Creek	18	4	643
8104	01-Feb-95	950	1.56	15.53		6.0	Cheeney Creek	14	4	568
8106	17-Feb-95	2600	4.05	28.57		12.0	Unnamed Tributary Ell Creek	24	2	1810
8107	17-Feb-95	1300	1.68	28.44		15.0	Unnamed Tributary Ell Creek	24	2	935
8109	02-Feb-95	1100	2.33	25.59		0.0	Crooked Creek	18	4	972
8110	02-Feb-95	1525	1.42	25.56		0.0	Crooked Creek	18	4	648
8111	17-Feb-95	1800	2.52	44.22		0.0	Unnamed Tributary Driftwood River	19	4	1529
8114	22-Feb-95	3600	29.74	4.37	.5	5.0	Eightmile Creek	9	8	1769
8115	22-Feb-95	1900	3.17	38.56		10.0	Grassy Fork	18	4	2003
8124	24-Feb-95	1200	2.24	35.76		95.0	Unnamed Tributary Wabash River	16	1	1046
8125	24-Feb-95	2000	8.70	20.58		2.0	Metocinah Creek	11	4	2648
8126	03-Mar-95	2300	7.49	7.21		1.0	White Lick Creek	18	4	1077
8127	03-Mar-95	600	1.21	51.49	2.8	5.0	Goose Run	9	7	204
8128	07-Mar-95	1100	1.98	24.77		6.0	Unnamed Tributary Dry Branch	13	4	962
8129	08-Mar-95	2500	2.45	96.97		0.0	Little Indian Creek	18	4	2614
8130	09-Mar-95	750	2.20	36.75	1.5	0.0	Unnamed Tributary Crooked Creek	9	7	420
8131	24-Feb-95	8800	63.60	6.35		10.0	Conns Creek	19	4	6407
8132	03-Mar-95	6300	36.04	8.34		0.0	Sugar Creek	19	4	4087
8137	20-Mar-95	1300	2.54	19.12		3.0	Turkey Run	28	3	971
8139	15-Mar-95	8700	125.48	2.69		5.0	Big Pine Creek	8	1	5882
8141	24-Feb-95	1600	8.76	9.79	.5	1.0	Black Creek	12	8	631
8142	24-Feb-95	1400	4.45	15.28		7.0	Woodruff Branch	18	4	1334
8145	27-Feb-95	2300	13.07	20.00		0.0	Morgan Creek	20	4	3330
8146	28-Mar-95	1250	3.15	60.83		1.0	Little Duck Creek	20	4	2425
8147	27-Feb-95	150	0.20	90.14		2.0	Unnamed Tributary Burnett Creek	9	1	257
8148	09-Mar-95	2700	4.37	30.47		76.0	Hawkins Creek	18	1	1631
8150	14-Mar-95	600	2.32	18.14	2.4	1.0	Harris Creek	12	8	117
8152	29-Mar-95	1375	3.69	59.37		1.0	Little Duck Creek	20	4	2712
8156	13-Mar-95	1025	4.51	8.51	1.5	2.0	East Creek	12	8	253

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
8158	14-Mar-95	1700	9.10	5.18		1.0	Swanfelt Ditch	14	4	998
8160	24-Mar-95	300	1.20	27.93	1.2	1.0	Crazy Creek	6	7	254
8161	24-Mar-95	1300	2.46	36.18	8.3	7.0	Helm Creek	9	7	160
8162	04-Apr-95	560	1.11	20.51		1.0	Davis Ditch	18	4	478
8163	04-Apr-95	550	1.07	19.55		1.0	Davis Ditch	18	4	448
8164	07-Apr-95	2450	18.90	5.32		6.0	Back Creek	11	4	2028
8168	13-Apr-95	225	2.00	7.18	21.8	2.0	Laramore Ditch	2	5	199
8169	10-Apr-95	830	3.20	14.55	1.4	2.0	Graham McCulloch Ditch Number Four	9	8	195
8171	12-Apr-95	1700	3.51	24.24		0.0	Little Turtle Creek	16	1	1196
8174	12-Apr-95	2200	12.41	10.33		1.0	Harness Ditch	9	4	2101
8177	18-Apr-95	1100	1.54	59.08		0.0	UNT East Fork Whitewater River	20	3	1012
8178	17-Apr-95	475	1.34	22.63	3.1	1.0	Squaw Creek	9	8	64
8180	17-Apr-95	1650	4.17	23.08		5.0	Unnamed Tributary Big Creek	16	1	1335
8189	26-Apr-95	2200	6.23	26.90		30.0	Feather Creek	16	1	2017
8191	26-Apr-95	600	2.25	21.17	1.6	10.0	Unnamed Saint Marys River #1	7	8	137
8197	20-Apr-95	430	42.00	5.01	20.1	15.0	Crooked Creek	3	8	376
8199	04-May-95	1300	5.02	11.97	.8	3.0	Delong Ditch	9	8	348
8205	09-May-95	700	11.60	9.01	5.3	2.0	Peterson Ditch	5	7	496
8230	18-May-95	8700	50.54	6.14		0.0	First Creek	18	2	6523
8232	19-May-95	500	1.36	99.82	7.3	2.0	Waterford Creek	1	6	3791
8235	10-May-95	1850	7.46	17.83	.4	10.0	Kent Ditch	4	5	725
8237	10-May-95	3000	28.28	10.28	.2	10.0	Hunter Ditch	4	5	1630
8242	09-Jun-95	1700	6.60	2.48		10.0	Sloan Ditch	18	2	995
8244	10-May-95	1050	3.68	11.49		10.0	Pee Dee Ditch	19	4	955
8245	12-May-95	1250	10.40	27.83		5.0	Williams Creek	15	1	3108
8246	16-May-95	1200	1.86	45.33		2.0	Owl Creek	17	4	1319
8249	08-May-95	1400	7.22	4.69		2.0	Sugar Creek	9	4	793
8250	17-May-95	3450	13.20	14.19		1.0	Turkey Run	16	1	2539
8251	16-May-95	1300	3.12	37.73		1.0	Middle Prong Green Creek	13	4	1713
8252	10-May-95	4000	17.00	8.89		1.0	Sugar Creek	19	4	2440
8253	16-May-95	1400	7.33	4.57		2.0	Middle Fork Ditch	10	4	789
8254	05-Jun-95	9950	117.57	4.68		2.0	Deer Creek	9	4	7719
8258	13-Jun-95	2900	18.93	3.48		1.0	Browns Wonder Creek	13	4	1366
8259	19-May-95	600	5.39	43.16		9.0	Damon Run	1	6	4318
8262	06-Jul-95	300	2.26	3.57		5.0	Swanson Lamporte Ditch	1	6	210
8263	13-Jun-95	3100	10.77	19.88		20.0	Brown Ditch	8	1	2626
8265	12-Jun-95	18000	95.22	4.64		5.0	Anderson River	26	2	9382
8266	14-Jun-95	4100	8.38	29.10		0.0	Green Creek	24	2	3141
8268	20-Jun-95	2100	3.90	28.10		26.0	Dollar Hide Creek	18	4	2026
8269	22-Jun-95	900	5.93	17.32	4.2	2.0	Adams Ditch	5	7	413

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
8271	27-Jun-95	4600	22.40	13.09		1.0	Sixmile Creek	22	2	4783
8272	29-Jun-95	415	1.15	20.56	1.7	3.0	Unnamed Tributary Little Cedar Creek	7	7	187
8275	21-Jun-95	4000	7.55	45.24		2.0	Davis Creek	24	2	3457
8276	21-Jun-95	4800	10.58	32.04		2.0	Davis Creek	24	2	3884
8277	26-Jun-95	10200	28.32	36.64		5.0	Arnold Creek	28	3	11224
8278	28-Jun-95	3200	26.95	2.91		3.0	Deer Creek	11	4	1691
8282	27-Jun-95	500	1.11	9.57		1.0	Unnamed Tributary Black Creek	13	4	278
8284	05-Jul-95	900	3.46	15.43	10.6	10.0	Fredricks Ditch	5	7	133
8285	06-Jul-95	1300	3.03	71.27		10.0	Clay Creek	20	4	2990
8290	07-Jul-95	6500	44.80	9.41		5.0	Walnut Fork Sugar Creek	13	4	6085
8295	21-Jul-95	1450	5.07	20.49	.4	10.0	Kent Ditch	4	5	569
8296	21-Jul-95	25000	253.26	2.50		5.0	Anderson River	26	2	15285
8297	24-Jul-95	1900	12.41	5.67		5.0	Lilly Creek	14	4	1489
8300	24-Jul-95	3150	79.20	3.20	.5	0.0	Blue Creek	7	8	4039
8303	24-Jul-95	16500	96.40	12.58		15.0	Sand Creek	21	3	21184
8304	25-Jul-95	1000	4.27	14.81		0.0	Lows Branch	11	4	1079
8307	8/1/1995	1000	2.42	4.24		10.0	Swamp Creek	19	4	334
8314	09-Aug-95	2300	2.75	78.90		10.0	Greasy Creek	21	2	2022
8318	10-Aug-95	1200	4.94	9.59	3.4	0.0	Black Creek	7	7	330
8320	15-Aug-95	2800	10.10	14.30		5.0	Lewis Creek	19	4	2431
8321	16-Aug-95	2500	14.51	10.88		10.0	Sly Fork	14	4	2815
8322	16-Aug-95	1100	21.05	4.30	2.0	45.0	Main Beaver Dam Ditch	1	5	974
8323	18-Aug-95	875	1.70	7.62		3.0	William Lehr Ditch	14	4	352
8332	30-Aug-95	1850	3.45	19.57		5.0	Lenox Ditch	18	4	1265
8334	01-Sep-95	4200	15.43	25.24		5.0	East Fork Mill Creek	17	4	5149
8336	05-Sep-95	700	27.50	4.03		5.0	Geyer Ditch	2	6	1314
8338	07-Sep-95	6450	44.03	9.22		10.0	Little Sugar Creek	13	4	6189
8339	06-Sep-95	750	14.30	2.56	.8	10.0	Quigley Marsh Ditch	5	5	612
8340	07-Sep-95	900	1.09	64.11		5.0	UNT West Fork White Lick Creek	18	4	1150
8342	11-Sep-95	2200	6.02	30.55		0.0	Leatherman Creek	17	4	2392
8345	13-Sep-95	3100	22.95	4.95	.6	5.0	Hoffman Creek	7	8	1359
8346	13-Sep-95	700	2.21	10.37		5.0	W N Henderson Ditch	9	4	560
8348	20-Sep-95	2000	22.65	3.22		3.0	South Fork Deer Creek	9	4	1577
8349	21-Sep-95	750	5.06	16.36	6.2	3.0	Cobb Creek	2	5	526
8351	25-Sep-95	23000	37.10	20.18		1.0	Buck Creek	28	2	8274
8355	05-Oct-95	900	1.20	17.54		55.0	Julia Creek	18	4	585
8357	05-Oct-95	26000	96.30	8.13		5.0	Graham Creek	22	3	17508
8360	05-Oct-95	5000	14.96	23.39		0.0	Lick Creek	20	3	5208
8361	05-Oct-95	1900	7.94	17.78	.5	5.0	Rush Creek	12	8	581
8368	10-Oct-95	3600	13.51	7.74		5.0	Black Creek	13	4	1991

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RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
8369	11-Oct-95	400	1.16	23.99	2.3	25.0	Unnamed Tributary Becketts Run	7	8	66
8370	11-Oct-95	3800	12.98	24.87		0.0	Symonds Creek	20	4	3867
8372	12-Oct-95	1200	2.68	18.78		15.0	Unnamed Tributary Conneley Ditch	17	2	1126
8377	19-Oct-95	2200	6.09	35.37		25.0	Sinking Creek	18	4	3423
8378	20-Oct-95	1650	5.84	23.81		5.0	Plum Creek	17	4	2235
8380	23-Oct-95	8500	38.98	17.41		5.0	Salt Creek	20	4	8419
8382	03-Oct-95	1400	1.35	149.90		0.0	Plummer Creek	18	2	1529
8384	27-Oct-95	15000	51.30	29.63		0.0	Indian Kentuck Creek	28	3	17447
8389	31-Oct-95	4000	29.18	4.60		0.0	Walnut Creek	11	4	2252
8391	08-Nov-95	800	4.23	5.67		5.0	Prairie Creek Ditch	10	4	619
8397	15-Nov-95	1250	4.58	7.19		5.0	Sanitary Ditch	13	4	782
8401	13-Nov-95	550	0.87	22.47		15.0	Jordan Creek	16	1	372
8406	20-Nov-95	600	3.13	7.10	.3	5.0	Ayers Ditch	7	8	293
8407	17-Nov-95	700	9.69	13.29		5.0	Kartoffel Creek	2	6	2052
8412	21-Nov-95	5000	29.35	10.26		0.0	First Creek	18	2	5318
8417	01-Dec-95	3650	7.47	42.48		0.0	Caney Fork	28	3	3619
8419	06-Dec-95	1000	1.03	88.00		5.0	Unnamed Tributary Little Indian Creek	28	2	1012
8420	06-Dec-95	5000	11.65	44.79		5.0	Caesar Creek	23	3	5518
8421	06-Dec-95	2600	7.78	3.08		45.0	Eagle Creek	28	2	1226
8425	11-Dec-95	15500	19.36	23.01		3.0	Buck Creek	28	2	5356
8426	13-Dec-95	1900	3.10	37.56		10.0	Goose Creek	18	4	1931
8427	13-Dec-95	2350	5.93	16.93		0.0	Foreman Branch	19	4	1552
8428	14-Dec-95	1700	6.06	9.73		6.0	Little Cicero Creek	14	4	1232
8430	18-Dec-95	5500	10.90	42.32		5.0	Stephens Creek	21	2	4432
8431	19-Dec-95	3300	9.56	7.95		2.0	Finley Creek	18	4	1453
8433	20-Dec-95	4000	12.30	16.56		5.0	Little Sand Creek	21	4	3170
8434	20-Dec-95	4000	15.77	13.74		2.0	Duck Creek	21	3	4334
8436	20-Dec-95	1800	5.31	7.65		0.0	Unnamed Tributary Pigeon Creek	25	2	1318
8437	21-Dec-95	1400	7.29	13.66		5.0	Honey Creek	14	4	1804
8440	03-Jan-95	4200	6.60	86.11		0.0	Lost Fork Creek	28	3	4401
8441	08-Jan-95	1750	3.17	82.54		5.0	Wilson Creek	20	3	2237
8442	08-Jan-96	250	4.93	6.17		2.0	Chain-o-lakes Ditch	2	6	611
8443	08-Jan-96	1350	5.32	12.70		15.0	Moore Prong	11	4	1426
8445	08-Jan-96	2200	5.41	10.88		10.0	Flat Branch	19	4	1259
8448	10-Jan-96	1100	4.53	15.84		3.0	Sugar Creek	14	4	1318
8452	17-Jan-96	900	1.30	49.38		20.0	Unnamed Tributary Pond Flat Ditch	16	1	815
8453	10-Jan-96	5100	37.40	7.13		5.0	Pokeberry Creek	25	2	5524
8456	18-Jan-96	2100	3.64	19.70		20.0	Fishers Fork	21	4	1459
8461	24-Jan-95	2350	10.84	4.79		5.0	Buck Creek	19	4	1182
8473	09-Feb-96	3300	9.14	37.84		0.0	Nineveh Creek	19	4	3916

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RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
8478	15-Feb-96	750	2.52	21.23		2.0	Evans Creek	20	4	985
8480	21-Feb-96	1700	5.09	22.10		5.0	Hinkle Creek	14	4	1895
8481	21-Feb-96	700	1.03	22.00		20.0	Williamson Ditch	19	4	564
8482	20-Feb-96	2000	6.38	26.46		5.0	Mill Creek	17	4	2590
8483	16-Feb-96	5000	12.80	22.54		0.0	Patoka River	24	3	4456
8485	1/30/1996	370	8.07	9.18	3.2	20.0	Gast Ditch	3	8	288
8486	30-Jan-96	300	2.37	4.50	2.7	20.0	Willow Creek	3	8	112
8488	28-Feb-95	3150	17.10	16.48		5.0	Big Creek	25	2	4280
8491	28-Feb-96	2100	4.54	9.91		10.0	Dry Branch	14	4	1021
8492	28-Feb-96	5700	24.00	13.33		2.0	Raccoon Creek	18	2	5072
8494	06-Mar-96	3900	19.23	13.95		10.0	Campbells Run	10	4	4228
8499	13-Mar-96	1300	1.93	8.92		7.0	Breier Arm	19	4	460
8507	22-Mar-96	3800	13.03	8.68		0.0	Symons Creek	20	4	1833
8509	21-Mar-96	900	2.11	8.04		0.0	Rash Ditch	14	4	393
8510	27-Mar-96	2900	55.20	8.31		20.0	Pine Creek	2	6	4295
8521	29-Mar-96	1700	8.33	17.40	.6	0.0	West Prong Franks Drain	9	8	578
8526	02-Apr-96	600	1.96	27.20	1.9	0.0	Freemyer Ditch	9	8	113
8527	12-Apr-96	1100	2.13	24.00		35.0	Unnamed Tributary Cypress Creek	28	2	1045
8528	02-Apr-96	900	2.87	23.30	.6	0.0	Wilson Creek	9	8	235
8529	02-Apr-96	1150	4.00	21.60	.6	0.0	Limberlost Creek	9	8	312
8530	03-Apr-96	300	1.18	15.69		10.0	UNT West Branch Trail Creek	1	6	567
8531	03-Apr-96	6000	154.50	3.60		10.0	Pipe Creek	9	4	8824
8532	02-Apr-96	2050	13.97	13.75	.1	5.0	Montgomery Ditch	4	5	1061
8533	04-Apr-96	600	1.20	34.00	1.9	0.0	Goose Run	9	7	218
8534	04-Apr-96	700	1.60	56.00	.6	10.0	Unnamed Tributary Prairie Ditch	9	7	533
8535	10-Apr-96	2700	9.65	16.51		10.0	Buck Creek	18	2	2791
8536	10-Apr-96	2700	9.85	16.46		10.0	Buck Creek	18	2	2831
8538	16-Apr-96	2000	3.10	97.40		5.0	Clay Lick Creek	21	2	2403
8549	24-Apr-96	3500	39.84	3.49		10.0	Turkey Creek	10	4	2856
8554	24-Apr-96	1850	9.88	9.23		5.0	Little Deer Creek	9	4	1748
8558	08-May-96	2500	20.60	5.59		5.0	Barren Creek	11	4	2228
8559	17-Apr-96	800	1.62	10.40		20.0	Boulder Run	19	4	478
8561	02-May-96	2200	4.96	10.02		25.0	Dry Branch	14	4	1180
8562	05-May-96	900	1.22	29.93		90.0	Drexel Run	18	4	899
8563	13-May-96	650	9.06	6.82		0.0	Lateral Number Fifteen Ditch	2	6	1023
8565	06-May-96	1200	2.22	30.14		40.0	Unnamed Tributary Ohio River	28	2	1179
8566	06-May-96	5800	31.00	10.86		5.0	Black Creek	13	4	4990
8567	08-May-96	5200	33.76	5.60		5.0	Big Raccoon Creek	15	4	3338
8570	17-May-96	6200	42.77	8.21		5.0	Walnut Fork Sugar Creek	13	4	5317
8571	17-May-96	3500	30.90	5.30	1.5	0.0	Sugar Creek	6	7	1970

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8573	21-May-96	800	4.15	11.73		40.0	Unnamed Tributary Cole Ditch	9	1	895
8575	15-May-96	4000	22.56	6.81		5.0	Walnut Fork Sugar Creek	13	4	2762
8576	14-May-96	11500	60.96	14.32		10.0	Indian Creek	18	4	11042
8577	17-May-96	4000	8.57	55.22		5.0	Ellys Creek	20	3	4588
8578	17-May-96	1200	5.58	16.40		10.0	William Lock Ditch	14	4	1729
8581	22-May-96	1900	3.94	15.36		30.0	Dry Branch	13	4	1343
8584	21-May-96	600	8.02	1.67	22.5	35.0	Dike Ditch	2	5	343
8586	01-Jul-96	350	1.72	39.50	9.8	5.0	Beauty Creek	1	5	316
8587	23-May-96	2200	4.22	38.69		10.0	Herriotts Creek	19	4	2536
8589	24-May-96	960	28.46	9.80		20.0	Jain Ditch	2	6	3198
8593	28-May-96	2025	3.48	44.60		20.0	Doe Creek	17	4	2517
8594	30-May-96	1200	4.98	23.55	3.8	0.0	Plunge Creek	6	7	423
8595	31-May-96	600	2.99	25.78	1.1	15.0	Unnamed Tributary Little River	9	8	202
8598	05-May-96	1700	3.92	16.50		0.0	Moores Creek	19	4	1087
8599	04-Jun-96	1000	1.39	41.12		20.0	Unnamed Tributary Little Pigeon Creek	25	2	939
8600	05-Jun-96	700	1.72	80.11		10.0	Dry Fork	18	4	2047
8601	06-Jun-96	2500	3.65	39.50		0.0	Indian Creek	18	4	1909
8603	06-Jun-96	1100	36.70	1.60		0.0	Lucas Ditch	2	5	1056
8604	07-Jun-96	5000	51.70	4.90	1.7	0.0	Big Creek	5	5	1993
8605	06-Jun-96	1250	1.97	56.16		5.0	Travis Creek	18	4	1697
8609	10-Jun-96	1100	1.37	68.40		5.0	Unnamed Tributary Bayou Creek	28	2	1135
8610	12-Jun-96	14000	92.78	7.43		30.0	Indian Creek	21	2	11079
8612	17-Jun-96	3900	8.88	18.95		6.0	North Prong Stotts Creek	18	4	2706
8613	17-Jun-96	2150	3.77	32.05		5.0	Bluff Creek	18	4	1933
8614	19-Jun-96	2500	22.20	5.50	.6	5.0	Sugar Creek	4	5	1101
8615	19-Jun-96	1200	3.75	30.81	.4	10.0	Mud Creek	4	5	521
8617	19-Jun-96	3200	15.75	6.59		5.0	Little Pine Creek	8	1	1869
8620	19-Jun-96	1400	1.32	274.51		0.0	Elkhorn Creek	20	3	1717
8621	20-Jun-96	1100	1.40	82.51		0.0	Wolf Creek	21	2	1242
8622	20-Jun-96	970	38.00	5.35	2.6	0.0	Eagle Creek	2	5	1631
8624	01-Jul-96	550	1.39	40.90		10.0	Unnamed Tributary Mississinewa River	11	4	1066
8625	28-Jun-96	1400	2.23	37.00		5.0	UNT East Fork Mill Creek	17	4	1395
8627	02-Jul-96	1750	73.95	5.50		5.0	Crooked Creek	2	6	3513
8629	16-Jul-96	3300	10.75	11.22		10.0	McFadden Creek	28	2	2599
8630	11-Jul-96	4500	9.17	18.27		4.0	Blackhawk Creek	26	2	2796
8631	12-Jul-96	3200	24.40	4.88	2.5	39.0	Fairfield Ditch	7	8	830
8632	15-Jul-96	3100	23.00	2.94	2.5	1.0	Hamm Interceptor Ditch	7	8	790
8634	08-Jul-96	800	1.37	130.00		10.0	Unnamed Tributary Short Creek	20	4	2400
8636	08-Jul-96	1000	1.48	85.71		5.0	Green Valley Creek	21	2	1314
8638	17-Jul-96	1150	2.93	8.89		10.0	Laughner Ditch	18	4	661

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RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
8639	19-Jul-96	700	1.42	4.44		25.0	Nurenberg Ditch	28	2	397
8643	12-Jul-96	750	1.80	5.49		5.0	Isenhour Ditch	13	4	301
8644	12-Jul-96	850	2.26	5.61		5.0	Isenhour Ditch	13	4	368
8645	12-Jul-96	750	2.80	20.24	2.5	5.0	Jackson Number Two Ditch	7	8	134
8646	15-Jul-96	550	6.69	3.08	14.4	5.0	Craigmile Ditch	2	5	369
8648	29-Jul-96	2175	25.40	9.13		20.0	Peter Sarber Ditch	2	6	2760
8649	19-Jul-96	1500	1.78	87.00		5.0	Muddy Fork	18	2	1518
8650	16-Jul-96	800	2.18	34.50		90.0	Blue Woods Creek	14	4	1598
8653	01-Aug-96	1900	3.73	17.20		15.0	Corner Creek	13	4	1324
8654	22-Jul-96	16700	53.70	13.80		15.0	Clear Creek	21	2	9393
8657	05-Aug-96	1600	6.70	27.00		5.0	Little Buck Creek	14	4	2735
8663	13-Aug-96	5200	12.90	15.34		0.0	South Hogan Creek	28	3	3796
8664	08-Aug-96	900	2.13	29.00	1.2	10.0	Unnamed Tributary Wabash River	9	7	417
8669	14-Aug-96	2800	16.38	2.30		5.0	East Fork Big Walnut Creek	17	4	982
8670	14-Aug-96	800	1.03	16.97		0.0	UNT East Fork Big Walnut Creek	17	4	373
8671	12-Aug-96	3600	8.41	30.60		5.0	Little Williams Creek	20	3	3490
8674	19-Aug-96	250	1.35	4.85		0.0	Hodge Ditch	2	6	198
8677	16-Aug-96	280	2.18	14.30	5.4	45.0	Unnamed Tributary Turkey Creek	1	5	268
8678	16-Aug-96	240	1.65	23.40	5.4	55.0	Unnamed Tributary Turkey Creek	1	5	257
8679	13-Aug-96	900	1.11	34.60		20.0	Bunker Creek	18	4	827
8680	19-Aug-96	800	1.36	8.33		10.0	Alexander Ditch	19	4	337
8681	26-Aug-96	1000	1.67	50.98		20.0	Unnamed Tributary McCracken Creek	18	4	1521
8682	26-Aug-96	1200	5.12	16.50	10.2	35.0	Charley Creek	9	7	194
8683	26-Aug-96	1100	3.49	34.76		30.0	Unnamed Tributary Sallust Branch	17	4	2175
8685	29-Aug-96	17500	63.03	10.42		15.0	Otter Creek	22	3	13330
8687	23-Aug-96	650	1.18	11.26		20.0	Middle Fork	14	4	391
8690	30-Aug-96	3200	7.67	27.60		0.0	Big Cedar Creek	20	3	3072
8691	05-Sep-96	900	1.30	43.60		5.0	UNT East Fork Mill Creek	17	4	1009
8692	12-Sep-96	1000	1.88	18.00		2.0	Unnamed Tributary Coal Creek	16	1	608
8693	13-Sep-96	900	1.52	36.13		0.0	Unnamed Tributary Redwood Creek	16	1	770
8695	16-Sep-96	4300	25.00	10.90		5.0	Duck Creek	19	4	4198
8696	17-Sep-96	2400	28.70	3.72		5.0	Mud Creek	10	4	2185
8697	17-Sep-96	10500	30.30	33.70		5.0	West Fork Indian Kentuck Creek	28	3	11501
8698	13-Sep-96	1600	1.81	24.40		45.0	Lancassange Creek	28	3	797
8699	30-Sep-96	4000	8.88	16.80		5.0	Honey Creek	28	2	2641
8701	23-Sep-96	5500	61.20	1.85		5.0	Big Pine Creek	8	1	2651
8703	24-Sep-96	2500	3.81	28.90		20.0	Irishman Run	18	4	1990
8705	02-Oct-96	1125	3.75	29.80		85.0	Blue Woods Creek	14	4	2232
8706	01-Oct-96	2200	2.31	90.20		0.0	Baby Creek	21	2	1871
8710	05-Oct-96	1200	2.07	89.10		0.0	Little Sanes Creek	20	4	2145

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
8713	10-Oct-96	900	2.65	27.20		80.0	Highland Creek	18	4	1569
8714	11-Oct-96	1200	2.10	103.00		2.0	Knob Creek	28	2	1836
8715	15-Oct-96	1300	2.75	27.70		0.0	Offield Creek	13	4	1177
8719	21-Oct-96	3100	19.50	8.51		5.0	Lick Creek	14	4	2874
8720	21-Oct-96	2300	7.79	20.80		5.0	McCracken Creek	18	4	2568
8725	30-Oct-96	250	3.20	14.50	.6	0.0	Friskney Ditch	5	7	596
8726	31-Oct-96	1400	5.66	9.20		0.0	Hills Branch	19	4	968
8727	28-Oct-96	500	5.93	6.23	2.7	45.0	Willow Creek	3	8	242
8729	01-Nov-96	1900	3.04	41.10		1.0	Sugar Creek	25	2	1685
8731	04-Nov-96	850	1.04	19.00		75.0	Hamilton Ditch	18	4	564
8732	06-Nov-96	1200	3.93	14.00	2.8	2.0	Unnamed Tributary Treaty Creek	9	7	349
8733	08-Nov-96	950	1.02	32.60		50.0	Behner Brook	14	4	791
8734	12-Nov-96	1800	3.02	62.60		2.0	Leatherwood Creek	17	4	2466
8735	18-Nov-96	900	1.36	53.20		0.0	Unnamed Tributary Robinson Creek	25	2	1022
8737	15-Nov-96	675	2.23	6.14	.8	2.0	Gromeaux Ditch	7	8	175
8738	15-Nov-96	4600	45.10	4.97	.8	5.0	Hoffman Creek	7	8	2213
8739	21-Nov-96	3000	20.60	5.65		2.0	Cicero Creek	14	4	2131
8740	21-Nov-96	4800	44.40	5.67		2.0	Cicero Creek	14	4	3998
8744	22-Nov-96	9000	19.80	24.70		10.0	Jacks Defeat Creek	18	2	5602
8745	22-Nov-96	2050	2.13	123.00		2.0	Cranes Run	20	3	1862
8747	26-Nov-96	1300	7.24	7.46		2.0	Stony Creek	14	4	1107
8748	27-Nov-96	700	1.38	36.80		2.0	Unnamed Tributary Falls Branch	17	4	892
8749	02-Dec-96	2000	4.33	9.48		10.0	Dry Branch	14	4	951
8751	05-Dec-96	800	1.40	14.30		10.0	Springer McGaughey Ditch	19	4	507
8752	17-Dec-96	950	1.83	14.20		10.0	Springer McGaughey Ditch	19	4	628
8753	17-Dec-96	1000	1.96	14.50		10.0	Springer McGaughey Ditch	19	4	674
8754	06-Dec-96	900	1.21	53.80		10.0	Unnamed Tributary Little Pigeon Creek	25	2	941
8756	13-Dec-96	1100	1.99	17.30		10.0	Unnamed Tributary White Lick Creek	18	4	774
8757	16-Dec-96	1700	2.61	26.70		45.0	McCarty Ditch	16	1	997
8758	17-Dec-96	1250	5.13	12.70		5.0	North Fork Burnett Creek	9	1	1112
8760	20-Dec-96	1000	1.22	105.00		5.0	Unnamed Tributary Richland Creek	18	2	1232
8761	30-Dec-96	1900	4.01	12.90		5.0	Flat Branch	19	4	1063
8762	30-Dec-96	2000	6.18	8.81		0.0	Wiley Thompson Ditch	18	4	1008
8763	30-Dec-96	1000	1.99	14.80		70.0	Unnamed Tributary White Lick Creek	18	4	797
8764	26-Dec-96	1900	6.49	6.93		5.0	Sanitary Ditch	13	4	1012
8766	31-Dec-96	6500	51.80	5.15		15.0	West Fork White River	14	4	4801
8768	02-Jan-97	1300	1.51	23.50		0.0	Unnamed Tributary Duck Creek	21	3	666
8771	03-Jan-97	1350	1.13	140.00		10.0	Unnamed Tributary Clear Creek	21	2	1303
8774	08-Jan-97	1500	1.31	84.20		20.0	Castleberry Creek	28	2	1191
8777	08-Jan-97	1000	1.42	52.30		0.0	UNT South Fork Patoka River	24	2	1049

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
8778	08-Jan-97	1300	2.74	24.40		0.0	Unnamed Tributary Honey Creek	16	1	984
8779	08-Jan-97	2300	5.06	29.50		5.0	Unnamed Tributary Harbin Creek	18	1	1801
8780	07-Jan-97	1400	3.38	27.10		12.0	West Fork Four Mile Run	20	3	1461
8782	14-Jan-97	3400	8.44	34.30		2.0	Hanna Creek	20	3	3679
8783	14-Jan-97	2200	13.50	12.30		0.0	Bear Creek	11	4	2419
8784	14-Jan-97	2200	3.90	37.60		5.0	Mahler Creek	28	3	1915
8787	21-Jan-97	450	1.94	6.67		0.0	Carver Ditch	1	6	347
8792	15-Jan-97	850	1.13	23.90		5.0	Unnamed Tributary Offield Creek	13	4	587
8794	21-Jan-97	1400	3.35	16.40		87.0	Bells Run	14	4	1333
8795	27-Jan-97	900	3.18	16.90		5.0	Fall Creek	14	4	1067
8796	30-Jan-97	600	1.35	25.70		0.0	Unnamed Tributary Deer Creek	9	4	624
8800	28-Jan-97	8500	29.50	38.50		10.0	Big Cedar Creek	20	3	11897
8801	29-Jan-97	2600	2.47	70.10		5.0	Fleming Creek	24	2	1781
8802	31-Jan-97	1750	2.02	36.90		30.0	Unnamed Tributary Silver Creek	28	3	1052
8803	03-Feb-97	1300	2.68	9.20		5.0	White Lick Creek	18	4	602
8804	03-Feb-97	1500	3.69	8.13		5.0	White Lick Creek	18	4	715
8806	04-Feb-97	1600	58.70	1.56	22.5	5.0	Beaver Lake Ditch	2	5	1489
8808	05-Feb-97	600	1.18	30.90	.8	5.0	Unnamed Tributary Wabash River	9	8	103
8809	05-Feb-97	600	1.12	29.50	2.3	5.0	Unnamed Tributary Wabash River	9	8	64
8810	10-Feb-97	1200	3.19	12.60		45.0	Blinn Ditch	10	4	1011
8811	11-Feb-97	800	7.10	31.70		5.0	Potato Creek	2	6	3863
8815	14-Feb-97	2200	4.99	10.80		0.0	Sidney Branch	19	3	1390
8816	17-Feb-97	4400	41.70	5.40	.8	5.0	Hoffman Creek	7	8	2072
8817	07-Feb-97	3300	11.80	11.40		25.0	Cole Ditch	9	1	2041
8818	17-Feb-97	4000	17.40	8.17		5.0	Cornstalk Creek	15	4	2544
8820	20-Feb-97	950	2.15	22.80		10.0	Unnamed Tributary Fall Creek	14	4	1004
8822	10-Mar-97	700	2.18	11.80	5.3	5.0	Jones Ditch	4	5	251
8826	06-Mar-97	1000	1.13	57.10		0.0	Herriotts Creek	19	4	953
8827	11-Mar-97	20500	119.00	3.31		5.0	Anderson River	26	2	9703
8828	12-Mar-97	4200	20.90	9.57		0.0	Barren Fork	25	2	4014
8829	14-Mar-97	9000	105.00	13.20		5.0	Little Raccoon Creek	15	1	12917
8830	17-Mar-97	1500	7.11	5.43		5.0	Jackson Ditch	14	4	916
8831	13-Mar-97	800	1.61	108.00		0.0	Sillimans Creek	20	4	2004
8832	13-Mar-97	750	1.50	115.00		0.0	Sillimans Creek	20	4	1978
8834	10-Mar-97	4000	41.60	10.40	.3	5.0	Montgomery Ditch	4	5	2185
8836	14-Mar-97	2600	14.40	13.20		5.0	Lick Creek	14	4	3067
8837	17-Mar-97	1600	4.79	14.90		0.0	Prairie Branch	19	4	1190
8838	17-Mar-97	500	1.40	22.60		0.0	Unnamed Tributary Prairie Branch	19	4	587
8840	18-Mar-97	4800	24.50	20.10		5.0	Norton Creek	16	1	5120
8841	20-Mar-97	4800	7.64	47.70		10.0	Little Indian Creek	28	2	3561

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RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
8842	20-Mar-97	2100	6.29	26.70		20.0	Kelso Creek	16	1	2024
8843	18-Mar-97	1500	3.80	10.20		5.0	Bear Slide Creek	14	4	861
8844	18-Mar-97	950	1.72	10.20		5.0	Bear Slide Creek	14	4	451
8845	18-Mar-97	1000	1.79	14.10		5.0	Unnamed Tributary Bear Slide Creek	14	4	587
8846	25-Mar-97	300	2.79	43.10	6.3	5.0	Unnamed Tributary Deep River	1	5	468
8847	08-Apr-97	800	7.94	20.95		5.0	Little Calumet River	1	6	2787
8849	27-Mar-97	1100	4.53	8.04	.6	5.0	Hoffman Lepper Ditch	7	8	346
8850	26-Mar-97	850	1.31	3.58		5.0	Stansbury Ditch	14	4	171
8851	27-Mar-97	700	1.65	30.40		80.0	Highland Creek	18	4	1153
8852	27-Mar-97	1850	65.87	5.71	1.1	5.0	Indian Creek	5	5	2516
8854	31-Mar-97	350	0.33	125.90		5.0	Unnamed Tributary Indian Creek	16	1	467
8855	24-Mar-97	800	1.42	16.80		5.0	Bee Camp Creek	14	4	550
8856	01-Apr-97	1200	24.10	5.53	1.4	15.0	Yellow Creek	5	8	1068
8857	09-Apr-97	5500	18.65	24.80		10.0	Doe Creek	17	4	6212
8858	09-Apr-97	1200	2.00	33.00		10.0	Firlick Creek	25	2	1130
8859	02-Apr-97	1600	3.01	31.60		0.0	Hunt Creek	17	4	1392
8860	14-Apr-97	5400	33.50	7.41		5.0	Walnut Fork Sugar Creek	13	4	4050
8862	10-Apr-97	1500	7.35	5.19		0.0	Mathias Young Ditch	9	4	797
8863	04-Apr-97	1600	2.14	31.10		5.0	Unnamed Tributary Honey Creek	24	2	1161
8866	18-Apr-97	450	1.13	15.80	2.2	5.0	Rhoton Ditch	12	8	66
8867	15-Apr-97	1000	3.71	3.19		5.0	Ross Ditch	17	4	369
8868	14-Apr-97	1200	1.16	110.00		0.0	Unnamed Tributary Gnaw Bone Creek	21	2	1208
8877	14-Apr-97	3025	4.11	75.60		5.0	Slick Run	27	3	2719
8878	15-Apr-97	1250	6.44	4.24	.7	10.0	Martin Ditch	7	8	446
8879	17-Apr-97	3000	5.60	51.40		10.0	Highland Creek	18	4	3911
8880	23-Apr-97	2150	3.75	21.50		10.0	Rock Creek	21	3	1450
8882	24-Apr-97	1950	2.87	80.50		5.0	Muddy Fork	18	2	2104
8884	25-Apr-97	2100	4.84	11.30		5.0	Ed Clark Ditch	19	4	1128
8885	22-Apr-97	1650	2.31	18.60		10.0	Unnamed Tributary Denios Creek	21	4	921
8888	28-Apr-97	1400	1.69	21.50		20.0	Unnamed Tributary Clifty Creek	21	4	830
8889	11-Apr-97	1175	2.79	5.47		3.0	William Lehr Ditch	14	4	416
8899	29-Apr-97	2200	4.79	15.40		30.0	Pigeon Creek	25	2	1608
8900	06-May-97	800	1.70	22.40		20.0	Unnamed Tributary Stony Creek	14	4	859
8902	29-Apr-97	1600	2.72	28.20		5.0	Sand Creek	25	2	1337
8904	13-May-97	15000	51.40	39.00		5.0	Indian Creek	28	3	19693
8905	13-May-97	2500	4.97	21.20		10.0	Rock Creek	21	3	1856
8906	01-May-97	580	8.29	4.16		5.0	Davis Ditch	2	6	595
8907	01-May-97	560	7.91	5.75		5.0	Davis Ditch	2	6	789
8908	01-May-97	510	6.71	7.05		5.0	Davis Ditch	2	6	859
8909	01-May-97	350	3.50	7.78		5.0	Davis Ditch	2	6	605

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
8911	08-May-97	4700	23.40	12.90		15.0	Sixmile Creek	22	2	4913
8912	14-May-97	5500	29.60	6.02		10.0	Otter Creek	25	2	4338
8914	19-May-97	1000	5.93	10.39	5.8	10.0	Pole Run Ditch	5	8	159
8915	19-May-97	700	1.23	43.40		0.0	Unnamed Tributary Indian Creek	16	1	723
8916	09-May-97	1200	1.35	67.70		10.0	Hook Creek	18	4	1490
8917	16-May-97	4400	52.07	11.93	4.4	0.0	Twelve Mile Creek	6	7	2181
8918	21-May-97	2850	4.18	70.59		0.0	Robertson Creek	18	4	3224
8923	16-May-97	900	1.31	48.80		20.0	Unnamed Tributary Little Pigeon Creek	25	2	961
8924	28-May-97	1700	5.99	8.43		50.0	Boots Creek	11	4	1280
8926	02-Jun-97	710	9.72	2.59		5.0	Gregory Ditch	2	5	460
8927	04-Jun-97	1200	1.40	139.20		10.0	Unnamed Tributary Great Miami River	28	3	1348
8928	05-Jun-97	5300	34.40	5.50		10.0	West Fork White River	14	4	3503
8929	06-Jun-97	850	1.04	18.30		30.0	Hartman Ditch	19	4	513
8930	06-Jun-97	1200	1.86	19.20		30.0	Opossum Run	19	4	853
8931	10-Jun-97	3200	34.16	3.30	10.6	10.0	Eel River	6	7	530
8932	11-Jun-97	2700	3.29	75.60		0.0	Pleasant Valley Creek	21	2	2273
8933	02-Jun-97	960	18.50	3.06	.8	5.0	Mud Lake Ditch	2	5	788
8934	02-Jun-97	380	4.48	2.70	1.2	0.0	Bogus Island Ditch	2	5	261
8935	02-Jun-97	850	14.40	2.61	.8	0.0	Beaver Lake Ditch	2	5	619
8936	02-Jun-97	1290	35.30	1.43	1.2	0.0	Beaver Lake Ditch	2	5	988
8937	02-Jun-97	230	2.42	2.02	1.2	0.0	Redden Ditch	2	5	149
8938	02-Jun-97	1450	45.30	2.25	1.2	15.0	Beaver Lake Ditch	2	5	1388
8939	02-Jun-97	670	9.06	0.77	1.2	0.0	Lawler Ditch	2	5	290
8940	02-Jun-97	800	12.50	2.20	1.2	0.0	Lawler Ditch	2	5	526
8941	19-Jun-97	1500	4.61	23.40		0.0	Brushy Fork	20	3	1811
8942	23-Jun-97	550	1.59	22.56	10.6	0.0	Haughey Ditch	7	7	79
8943	30-Jun-97	600	1.69	8.33		5.0	Little Deer Creek	11	4	385
8944	16-Jun-97	3100	15.70	12.50		20.0	Prairie Creek	10	4	3479
8945	07-Jul-97	1000	2.97	25.00		10.0	Unnamed Tributary Stony Creek	14	4	1395
8946	10-Jul-97	900	1.34	42.70		0.0	UNT East Fork Mill Creek	17	4	891
8947	15-Jul-97	750	1.52	6.21		30.0	Rash Ditch	14	4	324
8948	16-Jul-97	1550	2.31	28.00		10.0	Doe Creek	17	4	1232
8949	19-Jul-97	3300	4.74	69.47		40.0	Windy Creek	28	2	2890
8951	17-Jul-97	3200	11.54	12.14		10.0	Nameless Creek	19	4	2525
8952	18-Jul-97	1700	2.24	27.96		10.0	Unnamed Tributary Sinking Creek	27	2	1152
8953	22-Jul-97	1600	3.90	24.10		3.0	Unnamed Tributary Little Pigeon Creek	25	2	1645
8954	22-Jul-97	3400	12.38	12.24		10.0	Nameless Creek	19	4	2689
8955	23-Jul-97	900	1.33	42.11		0.0	East Fork Mill Creek	17	4	877
8956	29-Jul-97	2200	3.16	19.68		10.0	Wildcat Run	19	4	1238
8959	30-Jul-97	4000	7.61	36.89		0.0	Flat Creek	24	2	3208

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RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
8960	31-Jul-97	6500	27.48	16.75		15.0	Cobbs Fork	21	3	7776
8961	01-Aug-97	3100	20.16	8.41		5.0	Lick Creek	14	4	2928
8962	01-Aug-97	1050	1.96	18.93		3.0	UNT East Fork Coal Creek	16	1	648
8966	04-Aug-97	4500	6.83	48.55		0.0	Turkey Creek	21	2	3298
8967	04-Aug-97	2600	3.40	49.63		0.0	Turkey Creek	21	2	1974
8969	28-Jul-97	300	2.05	16.37	2.0	30.0	UNT Main Beaver Dam Ditch	1	5	268
8970	06-Aug-97	7500	166.80	3.43		15.0	Pipe Creek	9	4	9334
8971	06-Aug-97	1300	1.37	56.00		20.0	Unnamed Tributary Silver Creek	28	3	890
8972	06-Aug-97	2100	3.66	15.66		25.0	Sand Branch	21	4	1265
8973	8/6/1997	520	4.94	5.25	11.3	30.0	Foss Ditch	2	5	352
8974	08-Aug-97	600	1.40	47.80	3.8	60.0	UNT Graham McCulloch Ditch No. One	9	8	60
8975	15-Aug-97	1150	1.24	42.70		10.0	Kane Ditch	18	2	875
8976	11-Aug-97	2500	7.59	23.40		25.0	Jones Ditch	14	4	3053
8977	12-Aug-97	1150	1.47	38.40		35.0	Unnamed Tributary Lick Creek	28	3	805
8978	13-Aug-97	22500	101.00	10.52		15.0	Fourteenmile Creek	28	3	20438
8979	14-Aug-97	28500	112.80	15.50		5.0	Graham Creek	22	3	26707
8980	14-Aug-97	1700	1.88	47.80		10.0	Unnamed Tributary Taylor Creek	28	3	1104
8982	14-Aug-97	1400	3.15	27.90		10.0	Dixon And Lewis Ditch	28	2	1486
8983	15-Aug-97	2475	18.87	8.24		20.0	Halfway Creek	11	4	3004
8984	13-Aug-97	4800	20.50	5.50		10.0	McFadden Creek	28	2	3180
8985	18-Aug-97	300	2.18	40.15	6.3	30.0	Unnamed Tributary Deep River	1	5	380
8986	15-Aug-97	1600	2.50	29.51		10.0	Unnamed Tributary Pipe Creek	20	4	1364
8988	28-Aug-97	1800	4.33	41.20		0.0	Duck Creek	20	4	2262
8989	02-Sep-97	1200	2.12	47.10		25.0	Mann Creek	18	4	1775
8990	26-Aug-97	950	1.46	50.10		25.0	Mann Creek	18	4	1368
8992	29-Aug-97	620	3.47	9.30		30.0	Willow Creek	1	5	328
8993	02-Sep-97	9000	37.00	18.35		0.0	Vernon Fork Muscatatuck River	22	3	10566
8994	29-Aug-97	2800	9.90	21.00		5.0	Unnamed Tributary Norton Creek	16	1	2533
8996	05-Sep-97	1400	2.46	19.38		5.0	Long Branch	18	4	954
8999	09-Sep-97	2000	3.94	29.00		8.0	Beehunter Ditch	18	2	1783
9001	11-Sep-97	900	1.03	37.80		40.0	Milhouse Creek	18	4	871
9002	11-Sep-97	1200	3.66	25.50		35.0	Orme Ditch	18	4	1834
9003	22-Aug-97	1100	3.20	21.23		5.0	Waterman Br	28	2	1350
9004	08-Jan-98	1450	1.07	60.70		10.0	Unnamed Tributary Pigeon Creek	25	2	900
9006	18-Sep-97	1100	1.20	12.03		74.0	Kuhn Ditch	19	4	457
9007	19-Sep-97	250	1.75	20.87		10.0	UNT Swanson Lamporte Ditch	1	6	982
9008	19-Sep-97	1100	2.30	9.87		5.0	Brunk Ditch	10	4	558
9009	22-Sep-97	700	1.36	32.16		10.0	Squirrel Creek	10	4	883
9010	23-Sep-97	800	9.97	8.29	4.1	10.0	Main Beaver Dam Ditch	1	5	695
9011	24-Sep-97	550	1.58	22.48	7.3	0.0	Haughey Ditch	7	7	102

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9013	25-Sep-97	1900	70.70	4.21	1.2	10.0	Mud Creek	5	5	2393
9014	29-Sep-97	1680	4.67	10.05		30.0	Unnamed Tributary Cypress Creek	28	2	1333
9015	30-Sep-97	600	1.71	11.41		0.0	Unnamed Tributary Flatrock River	19	4	425
9016	02-Oct-97	3300	7.57	26.70		0.0	Lick Creek	20	3	2993
9017	02-Oct-97	6500	19.85	34.51		5.0	Big Cedar Creek	20	3	7949
9018	02-Oct-97	1800	5.56	47.80		0.0	South Branch Garrison Creek	20	4	3083
9019	03-Oct-97	18500	146.07	4.45		5.0	Beanblossom Creek	18	2	12711
9020	06-Oct-97	900	1.36	32.16		10.0	Jones Ditch	14	4	883
9021	08-Oct-97	1900	10.30	9.50		12.0	Little Mississinewa River	11	4	1957
9023	14-Oct-97	6000	39.85	8.91		10.0	Little Sugar Creek	13	4	5568
9024	14-Oct-97	5500	29.97	5.87		10.0	Otter Creek	25	2	4335
9026	16-Oct-97	3100	4.64	34.70		5.0	Indian Creek	18	4	2423
9027	16-Oct-97	2800	5.83	49.30		10.0	Little Raccoon Creek	18	2	2947
9028	16-Oct-97	1550	2.25	29.70		5.0	Doe Creek	17	4	1201
9029	20-Oct-97	5100	9.64	61.00		10.0	Bull Creek	28	3	5324
9030	17-Oct-97	3000	8.46	23.70		0.0	Higgins Branch	17	4	2635
9031	16-Oct-97	400	3.33	11.20	5.7	10.0	Unnamed Tributary Cotton Lake	3	8	99
9032	21-Oct-97	200	1.62	21.60	6.5	10.0	UNT West Branch Crooked Creek	2	5	247
9033	21-Oct-97	250	4.23	6.40	6.5	30.0	UNT West Branch Crooked Creek	2	5	335
9034	21-Oct-97	300	5.96	6.62	6.5	20.0	UNT West Branch Crooked Creek	2	5	438
9036	21-Oct-97	700	1.24	6.67		30.0	North Fork	14	4	289
9037	22-Oct-97	1300	2.73	44.60		15.0	Dry Branch	16	1	1395
9038	29-Oct-97	1700	2.02	60.80		3.0	Bartle Knob Run	28	3	1307
9039	18-Oct-97	500	7.45	17.80	5.7	3.0	Mathias Ditch	5	7	412
9040	18-Oct-97	1500	23.30	21.40	4.4	0.0	Elder Ditch	5	7	1361
9042	04-Nov-97	3200	23.40	5.26		20.0	Little Killbuck Creek	14	4	2601
9043	04-Nov-97	1700	4.65	6.49		5.0	Wiley Thompson Ditch	18	4	736
9044	05-Nov-97	1700	4.43	26.20		5.0	Neils Creek	22	3	1835
9045	05-Nov-97	1600	2.09	20.80		10.0	Unnamed Tributary Denios Creek	21	4	919
9046	10-Nov-97	3200	21.09	3.59		5.0	East Fork Big Walnut Creek	17	4	1657
9047	17-Nov-97	1800	2.84	80.10		10.0	Unnamed Tributary Ohio River	28	3	2001
9048	18-Nov-97	2100	14.50	4.03		15.0	Back Creek	11	4	1427
9050	18-Nov-97	1450	7.37	13.60	4.4	15.0	Johnson Drain	6	7	442
9051	10-Dec-97	2900	5.28	57.50		10.0	Highland Creek	18	4	4037
9052	21-Nov-97	4500	11.38	13.90		5.0	Dry Run Creek	27	2	2951
9053	24-Nov-97	800	3.16	26.20	1.3	40.0	Churubusco Branch	6	7	541
9054	25-Nov-97	800	1.18	17.90		0.0	Scott-Youngman Ditch	10	4	432
9055	25-Nov-97	1300	3.07	20.20		20.0	Martin-Youngman Ditch	10	4	1293
9056	25-Nov-97	1750	4.25	20.00		15.0	Martin-Youngman Ditch	10	4	1640
9057	26-Nov-97	2850	3.24	71.50		0.0	Greasy Creek	21	2	2199

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9058	03-Dec-97	1750	72.34	5.21		0.0	Heinold Ditch	2	6	3282
9059	04-Dec-97	500	1.61	4.97	1.2	0.0	Burnett Creek	9	7	179
9061	05-Dec-97	1050	4.98	9.72		10.0	Pleasant Run Creek	14	4	1086
9062	09-Dec-97	1250	1.81	10.50		20.0	Breier Arm	19	4	527
9063	11-Dec-97	4800	89.70	3.70		5.0	Mud Creek	10	4	5517
9064	11-Dec-97	4200	3.80	25.70		15.0	Schlensker Ditch	25	2	1655
9065	12-Dec-97	2800	4.17	58.70		0.0	Unnamed Tributary Boggs Creek	21	2	2457
9066	15-Dec-97	600	1.18	31.60		97.0	Germania Creek	18	4	915
9067	17-Dec-97	1400	3.28	10.40		0.0	Buntin Ditch	13	4	677
9068	18-Dec-97	2000	2.61	66.70		0.0	Left Brn	28	3	1713
9069	13-Mar-98	8000	49.85	6.81		10.0	Big Raccoon Creek	15	4	5520
9070	31-Dec-97	2900	5.07	68.40		15.0	Wolf Creek	19	4	4546
9071	31-Dec-97	16000	223.08	5.26		10.0	Deer Creek	9	4	15598
9072	31-Dec-97	1000	2.36	24.00		10.0	Unnamed Tributary White River	14	4	1123
9073	06-Jan-98	3300	16.56	16.90		5.0	Offield Creek	13	4	4099
9074	06-Jan-98	1400	2.60	19.80		3.0	Beaman Ditch	18	4	983
9075	08-Jan-98	4500	13.10	15.80		0.0	Beaver Creek	21	2	3448
9076	08-Jan-97	2075	1.87	35.90		15.0	Unnamed Tributary Pigeon Creek	25	2	1111
9077	08-Jan-98	1800	1.57	39.80		20.0	Unnamed Tributary Pigeon Creek	25	2	1015
9078	14-Jan-98	4700	24.16	20.10		3.0	Norton Creek	16	1	5063
9079	15-Jan-98	1150	1.26	7.93		25.0	Unnamed Tributary White Lick Creek	18	4	326
9080	05-Jan-98	1300	7.04	12.70		25.0	Sugar Fork	14	4	1858
9081	12-Jan-98	2500	89.80	4.54	1.2	5.0	Mill Creek	5	5	2936
9082	15-Jan-98	1500	6.18	21.30	7.3	40.0	Charley Creek	9	7	316
9083	14-Jan-98	1900	56.60	7.95	1.1	5.0	Indian Creek	5	5	2512
9084	16-Jan-98	8900	83.33	4.97		15.0	West Fork White River	14	4	6900
9085	15-Jan-98	1550	2.23	37.00		15.0	Carthage Creek	19	4	1502
9088	20-Jan-98	2000	3.73	64.60		15.0	Dutch Creek	27	3	2327
9089	16-Jan-98	400	3.41	11.10	1.2	10.0	Unnamed Tributary Cotton Lake	3	8	218
9090	23-Jan-98	2500	3.62	64.34		10.0	Unnamed Tributary Sycamore Creek	18	4	3214
9091	23-Jan-98	1900	4.57	28.80		5.0	Crooked Creek	17	2	1987
9092	26-Jan-98	950	2.33	28.80		5.0	Eightmile Creek	14	4	1209
9093	26-Jan-98	1200	3.78	24.70		40.0	Orme Ditch	18	4	1859
9094	27-Jan-98	2200	4.45	20.00		70.0	Lick Run	28	3	1639
9096	30-Jan-98	1900	4.14	34.60		20.0	Donohue Creek	25	2	1984
9097	30-Jan-98	1650	2.99	15.30		50.0	Unnamed Tributary Cypress Creek	28	2	1127
9098	30-Jan-98	2600	11.79	12.30		0.0	Barren Fork	25	2	2887
9099	02-Feb-98	2400	10.73	7.75		15.0	Lemon Creek	17	2	2243
9100	03-Feb-98	2200	8.45	20.80		5.0	Jordan Creek	16	1	2218
9101	03-Feb-98	1350	2.12	32.50		30.0	Pigeon Creek	25	2	1173

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9102	03-Feb-98	1950	6.70	16.80		15.0	Loefler Ditch	16	1	1624
9103	04-Feb-98	4600	20.82	5.52		0.0	Big Pine Creek	8	1	2110
9104	04-Feb-98	1200	1.55	75.80		0.0	UNT South Fork Blue River	27	3	1134
9105	29-Jan-98	8200	76.07	12.60		5.0	South Fork Patoka River	24	2	11760
9106	09-Feb-98	1800	6.00	26.00		25.0	Indian Creek	18	1	1918
9107	03-Feb-98	6800	13.87	49.30		0.0	Anderson River	26	2	5636
9108	29-Jan-98	1200	1.01	39.40		0.0	Unnamed Tributary Smith Fork	25	2	727
9109	29-Jan-98	1400	1.27	39.50		10.0	Unnamed Tributary Smith Fork	25	2	863
9110	29-Jan-98	1500	2.38	36.10		5.0	Unnamed Tributary Flat Creek	24	2	1333
9111	29-Jan-98	1350	1.41	37.40		50.0	Unnamed Tributary Veale Creek	18	1	740
9112	17-Feb-98	2000	9.34	4.01		0.0	Walnut Creek	11	4	806
9113	18-Feb-98	1200	4.95	15.80	1.5	20.0	Charley Creek	9	7	619
9114	20-Feb-98	5750	59.19	11.50		5.0	East Fork Coal Creek	16	1	7513
9115	20-Feb-98	1100	1.52	9.38		35.0	Hodges Branch	19	4	439
9116	20-Feb-98	2850	77.03	3.77	2.8	5.0	Slough Creek	4	5	2458
9117	24-Feb-98	1800	3.53	19.60		55.0	Opossum Run	19	4	1527
9118	26-Feb-98	11000	39.96	16.90		5.0	Little Salt Creek	21	2	8156
9119	03-Mar-98	1350	12.11	22.40		15.0	Coffee Creek	1	6	3976
9120	03-Mar-98	2700	4.68	56.20		5.0	Mount Liberty Creek	21	2	2633
9122	09-Mar-98	2500	3.99	52.00		0.0	Springle Creek	27	3	2250
9123	12-Mar-98	1750	48.42	3.90	3.0	0.0	Beaver Creek	4	5	1757
9124	10-Mar-98	1200	10.20	4.45	7.5	3.0	Harp Ditch	5	6	732
9125	11-Mar-98	1350	5.70	13.40	1.3	10.0	Dowty Ditch	9	8	326
9126	11-Mar-98	1600	1.77	54.70		5.0	Sandy Branch	28	2	1259
9127	11-Mar-98	1500	1.45	134.00		0.0	Baby Creek	21	2	1543
9128	11-Mar-98	3000	4.35	40.80		5.0	Indian Creek	18	4	2579
9130	13-Mar-98	1100	2.30	107.00		0.0	Bear Creek	20	4	2663
9131	13-Mar-98	1000	1.69	67.50		10.0	Unnamed Tributary Big Cedar Creek	20	3	1166
9132	16-Mar-98	1650	2.42	41.70		5.0	Brier Creek	18	2	1429
9133	17-Mar-98	3800	14.70	11.50		5.0	Duck Creek	21	3	3766
9134	18-Mar-98	1150	1.45	34.10		5.0	Unnamed Tributary Ohio River	28	2	900
9135	19-Mar-98	575	1.25	7.94		45.0	Unnamed Tributary Lockwood Ditch	25	2	453
9136	20-Mar-98	19800	251.59	6.52		5.0	Coal Creek	16	1	17277
9137	23-Mar-98	1075	8.45	26.40		15.0	Coffee Creek	1	6	3644
9138	23-Mar-98	1600	8.97	20.70	3.0	0.0	Plunge Creek	6	7	768
9139	23-Mar-98	2400	7.90	13.60		5.0	Nameless Creek	19	4	1920
9141	24-Mar-98	2700	4.54	58.10		0.0	Gravel Creek	21	2	2608
9142	25-Mar-98	600	1.64	22.70	3.1	25.0	Squaw Creek	9	8	76
9143	27-Mar-98	600	1.14	9.77		5.0	Pattison Ditch	9	4	313
9144	30-Mar-98	1700	1.84	70.30		25.0	Jordan Creek	18	4	2103

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9147	03-Apr-98	3200	18.23	7.64		0.0	Burnett Creek	9	1	2293
9148	06-Apr-98	900	1.23	11.40		10.0	Unnamed Tributary Pigeon Creek	25	2	517
9149	11-Mar-98	2000	6.54	16.30		15.0	Vertrees Ditch	18	2	2076
9150	11-Mar-98	1875	5.87	19.30		15.0	Vertrees Ditch	18	2	2047
9151	06-Apr-98	1250	1.68	24.10		25.0	George Creek	18	4	911
9152	08-Apr-98	3500	7.07	23.00		70.0	Lentzier Creek	28	3	2638
9153	09-Apr-98	2450	5.36	14.00		70.0	Lick Run	28	3	1659
9155	4/15/1998	1000	1.80	12.10		80.0	Morris Ditch	19	4	643
9157	16-Apr-98	4400	7.12	84.00		5.0	Lost Fork Creek	28	3	4661
9158	20-Apr-98	10000	29.81	50.80		0.0	Little Salt Creek	21	2	10109
9162	14-Apr-98	2200	5.25	11.10		15.0	Flat Branch	19	4	1281
9163	23-Apr-98	300	1.18	17.90	9.0	20.0	Pope-O'Conner Ditch	1	5	183
9164	24-Apr-98	1400	5.08	15.30		20.0	Honey Run	22	3	1643
9167	12-May-98	950	18.20	6.71	4.1	15.0	Main Beaver Dam Ditch	1	5	1015
9168	13-May-98	4100	23.07	13.20		0.0	South Fork Patoka River	24	2	4906
9169	13-May-98	14800	100.80	5.54		10.0	Richland Creek	18	2	10499
9171	14-May-98	1500	43.80	6.40	.4	5.0	Hoagland Ditch	5	5	1927
9172	14-May-98	5000	51.51	4.54	.8	5.0	Big Creek	5	5	1937
9173	15-May-98	3200	15.65	16.10		5.0	Offield Creek	13	4	3782
9174	15-May-98	1300	2.85	12.80		0.0	Breitfield Ditch	22	2	1014
9175	15-May-98	1400	3.02	12.20		0.0	Breitfield Ditch	22	2	1039
9176	15-May-98	1200	2.98	26.70		20.0	UNT Little Brandywine Creek	19	4	1539
9177	18-May-98	2500	7.25	26.60		10.0	Jones Ditch	14	4	3020
9179	26-May-98	1100	2.29	19.30		95.0	Bells Run	14	4	1105
9181	29-May-98	3800	8.09	19.20		70.0	Lentzier Creek	28	3	2753
9182	03-Jun-98	1850	3.79	36.40		10.0	Plaster Creek	21	2	1895
9185	04-Jun-98	800	1.33	22.80		25.0	Unnamed Tributary White River	14	4	724
9186	09-Jun-98	26250	128.92	22.30		5.0	Indian Kentuck Creek	28	3	35264
9187	09-Jun-98	1250	2.85	10.65		30.0	Brunk Ditch	10	4	794
9189	10-Jun-98	2800	4.75	57.40		5.0	Bryant Creek	18	4	3534
9190	16-Jun-98	1100	1.71	18.80		15.0	Long Branch	18	4	747
9192	17-Jun-98	1200	3.49	34.20	5.8	45.0	Forgey Ditch	6	7	270
9193	17-Jun-98	550	2.72	4.98		5.0	Carver Ditch	1	6	329
9194	22-Jun-98	450	2.64	44.60	1.2	10.0	Owl Creek	3	8	176
9195	22-Jun-98	2000	6.05	9.19		0.0	Wiley Thompson Ditch	18	4	1021
9196	22-Jun-98	1400	7.75	4.61	1.8	0.0	Walter Smith Drain	7	8	369
9197	22-Jun-98	1275	6.78	4.87	1.8	0.0	Walter Smith Drain	7	8	329
9198	23-Jun-98	8200	78.40	4.47		10.0	Lye Creek	13	4	5918
9199	24-Jun-98	2100	4.09	64.50		15.0	Dutch Creek	27	3	2526
9200	25-Jun-98	1200	26.15	1.74	1.2	5.0	Lateral Number Seventy-seven	4	5	843

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9201	25-Jun-98	1850	5.49	30.10		5.0	Bridge Creek	9	4	2512
9202	02-Jul-98	1075	25.23	10.10		5.0	Little Kankakee River	2	6	3032
9203	09-Jul-98	2400	4.83	17.20		10.0	Sloan Branch	21	4	1590
9204	09-Jul-98	1600	14.76	4.28		5.0	Mud Creek	10	4	1404
9205	09-Jul-98	1350	4.22	22.30		50.0	Orme Ditch	18	4	1922
9206	14-Jul-98	2150	5.08	29.80		20.0	East Fork Mill Creek	17	4	2572
9207	14-Jul-98	2500	1.44	81.50		95.0	Jackson Creek	18	2	1262
9208	17-Jul-98	1000	2.17	36.70		10.0	Unnamed Tributary Greenfield Bayou	16	1	1035
9209	21-Jul-98	1100	2.56	22.90		10.0	Unnamed Tributary White River	14	4	1161
9210	21-Jul-98	2300	9.53	12.50		20.0	Prairie Creek	10	4	2315
9211	24-Jul-98	2800	16.24	10.60		5.0	Burnett Creek	9	1	2530
9212	29-Jul-98	500	1.41	18.10		20.0	Rees Ditch	11	4	634
9213	29-Jul-98	1000	1.19	89.10		10.0	Unnamed Tributary Whitewater River	20	4	1635
9214	29-Jul-98	1800	5.66	25.40		10.0	Mill Creek	17	4	2388
9215	30-Jul-98	1700	5.48	17.90		5.0	Neu Creek	16	1	1434
9216	04-Aug-98	850	5.10	7.59	1.2	25.0	Holtz Ditch	5	5	408
9217	05-Aug-98	2200	2.67	45.50		20.0	Indian Creek	21	2	1592
9218	11-Aug-98	1600	3.57	34.10		10.0	West Fork Clear Creek	18	4	2022
9219	07-Aug-98	2100	7.60	14.40		10.0	Franklin Ditch	13	4	2028
9220	07-Aug-98	550	3.71	21.90	1.7	25.0	Cornell Ditch	2	5	461
9221	10-Aug-98	7500	62.94	4.57		10.0	Kilmore Creek	10	4	5026
9222	11-Aug-98	11400	52.45	17.30		15.0	Sand Creek	21	3	14088
9223	12-Aug-98	8450	95.07	14.40		5.0	Little Raccoon Creek	15	1	12547
9224	14-Aug-98	800	1.47	13.60		25.0	Stahl Ditch	10	4	544
9225	17-Aug-98	2850	8.14	15.60		5.0	Foreman Branch	19	4	2169
9226	18-Aug-98	2850	7.71	17.30		10.0	Rattlesnake Creek	13	4	2338
9227	20-Aug-98	450	1.29	20.20		5.0	Lake Branch	14	4	580
9230	21-Aug-98	9900	55.64	11.10		10.0	Stotts Creek	18	4	8550
9231	24-Aug-98	7850	27.13	12.30		5.0	South Prong Stotts Creek	18	4	4891
9232	21-Aug-98	6100	22.32	30.90		5.0	Hanna Creek	20	3	8418
9233	25-Aug-98	750	1.18	38.10		0.0	UNT South Fork Wildcat Creek	10	4	741
9234	26-Aug-98	3000	5.35	65.50		0.0	Hunter Creek	21	2	3091
9235	31-Aug-98	1200	2.18	66.10		25.0	Mud Run	20	3	1452
9236	02-Sep-98	2600	9.51	13.00		5.0	Hazel Creek	13	4	2163
9238	03-Sep-98	2300	3.55	79.90		0.0	Unnamed Tributary Ohio River	28	2	2460
9239	03-Sep-98	1750	2.11	52.80		3.0	Bartle Knob Run	28	3	1279
9240	03-Sep-98	250	1.29	1.35		0.0	Brown Ditch	2	5	81
9241	04-Sep-98	2700	9.40	13.60		10.0	Conger Creek	18	2	2536
9242	04-Sep-98	275	2.11	18.00	10.4	60.0	Unnamed Tributary Deep River	1	5	283
9243	16-Sep-98	5400	16.38	22.20		10.0	Village Creek	20	3	5523

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RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9244	14-Sep-98	8000	28.78	37.80		5.0	Big Cedar Creek	20	3	11543
9246	16-Sep-98	2100	2.06	110.00		0.0	Dillard Creek	24	2	1857
9247	21-Sep-98	4300	38.60	6.81	2.4	10.0	Moots Creek	5	5	1790
9248	22-Sep-98	400	7.80	7.71	6.5	25.0	UNT West Branch Crooked Creek	2	5	564
9249	23-Sep-98	3500	31.80	5.35	.5	5.0	Sixmile Creek	9	8	1871
9250	23-Sep-98	1250	1.40	108.00		15.0	Muddy Fork	18	2	1381
9251	23-Sep-98	1950	13.50	4.09		15.0	Foster Branch	14	4	1360
9252	23-Sep-98	1000	1.61	57.00		85.0	Elliott Run	19	4	1777
9253	28-Sep-98	1200	3.14	13.70		20.0	Walker Ditch	10	4	999
9254	28-Sep-98	420	12.17	5.85	5.2	10.0	Wyland Ditch	5	7	450
9255	05-Oct-98	1200	5.14	9.24		5.0	Lick Run	10	4	1027
9256	06-Oct-98	800	1.04	44.10		30.0	Unnamed Tributary White Lick Creek	18	4	960
9257	06-Oct-98	1200	2.48	45.50		70.0	Unnamed Tributary Wabash River	16	1	1307
9258	07-Oct-98	750	2.11	11.90		25.0	Mud Run	19	4	664
9259	08-Oct-98	500	2.76	35.30	1.4	0.0	Unnamed Tributary Walnut Creek	5	7	518
9260	09-Oct-98	11000	237.00	3.93		5.0	Little Vermilion River	16	1	12247
9261	13-Oct-98	28000	587.84	1.66		5.0	Salt Creek	21	2	24421
9262	13-Oct-98	3350	14.90	16.20		5.0	Campbells Run	10	4	3649
9263	14-Oct-98	1600	6.72	19.90		5.0	Cripe Run	10	4	2206
9264	15-Oct-98	3450	18.59	12.00		25.0	Prairie Creek	10	4	3942
9265	19-Oct-98	1600	1.71	17.10		10.0	McCormicks Creek	18	2	775
9266	19-Oct-98	750	2.31	7.71		5.0	Unnamed Tributary Little Duck Creek	14	4	470
9267	19-Oct-98	1550	4.01	24.00		0.0	Newman Lateral	16	1	1324
9268	22-Oct-98	440	2.74	20.50	6.8	85.0	Unnamed Tributary Salt Creek	1	5	359
9269	27-Oct-98	900	1.67	31.00		10.0	Unnamed Tributary Kelso Creek	16	1	760
9270	29-Oct-98	2000	7.25	22.70	.5	5.0	Lagro Creek	9	7	1457
9271	27-Oct-98	1000	1.23	51.30		0.0	Unnamed Tributary Doans Creek	18	2	935
9272	27-Oct-98	2350	6.38	18.80		5.0	Flatrock River	19	4	2031
9273	27-Oct-98	2300	17.26	2.65	.9	5.0	Prairie Creek	12	8	948
9274	29-Oct-98	2000	4.35	30.30		5.0	Robinson Creek	28	2	1954
9275	29-Oct-98	3400	8.14	21.10		10.0	Rock Creek	21	3	2884
9276	02-Nov-98	3450	18.63	12.10		25.0	Prairie Creek	10	4	3972
9277	02-Nov-98	2200	3.92	42.10		0.0	McHargue Ditch	21	4	2118
9278	04-Nov-98	850	2.96	12.10	5.3	5.0	Jones Ditch	4	5	318
9279	05-Nov-98	1350	4.25	17.90		50.0	Orme Ditch	18	4	1653
9280	05-Nov-98	425	2.67	9.40		0.0	Leman Birk Newcomer Ditch	2	6	604
9281	05-Nov-98	3850	11.91	25.50		15.0	Nineveh Creek	19	4	4520
9282	05-Nov-98	3350	9.35	35.00		0.0	Mud Creek	19	4	3774
9284	13-Nov-98	1650	10.45	12.20	.2	0.0	Hunter Ditch	4	5	820
9285	13-Nov-98	750	1.05	20.90		0.0	Unnamed Tributary Cicero Creek	14	4	439

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9286	13-Nov-98	2900	5.87	31.70		20.0	Hurricane Branch	18	2	2489
9287	13-Nov-98	5500	30.00	7.15		15.0	Veale Creek	18	1	3293
9288	13-Nov-98	1600	1.88	24.70		85.0	Unnamed Tributary Veale Creek	18	1	732
9289	19-Nov-98	2100	5.65	24.90		0.0	West Fork Clear Creek	18	4	1963
9290	23-Nov-98	2200	6.44	9.04		5.0	Montgomery Creek	19	4	1215
9291	23-Nov-98	5000	44.75	5.39		5.0	Little Blue River	19	4	4089
9292	23-Nov-98	2000	6.84	15.10		5.0	Talbert Ditch	10	4	1839
9293	23-Nov-98	2400	12.11	13.90		20.0	Buck Creek	16	1	2341
9294	30-Nov-98	1075	2.53	25.60		30.0	Unnamed Tributary Cool Creek	14	4	1346
9295	25-Nov-98	800	5.84	11.10	3.9	10.0	Swartz-Carnahan Ditch	7	8	197
9296	14-Jan-99	5700	25.19	17.40		0.0	Haw Creek	15	4	5150
9298	03-Dec-98	3000	10.95	12.70		10.0	Conger Creek	18	2	2767
9301	08-Dec-98	1100	3.65	11.20		0.0	Smith Ditch	14	4	778
9302	08-Dec-98	2550	13.56	9.90		0.0	Burnett Creek	9	1	2102
9303	10-Dec-98	3150	5.49	28.90		50.0	Pleasant Run	28	3	2322
9305	11-Dec-98	900	1.57	32.20		30.0	Clay Creek	14	4	1074
9306	11-Dec-98	1600	2.31	45.20		10.0	UNT North Fork	25	2	1425
9307	11-Dec-98	1500	1.29	75.00		5.0	Unnamed Tributary Ohio River	28	2	1125
9308	21-Dec-98	1150	5.19	14.30	1.2	15.0	Spindler Ditch	7	8	311
9309	21-Dec-98	1600	6.96	11.50	1.2	20.0	Elkenberry Ditch	9	8	398
9310	23-Dec-98	1000	1.89	36.40		0.0	Williamsburg Creek	20	4	1053
9311	06-Jan-98	1075	2.52	27.00		30.0	Unnamed Tributary Cool Creek	14	4	1393
9312	14-Jan-98	1000	2.31	22.50		20.0	Unnamed Tributary Goose Creek	16	1	818
9313	15-Jan-99	80	0.10	1000.00		0.0	Unnamed Tributary Knob Creek	28	3	297
9315	25-Jan-99	350	18.99	4.49	4.5	5.0	Bruce Lake Outlet	5	5	915
9316	01-Feb-99	6000	61.55	6.62		5.0	Birch Creek	17	2	7787
9317	01-Feb-98	4500	43.38	4.69	.8	5.0	Hoffman Creek	7	8	2142
9318	02-Feb-99	2900	9.18	18.40		10.0	Jones Ditch	14	4	2817
9319	27-Jan-99	6300	37.20	15.90		5.0	Kickapoo Creek	16	1	6248
9320	04-Feb-99	700	2.28	14.10	1.2	10.0	Spindler Ditch	7	8	155
9321	04-Feb-99	800	2.89	16.10	1.2	10.0	Grice Ditch	7	8	190
9322	02-Feb-99	2800	5.57	39.20		10.0	White Creek	21	4	3210
9323	04-Feb-99	375	3.27	5.28	2.7	30.0	Willow Creek	3	8	147
9324	04-Feb-99	600	7.47	6.83	2.7	40.0	Willow Creek	3	8	294
9325	04-Feb-99	600	7.61	7.36	2.7	40.0	Willow Creek	3	8	299
9327	10-Feb-99	150	1.55	10.00	14.4	0.0	Unnamed Tributary Craigmile Ditch	2	5	184
9328	10-Feb-99	1000	1.60	48.77		0.0	Pink Creek	19	4	1132
9331	12-Feb-99	2400	4.57	17.70		55.0	Wildcat Run	19	4	1753
9332	17-Feb-99	800	2.63	23.10	.2	20.0	Unnamed Tributary Hunter Ditch	4	5	362
9333	17-Feb-99	1600	2.40	60.30		20.0	Unnamed Tributary Bayou Creek	28	2	1642

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9334	22-Feb-99	700	1.23	17.30		0.0	Powell Ditch	13	4	437
9335	24-Feb-99	880	3.76	7.70	2.7	5.0	Bull Run	2	5	327
9336	17-Feb-99	1600	4.22	12.09		0.0	Little Sugar Creek	13	4	925
9337	23-Feb-99	1100	3.06	15.20		20.0	Woodruff Branch	18	4	1053
9338	26-Feb-99	1700	8.20	12.70		0.0	Little Mississinewa River	11	4	1647
9340	02-Mar-99	4200	22.55	8.45		0.0	Graham Creek	16	1	2886
9341	03-Mar-99	12250	60.07	16.30		15.0	Sand Creek	21	3	15505
9342	04-Mar-99	1425	2.57	38.90		0.0	East Fork Mill Creek	17	4	1418
9343	03-Mar-99	8150	35.19	13.87		5.0	Fall Fork	21	3	8945
9344	04-Mar-99	950	35.81	5.92	2.6	15.0	Eagle Creek	2	5	1614
9345	05-Mar-99	1250	3.13	21.50		8.0	Unnamed Tributary Buckhorn Creek	25	2	1334
9346	05-Mar-99	1150	2.42	30.30		0.0	UNT South Fork Wildcat Creek	10	4	1130
9347	05-Mar-99	6000	55.74	3.30		10.0	River Deshee	16	1	3450
9349	10-Mar-99	2800	3.69	118.00		0.0	Twin Creek	21	2	2953
9350	10-Mar-99	300	1.24	18.30	3.0	25.0	Rogers Ditch	3	8	61
9351	12-Mar-99	1000	2.84	28.70		0.0	Addleman Ditch	20	4	1239
9352	12-Mar-99	2000	3.95	22.10		5.0	South Prong Stotts Creek	18	4	1541
9353	12-Mar-99	3300	12.27	14.30		0.0	North Branch Clifty Creek	19	4	2490
9354	17-Mar-99	5400	10.27	69.70		10.0	Little Cedar Creek	20	4	7967
9355	19-Mar-99	700	1.12	28.40		0.0	Beard Run	20	4	576
9357	18-Mar-99	1100	1.28	32.20		0.0	South Prong Stotts Creek	18	4	702
9358	18-Mar-99	1650	2.02	77.20		5.0	Buck Creek	18	4	2172
9359	19-Mar-99	1100	4.92	5.10		15.0	Back Creek	11	4	698
9360	22-Mar-99	950	3.18	5.01		10.0	Willow Branch	19	4	470
9361	22-Mar-99	1000	1.29	33.60		0.0	UNT North Branch Clifty Creek	19	4	728
9363	30-Mar-99	3500	16.50	7.30		0.0	Graham Creek	16	1	2060
9364	30-Mar-99	3100	6.38	29.80		15.0	Little Pigeon Creek	25	2	2585
9365	05-May-99	5600	50.49	6.90	.9	0.0	Clear Creek	9	8	2344
9366	01-Apr-99	1000	2.37	19.10		0.0	Bills Branch	14	4	800
9367	08-Apr-99	4950	27.87	13.30		0.0	East Branch Wea Creek	16	1	4461
9368	07-May-99	5200	15.59	23.20		10.0	Village Creek	20	3	5386
9369	08-Apr-99	250	1.29	23.06	23.7	0.0	Wilson Ditch	2	5	213
9370	12-Apr-99	1600	2.27	18.50		40.0	Altar Creek	24	2	989
9371	12-Apr-99	3700	17.32	10.93		0.0	Bear Creek	21	3	4268
9372	14-Apr-99	500	11.03	36.97		0.0	Unnamed Tributary Blue River	27	3	4833
9373	06-Apr-99	3300	13.32	19.30		5.0	West Honey Creek	10	4	3772
9376	22-Apr-99	500	5.90	4.57		0.0	Sarah Hershberger Ditch	2	6	516
9377	22-Apr-99	400	1.53	7.40	3.5	15.0	Unnamed Tributary Elkhart River	3	8	67
9378	27-Apr-99	900	16.16	3.60		15.0	Wolf Creek	2	6	817
9379	22-Apr-99	950	17.39	3.58		20.0	Wolf Creek	2	6	855

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9381	5/10/1999	1900	5.01	22.40		5.0	Unnamed Tributary Eel River	17	2	1928
9382	07-May-99	4400	13.13	32.90		10.0	Hanna Creek	20	3	5373
9383	07-May-99	1500	4.73	12.20		15.0	McFadden Ditch	14	4	1259
9384	10-May-99	1000	8.88	8.86	.8	10.0	Habegger Ditch	7	8	562
9385	10-May-99	1000	8.55	13.20	.8	0.0	Farlow Ditch	7	8	545
9386	10-May-99	1600	17.50	8.86	.8	5.0	Gates Ditch	7	8	996
9387	10-May-99	700	9.13	8.34	2.8	0.0	Bice Ditch	4	5	652
9388	10-May-99	1100	4.39	8.14		3.0	Campbell Ditch	14	4	800
9389	12-May-99	1800	5.40	27.30		15.0	Vertrees Ditch	18	2	2204
9390	10-May-99	14000	65.71	20.42		0.0	Pipe Creek	20	4	12621
9391	20-May-99	2400	2.90	81.88		0.0	Unnamed Tributary Mud Creek	19	4	2659
9392	20-May-99	2000	3.51	34.40		5.0	Unnamed Tributary Mud Creek	19	4	1917
9393	10-May-99	800	2.19	14.30		40.0	Pee Dee Ditch	19	4	807
9394	21-May-99	10200	189.39	3.98	.4	10.0	Pipe Creek	9	7	13012
9395	21-May-99	1300	1.90	22.16		20.0	George Creek	18	4	934
9397	27-May-99	2000	4.83	44.40		90.0	Unnamed Tributary Wabash River	16	1	2203
9398	25-May-99	2800	8.98	10.90		60.0	Cole Ditch	9	1	1596
9399	26-May-99	750	1.17	47.10		5.0	Snake Creek	18	4	979
9400	28-May-99	850	2.93	9.30	1.9	0.0	King Ditch	7	7	294
9401	28-May-99	3450	22.40	21.40	1.1	0.0	Silver Creek	9	8	1102
9402	13-Oct-99	8000	54.94	6.38		5.0	Conns Creek	19	4	5450
9403	02-Jun-99	2000	5.14	39.78		25.0	Sinking Creek	18	4	3241
9404	28-May-99	8500	77.00	5.08		5.0	Kilmore Creek	10	4	6104
9405	01-Jun-99	1300	2.09	26.67		0.0	Unnamed Tributary Little Flatrock River	19	4	916
9406	01-Jun-99	900	1.06	28.43		0.0	Unnamed Tributary Little Flatrock River	19	4	551
9407	15-Jun-99	2100	2.70	33.90		70.0	Sartor Ditch	18	4	1845
9408	02-Jun-99	1000	2.28	12.30		0.0	Smith Ditch	10	4	567
9409	03-Jun-99	4850	8.90	39.47		5.0	Harvey Branch	20	4	4518
9410	03-Jun-99	11100	45.50	18.90		5.0	Salt Creek	20	4	10126
9411	02-Jun-99	2200	13.80	10.30	.2	5.0	Majenica Creek	12	8	1081
9412	02-Jun-99	950	3.54	11.50	.2	0.0	Unnamed Tributary Majenica Creek	12	8	343
9413	03-Jun-99	1000	4.43	11.02	3.8	0.0	Davis Ditch	7	8	158
9414	16-Jun-99	975	2.47	32.60	1.8	10.0	Minnow Creek	9	7	406
9415	16-Jun-99	2000	4.81	41.90		90.0	Unnamed Tributary Wabash River	16	1	2122
9416	03-Jun-99	850	1.81	49.87		5.0	Unnamed Tributary Wabash River	16	1	1070
9417	27-May-99	1050	4.51	16.32	.1	5.0	Bottern Ditch	7	8	447
9418	27-May-99	1150	5.25	15.03	.1	5.0	Bottern Ditch	7	8	508
9419	27-May-99	300	1.02	7.58	.5	5.0	Unnamed Tributary Flatrock Creek	7	8	103
9420	04-Jun-99	2500	13.12	8.53		0.0	Burnett Creek	9	1	1876
9421	08-Jun-99	1875	3.02	23.70		10.0	Rock Creek	21	3	1246

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RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9422	10-Jun-99	1050	1.43	38.76		5.0	Unnamed Tributary Catherine Creek	19	4	1003
9423	09-Jun-99	1100	1.30	29.63		95.0	Unnamed Tributary Little Pigeon Creek	25	2	785
9424	09-Jun-99	2600	3.87	25.51		40.0	Unnamed Tributary Silver Creek	28	3	1607
9425	10-Jun-99	2300	11.43	7.92	.6	3.0	Hoffman Ditch	7	8	755
9426	10-Jun-99	1750	3.65	27.00		0.0	Unnamed Tributary Otter Creek	25	2	1637
9427	11-Jun-99	1600	4.07	5.17		10.0	Cannon-Goyer Ditch	10	4	587
9429	16-Jun-99	900	1.94	20.30		85.0	Unnamed Tributary Wabash River	16	1	669
9430	16-Jun-99	950	2.08	26.70		85.0	Unnamed Tributary Wabash River	16	1	831
9431	16-Jun-99	1350	1.82	45.90		20.0	Vandivier Ditch	19	4	1514
9432	18-Jun-99	1600	2.41	34.50		5.0	Henderson Creek	18	4	1414
9433	18-Jun-99	700	2.97	10.41		20.0	Barrett Ditch	19	4	785
9435	18-Jun-99	1950	3.67	41.40		5.0	Ray Creek	19	4	2269
9436	23-Jun-99	3650	9.67	22.11		5.0	Silver Creek	20	3	3435
9437	24-Jun-99	4100	20.52	13.93		10.0	Lauramie Creek	10	4	4453
9438	29-Jun-99	1100	5.18	12.95	3.8	0.0	Davis Ditch	7	8	180
9439	29-Jun-99	650	2.17	11.04	1.6	0.0	Harwood Ditch	7	7	265
9440	01-Jul-99	2200	43.88	2.53	2.2	0.0	Knight Ditch	2	6	1152
9441	06-Jul-99	500	2.48	11.21	.9	5.0	UNT Topper Ditch	2	5	272
9442	12-Jul-99	4300	22.26	13.92		10.0	Lauramie Creek	10	4	4757
9443	13-Jul-99	1900	3.22	14.14		65.0	Hare Ditch	18	4	1136
9444	13-Jul-99	1000	1.10	11.10		35.0	Hare Ditch	18	4	380
9445	14-Jul-99	2350	4.67	34.35		5.0	East Fork Clear Creek	18	4	2418
9446	12-Jul-99	3300	16.06	4.19		5.0	Kilmore Creek	10	4	1481
9447	14-Jul-99	1650	6.25	10.45		10.0	Rock Creek	9	4	1376
9448	16-Jul-99	700	1.41	13.00		15.0	Unnamed Tributary Stony Creek	14	4	491
9449	15-Jul-99	600	1.21	47.70	3.8	75.0	UNT Graham McCulloch Ditch No. One	9	8	53
9450	16-Jul-99	2700	8.42	16.46		4.0	Sugar Mill Creek	13	4	2285
9451	20-Jul-99	950	1.00	60.00		20.0	Vandivier Ditch	19	4	1124
9452	22-Jul-99	975	7.05	2.81		5.0	Carver Ditch	1	6	363
9453	20-Jul-99	2700	9.58	12.25		5.0	Spring Creek	13	4	2086
9454	23-Jul-99	2400	8.35	19.53		0.0	Caney Creek	25	2	2676
9455	27-Jul-99	2300	7.70	17.62		0.0	Caney Creek	25	2	2419
9456	27-Jul-99	450	3.04	45.17		5.0	Sand Creek	1	6	3045
9457	29-Jul-99	1500	1.69	25.07		85.0	Blue Creek	14	4	1030
9459	30-Jul-99	4600	36.62	7.20	.8	0.0	Clear Creek	9	8	1857
9460	30-Jul-99	3000	20.06	4.98		5.0	Browns Wonder Creek	13	4	2008
9461	03-Aug-99	1750	2.21	77.36		1.0	Unnamed Tributary Laughery Creek	23	3	1573
9462	09-Aug-99	1350	1.47	92.00		0.0	Muddy Fork	28	3	1177
9464	09-Aug-99	1100	17.53	7.57	.6	0.0	Slocum Ditch	2	5	1028
9465	12-Aug-99	385	1.56	23.31	5.4	40.0	UNT Main Beaver Dam Ditch	1	5	246

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RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9466	12-Aug-99	2900	12.50	13.90		10.0	Otterbein Ditch	16	1	2401
9467	13-Aug-99	3700	14.20	11.36		0.0	Duck Creek	21	3	3632
9468	11-Aug-99	3500	19.93	4.20		5.0	Huffman Ditch	28	2	2800
9469	18-Aug-99	3000	9.92	6.93		0.0	Cornstalk Creek	15	4	1250
9470	18-Aug-99	1300	3.88	12.60		5.0	UNT South Fork Wildcat Creek	10	4	1018
9471	20-Aug-99	750	2.67	16.83		5.0	Unnamed Tributary Elliott Ditch	16	1	775
9472	20-Aug-99	575	1.23	18.10		0.0	Unnamed Tributary Mud Pine Creek	8	1	434
9474	23-Aug-99	600	1.20	10.40		10.0	Unnamed Tributary Little Eagle Creek	18	4	357
9475	23-Aug-99	2300	17.31	4.65	2.6	0.0	Matson Ditch	7	7	864
9476	24-Aug-99	2500	5.12	12.60		30.0	Dry Branch	14	4	1444
9477	24-Aug-99	350	2.35	21.80	23.7	0.0	Curtiss Ditch	5	5	327
9478	24-Aug-99	275	1.32	38.40	2.6	0.0	Hookes Ditch	2	5	257
9479	24-Aug-99	1970	5.14	21.90		5.0	Monachals Fork Clear Creek	17	4	1898
9480	24-Aug-99	1450	3.52	23.70		5.0	Monachals Fork Clear Creek	17	4	1474
9481	24-Aug-99	700	1.41	38.30		0.0	UNT Monachals Fork Clear Creek	17	4	860
9482	24-Aug-99	1050	2.32	34.20		5.0	UNT Monachals Fork Clear Creek	17	4	1362
9483	25-Aug-99	3200	83.95	1.87	2.8	5.0	Eel River	6	7	2268
9484	26-Aug-99	500	1.17	22.30		5.0	Unnamed Tributary Fall Creek	14	4	575
9485	26-Aug-99	1000	1.03	12.40		85.0	Kuhn Ditch	19	4	417
9486	27-Aug-99	1875	9.90	11.30		5.0	Little Mississinewa River	11	4	2023
9487	31-Aug-99	8200	78.14	4.40		10.0	Lye Creek	13	4	5836
9488	30-Aug-99	1550	1.73	37.90		60.0	Plum Run	28	3	926
9489	31-Aug-99	1600	1.70	76.10		5.0	Black Creek	28	2	1391
9490	31-Aug-99	1700	4.39	20.72		30.0	Firlick Creek	25	2	1693
9491	02-Sep-99	1700	18.52	6.92		10.0	Stony Creek	14	4	2489
9492	02-Sep-99	1475	2.71	44.40		25.0	Donohue Creek	25	2	1594
9493	03-Sep-99	1250	166.69	2.99	4.8	15.0	Fawn River	3	8	2953
9494	07-Sep-99	7500	96.61	2.40		0.0	Big Pine Creek	8	1	4458
9495	09-Sep-99	2250	9.17	12.46		5.0	Prairie Creek	10	4	2037
9496	13-Sep-99	2000	3.39	97.40		0.0	Knob Creek	21	2	2569
9497	13-Sep-99	2200	2.98	56.40		5.0	Sand Creek	18	4	2386
9498	13-Sep-99	1500	1.55	29.00		55.0	Unnamed Tributary Silver Creek	28	3	747
9499	15-Sep-99	1150	1.62	14.20		30.0	Travis Creek	18	4	615
9500	9/15/1999	533	3.20	18.50		55.0	Unnamed Tributary Cole Ditch	9	1	948
9501	17-Sep-99	3000	6.47	22.20		10.0	Crooked Creek	18	4	2420
9502	17-Sep-99	2600	4.12	75.80		5.0	Little Salt Creek	21	2	2693
9503	21-Sep-99	4300	33.03	9.50		10.0	Pigeon Creek	25	2	5636
9504	21-Sep-99	15000	103.88	5.71		2.0	Richland Creek	18	2	10867
9505	21-Sep-99	8500	49.31	6.42		5.0	Lost River	21	2	6518
9506	29-Sep-99	1900	12.84	4.18		0.0	Little Pipe Creek	9	4	1077

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9507	01-Oct-99	1200	5.74	4.41		20.0	Back Creek	11	4	729
9508	01-Oct-99	4650	7.95	85.40		5.0	Johnson Fork	20	3	5183
9509	04-Oct-99	2300	4.30	18.30		25.0	Wildcat Run	19	4	1612
9510	13-Oct-99	1350	3.08	17.13		0.0	UNT East Fork Coal Creek	16	1	879
9511	13-Oct-99	1400	3.00	21.40		0.0	Symonds Creek	20	4	1052
9512	13-Oct-99	2300	4.83	40.20		0.0	Dubois Creek	20	3	2389
9513	13-Oct-99	600	1.98	8.66	.9	0.0	Chizum Ditch	4	5	210
9514	15-Oct-99	920	2.10	14.50		25.0	Middle Fork	14	4	761
9515	15-Oct-99	1500	4.80	11.30		0.0	Tippey Ditch	11	4	979
9516	15-Oct-99	750	2.33	13.70	.5	10.0	Baker Ditch	12	8	207
9517	15-Oct-99	2500	13.23	3.39		5.0	Grassy Fork Ditch	10	4	1087
9518	18-Oct-99	3000	14.39	12.10	.6	10.0	Rowe-Eden Ditch	3	8	917
9519	18-Oct-99	400	11.33	2.04	1.7	5.0	Fly Creek	3	7	573
9520	18-Oct-99	9000	44.42	6.45		1.0	Richland Creek	18	2	6039
9521	29-Oct-99	350	2.13	4.01		15.0	Wieland D	1	6	225
9522	01-Nov-99	1450	1.24	110.00		30.0	Casselbury Creek	28	2	1270
9523	03-Nov-99	1200	2.24	17.90		40.0	Unnamed Tributary White Lick Creek	18	4	965
9524	04-Nov-99	4300	22.90	14.30		5.0	Campbells Run	10	4	4741
9525	09-Nov-99	1800	4.62	15.10		5.0	Montgomery Creek	19	4	1335
9526	09-Nov-99	2050	5.91	15.60		5.0	Montgomery Creek	19	4	1670
9527	10-Nov-99	2000	8.45	11.40		5.0	Taylor Creek	9	4	1789
9528	15-Nov-99	1250	5.37	14.00		0.0	Dehaven Ditch	9	4	1250
9529	16-Nov-99	2900	7.80	18.60		0.0	Trippet Ditch	24	2	2495
9530	18-Nov-99	1150	2.03	19.80		5.0	Long Branch	18	4	828
9531	18-Nov-99	6300	25.50	13.40		3.0	Little Sand Creek	21	4	4794
9532	18-Nov-99	8500	43.00	13.40		0.0	Little Sand Creek	21	4	6616
9533	18-Nov-99	4950	17.50	14.20		5.0	Brush Creek	21	4	3788
9534	19-Nov-99	1200	2.63	53.20		0.0	Fall Creek	20	3	1563
9535	23-Nov-99	1050	2.74	26.30		5.0	Kenny Ditch	16	1	1028
9537	02-Dec-99	1320	3.34	79.50		5.0	East Branch Sweetwater Creek	21	2	2345
9538	14-Dec-99	4500	24.07	11.20		5.0	Wolf Creek	13	4	4150
9539	15-Dec-99	1900	7.10	9.27		0.0	Thorpe Creek	14	4	1171
9540	16-Dec-99	5325	8.00	34.20		85.0	Clear Creek	21	2	3233
9541	16-Dec-99	5275	7.86	34.50		85.0	Clear Creek	21	2	3201
9542	16-Dec-99	1800	4.76	13.30		0.0	Goddard Ditch	19	4	1092
9543	22-Dec-99	3200	13.18	9.80		0.0	East Branch Wea Creek	16	1	2043
9544	22-Dec-99	1600	4.60	9.32		10.0	Teter Branch	14	4	987
9545	22-Dec-99	800	1.23	18.70		25.0	Trittipo Ditch	14	4	590
9546	30-Dec-99	675	0.64	42.30		40.0	Goose Creek	18	4	640
9547	30-Dec-99	1050	1.11	29.40		80.0	Wetnight Ditch	18	4	815

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9548	30-Dec-99	2700	9.03	12.10		5.0	Jordan Creek	16	1	1704
9549	06-Jan-00	600	5.71	18.20	8.7	5.0	Robbins Ditch	2	6	1937
9550	10-Jan-00	3500	33.62	4.70		5.0	West Fork White River	14	4	2937
9551	10-Jan-00	1100	58.05	2.37	1.1	0.0	Oliver Ditch	4	5	1700
9552	12-Jan-00	1350	4.49	11.80		0.0	Romney Fraley Ditch	16	1	957
9553	18-Jan-00	2000	9.98	8.40		0.0	Buck Creek	9	4	1441
9554	18-Jan-00	800	1.80	34.40		0.0	Lost Creek	16	1	857
9556	25-Jan-00	1200	1.52	34.00		100.0	Farley Ditch	18	4	1188
9557	1/25/2000	4200	32.58	5.46		0.0	Little Blue River	19	4	2784
9558	26-Jan-00	950	7.04	2.65		5.0	Hill Ditch	5	6	342
9559	26-Jan-00	22000	321.00	4.68		5.0	Brouilletts Creek	16	1	17315
9560	26-Jan-00	1000	11.47	9.66		0.0	Hoagland Ditch	5	1	1811
9561	26-Jan-00	8700	22.10	34.80		0.0	West Fork Indian Kentuck Creek	28	3	8786
9562	26-Jan-00	1200	1.89	54.40		0.0	Unnamed Tributary Big Raccoon Creek	15	4	1401
9563	1/24/2000	375	2.13	51.30		0.0	Sand Creek	1	6	2699
9564	26-Jan-00	1250	1.21	53.60		70.0	Unnamed Tributary Silver Creek	28	3	781
9565	26-Jan-00	7800	32.00	5.53		2.0	Big Raccoon Creek	15	1	2985
9566	28-Jan-00	750	1.24	15.32		70.0	Unnamed Tributary White Lick Creek	18	4	555
9567	09-Feb-00	8000	18.69	24.70		0.0	Poison Creek	28	2	5365
9568	28-Jan-00	1700	2.93	48.80		10.0	Lower Limestone Creek	17	4	2222
9569	28-Jan-00	1000	1.42	78.10		20.0	UNT Lower Limestone Creek	17	4	1805
9570	28-Jan-00	28000	126.00	7.54		1.0	Big Raccoon Creek	15	4	11126
9571	09-Feb-00	2500	8.33	11.03		0.0	Graham Creek	16	1	1513
9572	08-Feb-00	950	2.52	7.62		25.0	Unnamed Tributary Little Eagle Creek	18	4	559
9573	09-Feb-00	3400	12.59	14.90		10.0	Middle Fork Big Walnut Creek	17	4	3136
9575	09-Feb-00	1550	2.51	35.50		90.0	Mario Creek	18	4	1830
9576	09-Feb-00	1500	2.48	35.70		90.0	Mario Creek	18	4	1819
9577	09-Feb-00	1650	2.19	26.70		65.0	Plum Run	28	3	983
9578	22-Feb-00	11000	43.94	10.30		5.0	Lick Creek	21	2	7204
9579	28-Feb-00	900	2.06	6.60		10.0	UNT Lower Shaker Prairie Ditch	16	1	364
9580	09-Feb-00	1200	6.51	18.30		15.0	Salt Creek	14	4	2180
9582	02-Mar-00	2500	11.81	5.74		5.0	Buck Creek	19	4	1442
9583	09-Feb-00	525	10.10	10.90	1.9	0.0	Little Indian Creek	5	7	879
9584	09-Feb-00	680	2.08	11.70		10.0	Walnut Creek	9	4	608
9585	09-Feb-00	700	1.91	29.50	.5	0.0	O'brien Ditch	4	5	310
9587	09-Feb-00	6400	13.45	61.20		5.0	Salt Fork	28	3	7189
9588	10-Feb-00	300	1.50	32.00		0.0	Unnamed Tributary Kartoffel Creek	2	6	1339
9589	10-Feb-00	720	1.70	54.50	2.8	10.0	Unnamed Tributary Prairie Ditch	9	7	277
9593	03-Mar-00	1900	2.43	59.60		10.0	Unnamed Tributary White River	18	2	1650
9594	03-Mar-00	1700	1.92	62.60		5.0	Unnamed Tributary White River	18	2	1411

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9595	03-Mar-00	2100	3.12	53.70		10.0	Unnamed Tributary White River	18	2	1909
9596	10-Feb-00	1700	1.64	73.00		0.0	Unnamed Tributary Spray Creek	21	4	1539
9597	10-Feb-00	53000	382.30	5.53		5.0	Rider Ditch	22	2	28445
9598	16-Feb-00	1400	5.77	14.00	.2	5.0	Majenica Creek	12	8	518
9599	23-Feb-00	850	1.16	27.70		0.0	Sharon Brook	16	1	530
9600	23-Feb-00	2300	20.76	6.43	1.9	0.0	Sol Shank Ditch	7	8	826
9601	22-Feb-00	950	1.62	31.30		30.0	Unnamed Tributary South Fork	16	1	745
9602	06-Mar-00	1700	9.22	4.79		0.0	Todd Ditch	14	4	905
9603	22-Feb-00	1300	2.60	20.60		5.0	Unnamed Tributary Prairie Creek	16	1	854
9604	22-Feb-00	490	2.35	6.92		0.0	Harp Ditch	5	6	410
9605	22-Feb-00	750	4.62	5.42		0.0	Harp Ditch	5	6	515
9606	22-Feb-00	780	13.11	2.11	.5	0.0	Ryan Ditch	4	5	537
9607	22-Feb-00	1600	19.10	15.90		0.0	Yellow Bank Creek	2	6	3895
9608	22-Feb-00	5300	54.20	6.47	3.8	0.0	Crooked Creek	9	7	2005
9610	22-Feb-00	2900	30.58	11.10		5.0	Potato Creek	2	6	3793
9611	22-Feb-00	2100	10.96	5.67		0.0	Cox Ditch	14	4	1175
9612	22-Feb-00	1900	8.83	3.62		0.0	Polywog Creek	14	4	716
9613	06-Mar-00	1000	1.68	40.30		10.0	Cosner Branch	18	4	1231
9614	25-Feb-00	680	16.59	6.24		0.0	Lateral Number Five	2	6	1422
9615	25-Feb-00	1700	1.94	21.80		70.0	Irishman Run	18	4	1029
9616	25-Feb-00	2000	9.94	4.41		5.0	Dixon Creek	14	4	1038
9617	23-Mar-00	6500	34.30	10.23		5.0	Little Flatrock River	19	4	5194
9619	03-Apr-00	2200	6.35	19.30		10.0	Mud Creek	17	4	2157
9620	19-Jun-00	4300	41.12	3.86	4.1	5.0	Honey Creek	5	5	1549
9622	04-Apr-00	560	1.66	11.26	3.1	0.0	Unnamed Tributary Beal Taylor Ditch	9	8	77
9628	30-May-00	520	3.24	22.90	1.1	55.0	Werntz Ditch	3	8	216
9630	06-Jun-00	840	1.33	25.90		5.0	UNT Middle Fork Big Walnut Creek	17	4	710
9631	06-Jun-00	2760	9.45	10.50		15.0	Middle Fork Big Walnut Creek	17	4	1990
9634	20-Jun-00	1400	1.76	93.80		5.0	Muddy Fork	28	3	1395
9635	6/20/2000	2350	8.66	15.30		5.0	Little Raccoon Creek	15	4	2250
9636	20-Jun-00	900	1.25	40.00		50.0	Licking Creek	25	2	858
9637	23-Jun-00	1100	1.94	88.90		5.0	Unnamed Tributary Whitewater River	20	3	1487
9638	20-Jun-00	1100	1.13	26.10		50.0	Plum Run	28	3	537
9639	20-Jun-00	1200	1.31	24.00		50.0	Plum Run	28	3	592
9641	30-Jun-00	2000	4.02	25.00		5.0	Unnamed Tributary Ripley Creek	23	3	1648
9646	10-Jul-00	3800	19.10	16.80		0.0	Leatherwood Creek	15	1	3773
9651	04-Apr-00	480	3.64	8.60	.6	10.0	Ahlgrim Ditch	2	5	331
9661	5/15/2000	2700	12.91	6.69		5.0	Buck Creek	19	4	1729
9666	31-Jul-00	2400	11.92	7.11		5.0	Burnett Creek	9	1	1562
9667	26-Jul-00	5200	51.48	4.31		10.0	Big Lick Creek	11	4	4091

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RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9668	21-Jul-00	500	2.33	5.56	1.9	5.0	Stout Gise Ditch	5	5	205
9669	02-Aug-00	1000	2.94	17.00		30.0	Kitty Run	10	4	1137
9670	01-Aug-00	320	1.40	80.00		25.0	Damon Run	1	6	3118
9671	25-May-00	1025	2.49	22.22		2.0	Moores Creek	19	4	1008
9672	04-Aug-00	3800	20.91	11.62		25.0	Prairie Creek	10	4	4240
9676	17-Mar-00	480	1.23	18.40		30.0	Beulah Run	14	4	591
9677	17-Mar-00	900	2.55	14.13		0.0	Marsh And Trees Ditch	19	4	685
9678	29-Jun-00	8000	19.90	51.60		10.0	Hayes Branch	23	3	9489
9679	13-Jul-00	300	1.53	2.48		0.0	Negro Ditch	16	1	162
9680	30-Jun-00	5100	14.90	25.70		10.0	Village Creek	20	4	5305
9681	20-Jun-00	3300	9.37	19.77		5.0	Little Sand Creek	21	4	2880
9682	10-Apr-00	680	1.54	21.43		0.0	Lick Creek	14	4	611
9684	15-Jun-00	940	1.17	21.50		5.0	Leather Run	19	4	560
9686	26-Jun-00	900	1.42	18.82		30.0	Unnamed Tributary White Lick Creek	18	4	675
9688	12-Jun-00	1140	12.27	41.18	8.9	10.0	East Branch Trail Creek	1	5	1395
9689	07-Jun-00	10000	39.51	29.37		0.0	West Fork Blue River	27	2	10056
9690	08-Jun-00	9700	25.30	30.42		70.0	Clear Creek	21	2	7305
9691	8/14/2000	3280	31.04	9.55	4.1	5.0	Silver Creek	6	7	1369
9692	15-Aug-00	205	1.75	1.09	17.1	10.0	Cannon Ditch	2	5	95
9693	18-Aug-00	810	2.77	9.41		40.0	Eagle Branch	14	4	726
9694	22-Aug-00	15500	242.97	6.01		10.0	Mill Creek	17	4	18389
9699	22-Aug-00	1300	1.68	22.80		20.0	Altar Creek	24	2	857
9700	24-Aug-00	450	1.20	12.90	2.3	0.0	Markley Ditch	9	8	68
9703	24-Aug-00	6100	10.32	40.70		10.0	Brummett Creek	21	2	4189
9705	10/27/2000	1020	4.80	21.70	4.4	5.0	Swank Creek	6	7	363
9706	28-Aug-00	260	2.14	12.29	3.3	0.0	Kieffer Ditch	3	8	92
9707	24-Aug-00	5700	9.25	40.70		10.0	Brummett Creek	21	2	3860
9708	23-Aug-00	425	2.39	19.60	4.1	65.0	UNT Main Beaver Dam Ditch	1	5	319
9709	8/23/2000	6500	109.00	3.79		5.0	Black Creek	18	2	9585
9710	23-Aug-00	400	2.19	23.10	4.1	65.0	UNT Main Beaver Dam Ditch	1	5	316
9712	24-Aug-00	450	1.16	11.75	2.3	0.0	Breiner Joint Ditch	9	8	66
9713	13-Jul-00	1400	1.71	111.00		10.0	Unnamed Tributary Davis Creek	24	2	1621
9714	22-Aug-00	1100	1.19	65.80		10.0	Nine Penny Branch	28	3	841
9716	24-Aug-00	550	1.37	29.60	1.2	35.0	Unnamed Tributary Salamonie River	12	8	101
9719	8/30/2000	450	1.23	17.24	1.2	0.0	Duglay Ditch	6	7	220
9720	30-Aug-00	1400	1.16	178.00		20.0	Unnamed Tributary Tanners Creek	28	3	1267
9724	08-Sep-00	2100	4.55	19.12		4.0	Little Sand Creek	21	4	1539
9726	12-Sep-00	1225	6.32	6.50	.6	0.0	Loon Creek	9	8	458
9729	9/18/2000	1300	6.30	9.45		10.0	Rees Ditch	11	4	1289
9734	04-Oct-00	2500	14.15	1.21		0.0	Big Bayou	16	1	637

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RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9735	04-Oct-00	750	1.70	30.90		0.0	Unnamed Tributary Black River	16	1	769
9736	04-Oct-00	9000	84.89	5.35		5.0	Black River	16	1	6420
9737	04-Oct-00	2400	8.99	2.71		0.0	Unnamed Tributary Black River	16	1	708
9738	04-Oct-00	950	2.64	25.10		5.0	Unnamed Tributary Black River	16	1	971
9740	05-Oct-00	830	3.15	23.03	1.5	0.0	Unnamed Tributary St. Marys River	7	8	187
9741	05-Oct-00	580	1.75	24.49	1.5	0.0	Unnamed Tributary St. Marys River	7	8	114
9743	06-Oct-00	580	1.87	17.60	1.6	5.0	Mason Ditch	7	8	117
9744	10-Oct-00	2350	4.32	13.60		20.0	Sand Branch	21	4	1288
9745	11-Oct-00	1600	7.87	9.18	.8	0.0	Threemile Creek	9	8	508
9746	12-Oct-00	2700	7.28	18.80		5.0	Fishers Fork	21	4	2262
9747	19-Jun-00	2200	2.88	68.20		5.0	Buck Creek	28	2	1976
9748	16-Oct-00	1400	5.57	14.70	4.1	20.0	Charley Creek	9	7	376
9750	17-Oct-00	1600	1.34	103.00		15.0	Unnamed Tributary Green Valley Creek	21	2	1312
9758	23-Oct-00	1150	2.38	51.10		40.0	Crown Creek	20	4	2139
9759	23-Oct-00	1100	2.25	51.30		35.0	Crown Creek	20	4	2029
9760	23-Oct-00	1100	2.16	53.30		33.0	Crown Creek	20	4	2008
9761	23-Oct-00	800	1.35	60.20		15.0	Crown Creek	20	4	1410
9762	24-Oct-00	1100	1.83	3.51		90.0	Unnamed Tributary Little Pigeon Creek	25	2	437
9763	26-Oct-00	900	1.19	33.70		40.0	Unnamed Tributary Little Pigeon Creek	25	2	773
9764	10/27/2000	600	2.29	29.60	2.4	5.0	Unnamed Tributary Swank Ditch	6	7	315
9766	27-Oct-00	600	1.24	15.90		20.0	Edwards Ditch	10	4	520
9767	30-Oct-00	2800	5.36	30.80		20.0	Big Clifty Creek	28	3	2336
9768	01-Nov-00	1700	2.87	44.40		0.0	Town Creek	22	3	1563
9769	27-Sep-00	29500	253.60	6.72		5.0	Sand Creek	21	4	19700
9772	06-Nov-00	1350	3.06	19.39		15.0	Unnamed Tributary Conneley Ditch	17	2	1259
9773	06-Nov-00	780	1.55	29.40		45.0	Unnamed Tributary Prairie Creek	10	4	1026
9774	06-Nov-00	820	1.70	24.10		45.0	Unnamed Tributary Prairie Creek	10	4	960
9776	09-Nov-00	2800	7.29	20.50		5.0	Little Creek	22	3	2580
9777	08-Nov-00	900	2.00	26.50		50.0	Prairie Creek	10	4	1182
9778	08-Nov-00	760	1.50	36.50		50.0	Prairie Creek	10	4	1174
9779	08-Nov-00	1000	2.45	5.61		10.0	Unnamed Tributary Sugar Creek	19	4	411
9780	13-Nov-00	1150	2.74	24.20		30.0	Edwards Ditch	10	4	1380
9781	14-Nov-00	1300	1.99	98.10		10.0	Kerr Creek	21	2	1730
9782	13-Nov-00	17500	65.28	32.71		15.0	Indian Creek	28	3	22611
9783	13-Nov-00	1300	1.47	73.80		0.0	Richland Creek	28	3	1069
9784	14-Nov-00	600	1.40	13.60		20.0	Edwards Ditch	10	4	514
9786	16-Nov-00	5500	24.40	14.90		10.0	Little Sand Creek	21	4	5381
9787	16-Nov-00	2220	9.21	10.77		45.0	Boots Creek	11	4	2148
9790	20-Nov-00	2100	18.33	6.43	1.9	0.0	Sol Shank Ditch	7	8	744
9792	20-Nov-00	135	1.33	19.40		5.0	George Marberger Ditch	2	6	757

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9793	27-Nov-00	13500	82.60	4.70		75.0	Buck Creek	19	4	7401
9794	29-Nov-00	2100	2.18	81.70		5.0	Brummett Creek	21	2	1723
9796	01-Dec-00	750	1.21	16.34		25.0	Unnamed Tributary Flatrock River	19	4	528
9798	05-Dec-00	630	2.20	12.12	3.9	0.0	Metcalf Ditch	7	8	86
9806	07-Dec-00	360	1.99	14.06	6.8	80.0	Unnamed Tributary Salt Creek	1	5	249
9809	02-Jan-01	2800	4.80	51.60		0.0	Gravel Creek	21	2	2594
9810	1/3/2001	1550	23.73	7.60		10.0	Hanna Arm	2	6	2203
9811	04-Jan-01	27000	222.00	7.90		20.0	Sand Creek	21	3	36595
9814	04-Jan-01	1200	2.30	25.30		30.0	Locust Creek	25	2	1130
9818	11-Jan-01	1200	2.20	28.85		5.0	Duck Creek	21	3	1021
9821	1/11/2001	1100	5.92	6.49	2.3	5.0	Brewster Ditch	9	8	262
9823	19-Jan-01	1750	3.50	40.30		20.0	Dry Branch	13	4	2353
9824	22-Jan-01	900	4.02	7.86		0.0	Long Branch	14	4	654
9825	23-Jan-01	5650	15.62	9.50		5.0	Little Eagle Creek	18	4	2593
9826	23-Jan-01	750	1.18	44.70		10.0	Glue Run	20	4	994
9827	24-Jan-01	1700	7.39	19.60		5.0	Cripe Run	10	4	2358
9828	24-Jan-01	2200	3.05	45.80		5.0	North Fork Lost River	21	2	1763
9829	25-Jan-01	4450	10.30	9.50		5.0	Little Eagle Creek	18	4	1846
9832	31-Jan-01	300	1.05	28.15	1.7	0.0	Koselki Ditch	2	5	195
9833	31-Jan-01	2500	13.80	14.10		5.0	Lick Creek	14	4	3105
9836	31-Jan-01	350	2.20	16.67	20.5	15.0	Kuhn Ditch	5	8	31
9837	31-Jan-01	240	1.60	12.35	4.1	45.0	Frog Creek	1	5	202
9838	02-Feb-01	750	1.26	9.76		25.0	Storms Ditch	13	4	378
9839	05-Feb-01	3875	33.80	3.90	.5	5.0	Eightmile Creek	9	8	1970
9840	06-Feb-01	1500	1.97	55.85		15.0	Brush Heap Creek	28	3	1232
9841	2/7/2001	3000	11.34	14.80		10.0	Harbin Creek	17	1	2303
9842	07-Feb-01	1000	1.22	65.80		25.0	Unnamed Tributary Nineveh Creek	19	4	1434
9843	07-Feb-01	8000	38.30	5.03		15.0	Flat Creek	24	2	4900
9844	08-Feb-01	950	1.58	21.00		10.0	Ransdell Ditch	19	4	736
9845	12-Feb-01	5200	50.40	10.50	4.4	5.0	Moots Creek	5	5	2530
9846	14-Feb-01	12000	36.60	21.80		40.0	Clear Creek	21	2	8444
9847	15-Feb-01	650	1.84	10.20		30.0	Truitt Ditch	14	4	539
9848	15-Feb-01	11500	39.80	12.74		0.0	Middle Fork Anderson River	26	2	7275
9849	15-Feb-01	1200	5.38	10.90		20.0	Mud Creek	14	4	1317
9850	16-Feb-01	2300	20.13	3.80	2.5	10.0	Eel River	6	7	935
9852	19-Feb-01	1300	2.79	30.52		1.0	Dry Branch	20	4	1344
9854	21-Feb-01	1250	1.16	241.70		5.0	Unnamed Tributary Ohio River	28	3	1447
9855	22-Feb-01	5000	16.00	24.20		10.0	Ben Davis Creek	19	4	5387
9856	23-Feb-01	1300	1.21	36.00		50.0	Camp Run	28	3	657
9857	26-Feb-01	2700	8.39	14.75		10.0	Honey Creek	24	2	2404

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9858	01-Mar-01	650	1.43	26.40		2.0	Flatrock River	19	4	725
9860	05-Mar-01	1500	2.53	31.10		40.0	Sixmile Creek	22	3	1196
9862	09-Mar-01	1250	1.29	24.90		95.0	Blue Creek	14	4	829
9863	13-Mar-01	4100	23.30	2.60		3.0	Big Pine Creek	8	1	1487
9864	14-Mar-01	2600	80.60	5.83	2.4	20.0	Blue River	6	7	3558
9865	08-Mar-01	2650	9.70	10.40		0.0	Petes Run	10	4	1639
9866	20-Mar-01	1140	2.69	9.20		5.0	Michael Hallihan Ditch	10	4	603
9868	19-Mar-01	1200	5.74	4.41		20.0	Back Creek	11	4	729
9870	26-Mar-01	600	1.46	19.40		10.0	Shrock Ditch	9	4	652
9871	26-Mar-01	500	1.12	19.00		75.0	Unnamed Tributary Kokomo Creek	10	4	599
9872	26-Mar-01	800	1.91	21.05		10.0	Unnamed Tributary Brandywine Creek	19	4	861
9874	08-Mar-01	1250	5.01	14.19		5.0	Price Ditch	11	4	1365
9875	29-Mar-01	2250	7.30	26.04		15.0	Fountain Creek	20	4	3077
9876	30-Mar-01	900	1.50	9.57		10.0	Dry Branch	14	4	403
9877	30-Mar-01	950	1.36	46.30		10.0	Unnamed Tributary Storm Creek Ditch	22	2	968
9878	30-Mar-01	3000	3.40	180.80		10.0	Eagle Hollow Creek	28	3	3349
9879	02-Apr-01	3300	21.30	6.19		5.0	West Fork White River	14	4	2462
9880	02-Apr-01	4100	11.79	33.20		5.0	Hanna Creek	20	3	4897
9881	03-Apr-01	900	2.50	94.64		0.0	Unnamed Tributary Blue River	27	3	1918
9882	09-Mar-01	680	2.25	25.29	1.6	20.0	Unnamed Tributary St. Marys River	7	8	137
9884	04-Apr-01	2000	8.00	8.75		3.0	Little Pine Creek	8	1	1279
9886	05-Apr-01	3000	4.08	57.40		20.0	Harvey Branch	20	4	3430
9887	21-Mar-01	560	3.10	10.47	3.7	5.0	Cowan Ditch	5	5	314
9888	10-Apr-01	1600	2.74	29.00		65.0	Unnamed Tributary Crooked Creek	28	2	1359
9889	12-Apr-01	900	1.60	30.26		10.0	UNT Little Raccoon Creek	15	4	965
9890	19-Apr-01	5500	11.22	61.40		20.0	Little Hogan Creek	28	3	6118
9891	19-Apr-01	9100	21.70	26.30		10.0	Dry Run	27	2	6149
9893	24-Apr-01	4200	19.47	10.40		15.0	Duck Creek	19	4	3564
9894	24-Apr-01	850	1.32	18.98		10.0	Unnamed Tributary Sugar Creek	19	4	592
9896	26-Apr-01	2500	25.70	4.53	.5	5.0	Eightmile Creek	9	8	1564
9897	30-Apr-01	600	1.83	24.10		0.0	Richey Ditch	19	4	765
9898	30-Apr-01	1250	1.57	74.50		10.0	Unnamed Tributary Little Indian Creek	28	2	1300
9899	02-Apr-01	950	4.20	11.55	7.7	10.0	Alex Warner Ditch	7	8	100
9900	01-May-01	1800	2.70	26.51		5.0	East Fork Blue Creek	20	4	1286
9904	02-May-01	750	1.18	19.32		15.0	Cutsinger Ditch	19	4	562
9905	03-May-01	7350	61.10	3.82		5.0	Kilmore Creek	10	4	4125
9906	07-May-01	675	2.30	9.10	1.2	0.0	Johns Creek	9	8	157
9907	14-May-01	1800	3.92	25.20		10.0	Rattlesnake Creek	13	4	1760
9913	22-May-01	5200	51.20	9.80	8.5	5.0	Moots Creek	5	5	2501
9914	24-Apr-01	1100	3.07	10.40		10.0	Jay Ditch	14	4	768

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RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9915	24-May-01	3050	5.70	54.40		10.0	Little Indian Creek	28	2	3012
9918	29-May-01	2000	3.66	21.61		0.0	Unnamed Tributary Ell Creek	24	2	1503
9919	31-May-01	1450	1.66	89.50		0.0	Burkhart Creek	18	4	1797
9920	01-Jun-01	520	47.70	4.20	1.2	50.0	Pigeon Creek	3	7	2899
9921	04-Jun-01	2450	3.97	62.20		50.0	Jenny Lind Run	28	3	2421
9922	22-May-01	700	1.16	33.10		10.0	Unnamed Tributary Prairie Creek	10	4	791
9924	12-Jun-01	2700	4.86	101.43		0.0	Hamilton Creek	21	2	3418
9925	15-Jun-01	1100	1.88	6.20		15.0	Heinrich Ditch	14	4	366
9926	18-Jun-01	18800	38.10	22.60		15.0	South Hogan Creek	28	3	11875
9927	18-Jun-01	2300	8.04	27.87		20.0	Little Raccoon Creek	16	1	2528
9928	18-Jun-01	1800	3.38	31.20		15.0	Beehunter Ditch	18	2	1636
9929	28-Jun-01	2600	4.21	25.70		75.0	Lentzier Creek	28	3	1739
9931	28-Jun-01	1300	1.45	138.10		5.0	Unnamed Tributary Wolf Creek	19	4	2508
9932	29-Jun-01	3800	15.50	10.50		15.0	Buck Creek	18	2	3329
9933	29-Jun-01	3500	11.80	14.09		20.0	Beehunter Ditch	18	2	3048
9934	29-Jun-01	5300	28.79	12.30		20.0	Beehunter Ditch	18	2	5631
9935	02-Jul-01	1450	5.04	12.20		5.0	Massey Creek	11	4	1231
9936	03-Jul-01	800	33.40	3.90		5.0	Geyer Ditch	2	6	1455
9938	06-Jul-01	380	6.20	8.16	4.6	5.0	Mill Creek	2	5	484
9939	10-Jul-01	1100	1.62	26.40		5.0	UNT East Fork Fourteenmile Creek	28	3	746
9940	16-Jul-01	3000	2.03	47.92		45.0	Unnamed Tributary Jackson Creek	21	2	1323
9941	16-Jul-01	3200	9.51	19.83		50.0	Little Sand Creek	21	4	3431
9942	18-Jul-01	250	2.20	11.30	5.4	75.0	Osborn Manning Ditch	3	8	72
9947	16-Oct-01	780	2.04	23.17	1.1	5.0	Debatty Prong	12	8	146
9948	7/23/2001	780	1.20	10.20		12.0	Unnamed Tributary Sanitary Ditch	13	4	356
9951	02-Aug-01	4300	25.87	8.86		10.0	Little Pine Creek	16	1	3314
9952	02-Aug-01	1550	3.25	22.10		0.0	Unnamed Tributary Big Raccoon Creek	15	4	1148
9958	17-Aug-01	16500	30.70	33.03		10.0	North Hogan Creek	28	3	11536
9959	17-Aug-01	20500	43.84	33.40		5.0	North Hogan Creek	28	3	15960
9960	26-Jul-01	2100	3.99	6.58		25.0	Neese Ditch	18	4	732
9961	24-Aug-01	820	18.00	2.16	.8	5.0	Quigley Marsh Ditch	5	5	686
9962	26-Jul-01	3800	12.06	5.66		15.0	Mounts Run	18	4	1563
9965	04-Sep-01	875	1.26	11.10		30.0	Eagle Creek	28	2	520
9966	05-Sep-01	450	5.80	0.90	1.3	5.0	Brown Levee Ditch	2	5	219
9967	07-Sep-01	4000	16.00	18.70		3.0	Croys Creek	17	4	4155
9969	10-Sep-01	2700	6.50	21.03		10.0	West Fork Keg Creek	24	2	2285
9970	12-Sep-01	5000	9.18	42.45		0.0	Little Oil Creek	28	2	3902
9971	17-Sep-01	300	1.16	22.40	1.7	0.0	Koselki Ditch	2	5	194
9972	18-Sep-01	900	1.11	7.80		0.0	UNT South Prong Stotts Creek	18	4	228
9973	24-Sep-01	1000	48.20	3.46		5.0	Geyer Ditch	2	6	1666

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RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
9974	27-Sep-01	650	1.94	13.40	8.9	35.0	Unnamed Tributary Tippecanoe River	5	5	240
9975	9/25/2001	850	1.56	64.45		75.0	Unnamed Tributary Wabash River	16	1	1103
9976	01-Oct-01	150	1.20	29.21	9.2	10.0	Stoner Ditch	3	8	31
9977	03-Oct-01	3350	41.60	3.40	1.4	5.0	Eightmile Creek	9	8	1693
9978	03-Oct-01	2100	8.40	10.26		60.0	Boots Creek	11	4	1966
9980	15-Oct-01	1200	21.40	0.94	.9	0.0	Brown Ditch	2	5	589
9981	15-Oct-01	970	3.07	14.40		2.0	Moore Prong	11	4	878
9982	15-Oct-01	6000	23.80	15.29		10.0	Little Sand Creek	21	4	5370
9984	18-Oct-01	1000	4.03	12.68		20.0	Charley Creek	9	7	1007
9985	18-Oct-01	3250	11.32	2.56		0.0	Eagle Creek	28	2	1508
9986	18-Oct-01	1700	3.95	14.31		25.0	De Prez Ditch	19	4	1263
9987	22-Oct-01	3850	8.75	20.10		10.0	North Prong Stotts Creek	18	4	2884
9988	23-Oct-01	1600	4.00	19.19		5.0	Turkey Run	16	1	1159
9989	23-Oct-01	1500	2.28	68.70		0.0	Nineveh Creek	19	4	1929
9990	23-Oct-01	2600	16.60	10.10	.8	5.0	West Branch Clear Creek	9	8	953
9992	25-Oct-01	1300	6.38	19.80		10.0	Little Rock Creek	9	4	2205
9993	25-Oct-01	7500	68.10	5.86		20.0	Mud Pine Creek	8	1	5670
9994	29-Oct-01	1175	4.97	12.25		0.0	Bachelor Run	9	4	1067
9995	26-Oct-01	1200	1.71	124.00		5.0	UNT East Fork Whitewater River	20	3	1534
10002	11/2/2001	1300	3.27	21.05		20.0	Cheeney Creek	14	4	1402
10003	11/5/2001	700	2.82	3.56	2.3	45.0	Wabash & Erie Canal	9	4	372
10004	05-Nov-01	1525	5.96	29.50	1.3	5.0	Washonis Creek	6	7	961
10005	31-Oct-01	750	2.60	11.30	3.9	10.0	Metcalf Ditch	7	8	99
10006	14-Nov-01	1100	2.13	7.82		7.5	Unnamed Tributary Indian Creek	13	4	456
10007	20-Nov-01	1200	1.53	84.60		10.0	Unnamed Tributary Mill Hollow Branch	18	4	1934
10008	11/26/2001	1900	5.24	40.20		15.0	Mud Run	16	1	2219
10010	30-Nov-01	2800	8.97	19.79		5.0	Robb Creek	18	1	2260
10012	07-Dec-01	1700	4.15	14.90		45.0	Wilson Ditch	19	4	1412
10013	07-Dec-01	2400	7.41	13.30		40.0	Wilson Ditch	19	4	2072
10015	12/13/2001	1500	2.29	21.01		25.0	Trittipo Ditch	14	4	1064
10017	12/18/2001	2700	8.91	23.26		10.0	Harbin Creek	18	2	3010
10018	10/29/2001	600	1.07	97.78		15.0	Unnamed Tributary Buttermilk Creek	16	1	1039
10019	19-Dec-01	2200	16.40	9.00	2.7	2.0	Peckhart Ditch	7	8	571
10020	19-Dec-01	3250	60.30	9.50		0.0	Boggs Creek	21	2	8842
10021	20-Dec-01	760	19.30	13.20	1.5	10.0	Jain Ditch	2	6	3273
10022	12/20/2001	28900	157.76	3.89		10.0	Little Blue River	28	2	12769
10024	12/27/2001	780	1.20	23.90		25.0	South Fork	16	1	500
10027	02-Jan-02	3200	15.90	8.77		5.0	Harrington Ditch	8	1	2226
10028	02-Jan-02	22100	158.97	8.18		10.0	Sand Creek	21	2	17215
10031	09-Jan-02	405	1.23	22.70	1.8	5.0	Unnamed Tributary West Creek	2	5	204

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RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
10032	09-Jan-02	460	1.66	30.57	1.8	5.0	Unnamed Tributary West Creek	2	5	282
10034	10-Jan-02	590	2.97	39.10	1.8	5.0	Unnamed Tributary West Creek	2	5	474
10035	11-Jan-02	3500	15.87	14.09		5.0	Birch Creek	17	2	3805
10036	12/20/2001	2100	8.00	17.26		5.0	East Fork Birch Creek	17	2	2469
10038	15-Jan-02	900	3.45	14.90	1.4	10.0	Graham McCulloch Ditch Number Four	9	8	207
10039	15-Jan-02	475	1.27	15.80	1.4	10.0	Mason Ditch	9	8	89
10040	15-Jan-02	650	1.89	17.60	1.4	10.0	UNT Graham McCulloch Ditch No. Four	9	8	125
10042	23-Jan-02	2500	5.16	21.49		0.0	Big Cedar Creek	20	3	1931
10043	24-Jan-02	900	1.41	109.39		0.0	Marlin Branch	20	4	1815
10045	24-Jan-02	2650	7.38	11.43		5.0	Gibson Ditch	19	4	1605
10046	25-Jan-02	1500	2.53	17.58		0.0	Sidney Branch	19	3	933
10047	25-Jan-02	1150	1.85	39.30		20.0	Unnamed Tributary Little Creek	16	1	948
10048	25-Jan-02	4100	14.70	11.90		25.0	Little Creek	16	1	2498
10049	25-Jan-02	1800	3.59	90.58		5.0	Little Sanes Creek	20	4	3891
10050	28-Jan-02	1050	1.30	55.60		0.0	Unnamed Tributary Houchin Ditch	24	2	1005
10051	06-Feb-02	1000	5.35	13.78	1.2	5.0	Little Mill Creek	5	5	518
10052	06-Feb-02	1800	3.82	22.70		10.0	Campbell Ditch	19	4	1599
10053	06-Feb-02	300	1.83	5.91	1.2	5.0	Starr Ditch	5	5	174
10054	07-Feb-02	7500	87.61	4.58		15.0	Turman Creek	16	1	6013
10055	25-Jan-02	550	1.85	6.45	1.7	10.0	Burnett Creek	9	7	187
10057	07-Feb-02	1000	4.11	15.60	1.5	12.0	Fredricks Ditch	5	7	527
10058	08-Feb-02	1150	1.63	71.60		0.0	Corn Creek	28	3	1158
10059	11-Feb-02	1250	1.20	107.00		5.0	Green Creek	24	2	1226
10061	14-Feb-02	1050	3.85	11.43		5.0	Little Deer Creek	9	4	944
10065	21-Feb-02	4400	104.00	6.24		20.0	Pine Creek	2	6	5022
10066	25-Feb-02	65	0.53	10.30		5.0	Unnamed Tributary Pine Creek	2	6	217
10067	28-Feb-02	5900	27.00	9.40		15.0	Little Sugar Creek	19	4	4331
10068	28-Feb-02	5300	22.00	9.40		15.0	Little Sugar Creek	19	4	3664
10069	28-Feb-02	1900	4.97	11.00		10.0	Cutsinger Ditch	19	4	1184
10072	05-Mar-02	2800	3.34	49.20		0.0	Crandall Branch	28	3	1873
10073	05-Mar-02	2200	4.78	98.70		0.0	Unnamed Tributary Big Cedar Creek	20	3	3496
10074	21-Mar-02	1780	5.61	13.52		10.0	Mann Ditch	10	4	1513
10075	11-Mar-02	800	2.18	14.15		5.0	Beeler Ditch	14	4	691
10077	11-Mar-02	1000	4.89	13.40	.6	5.0	Pond Creek	12	8	369
10078	13-Mar-02	500	1.38	16.34	2.5	95.0	Unnamed Tributary St. Marys River	7	8	74
10079	15-Mar-02	1900	7.54	23.05		5.0	Swan Pond Ditch	16	1	2149
10082	18-Mar-02	1350	3.71	9.15		80.0	Mantle Ditch	16	1	707
10083	18-Mar-02	1300	1.57	97.92		20.0	Elk Run	28	3	1282
10084	18-Mar-02	4450	23.50	12.70		10.0	Lauramie Creek	10	4	4658
10085	18-Mar-02	1700	5.88	5.16		60.0	Mantle Ditch	16	1	733

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
10086	3/19/2002	1670	4.72	31.84		0.0	Sunderland Branch	15	1	1780
10089	19-Mar-02	5500	16.30	11.90		5.0	Honey Creek	28	2	3631
10090	21-Mar-02	4700	12.40	13.10		5.0	Honey Creek	28	2	3074
10093	26-Mar-02	1100	1.35	92.02		0.0	Unnamed Tributary Davis Creek	24	2	1262
10094	27-Mar-02	1100	4.63	9.82		5.0	Matthew Anaker Ditch	9	4	984
10095	27-Mar-02	1300	2.77	3.03		25.0	Foster Ditch	19	4	313
10096	28-Mar-02	850	3.12	5.99	.3	5.0	Rushart Ditch	7	8	292
10097	28-Mar-02	4500	13.50	12.00		5.0	Pond Creek	22	2	3164
10098	02-Apr-02	6900	50.05	11.67		20.0	East Fork White Lick Creek	18	4	8531
10099	03-Apr-02	500	1.38	18.90	1.5	5.0	Unnamed Tributary St. Marys River	7	8	93
10100	05-Apr-02	650	2.12	16.20	1.4	5.0	Big Creek	9	8	138
10101	10-Apr-02	2200	9.44	11.54		5.0	Thorpe Creek	14	4	1975
10102	11-Apr-02	1700	4.74	17.00		5.0	Unnamed Tributary Sinking Creek	27	2	1659
10103	17-Apr-02	715	1.18	12.09		40.0	Bee Camp Creek	14	4	432
10105	18-Apr-02	2000	3.95	23.60		10.0	Rogers Run	28	3	1582
10106	26-Apr-02	3000	5.59	49.96		5.0	Hurricane Creek	26	2	2871
10107	22-Apr-02	1100	1.26	186.00		0.0	Unnamed Tributary Muddy Fork	28	3	1391
10108	29-Apr-02	1800	2.73	61.20		10.0	Woertz Creek	28	2	1819
10110	02-May-02	1200	1.45	23.00		5.0	Otter Creek	21	4	700
10111	06-May-02	4150	7.61	39.80		0.0	Buck Creek	28	2	3306
10112	14-May-02	2550	4.72	104.00		5.0	Gobles Creek	20	4	5368
10113	16-May-02	3300	9.04	19.10		10.0	East Fork Fourteenmile Creek	28	3	3035
10114	20-May-02	2000	12.70	18.70	1.5	0.0	Plunge Creek	6	7	1447
10115	21-May-02	1100	4.07	15.40	.9	0.0	Unnamed Tributary Clear Creek	9	8	280
10116	22-May-02	1750	10.10	19.60	2.3	0.0	Plunge Creek	6	7	971
10117	23-May-02	1700	1.94	70.35		5.0	Hoggatt Branch	27	2	1488
10118	24-May-02	200	2.15	5.19		5.0	Laskowski Ditch	2	6	292
10119	24-May-02	6700	16.94	27.75		5.0	West Fork Blue River	27	2	5219
10121	28-May-02	1100	2.57	3.43		5.0	Howard Ditch	25	2	558
10122	29-May-02	900	26.40	22.10	2.5	5.0	Craigmile Ditch	2	5	2006
10123	29-May-02	900	31.49	6.59	2.6	3.0	Eagle Creek	2	5	1520
10124	29-May-02	1000	31.13	1.31	2.7	3.0	Bogus Run	2	5	873
10125	30-May-02	1800	10.50	12.29	3.0	5.0	Blue Babe Branch	6	7	731
10127	03-Jun-02	580	60.50	5.09	9.4	5.0	Turkey Creek	3	8	837
10128	05-Jun-02	700	1.55	24.80		10.0	Lynn Run	10	4	816
10130	06-Jun-02	900	1.42	40.00		5.0	Unnamed Tributary Mill Creek	17	4	1020
10132	14-Jun-02	5000	16.80	11.82		10.0	Little Four Mile Creek	28	3	4297
10136	26-Jun-02	900	1.56	71.54		5.0	Unnamed Tributary Corner Creek	13	4	1666
10137	27-Jun-02	2000	8.13	31.21	1.2	50.0	Unnamed Tributary Eel River	6	7	1318
10140	01-Jul-02	2400	6.30	16.57		0.0	Foreman Branch	19	4	1606

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
10141	11-Jul-02	2400	6.80	18.47		0.0	Little Lewis Creek	19	4	1846
10142	15-Jul-02	950	5.39	9.96	4.5	2.0	Arm Number Two Ditch	5	8	170
10144	23-Jul-02	900	1.27	21.59		15.0	Ferris Ditch	19	4	646
10145	25-Jul-02	850	1.09	83.30		10.0	Highland Creek	27	2	1034
10148	09-Aug-02	2000	3.40	35.82		5.0	Bluff Creek	18	4	1923
10150	23-Aug-02	1700	6.12	15.13		0.0	UNT Middle Fork Wildcat Creek	10	4	1470
10151	26-Aug-02	1100	2.10	14.80		15.0	Taylor Run	10	4	745
10152	27-Aug-02	1600	5.87	14.98		0.0	UNT Middle Fork Wildcat Creek	10	4	1411
10155	05-Sep-02	1200	2.58	27.50		0.0	Unnamed Tributary Little Honey Creek	16	1	1005
10156	09-Sep-02	700	15.68	5.30		15.0	Stock Ditch	2	6	1167
10158	12-Sep-02	600	1.05	50.60		5.0	Unnamed Tributary Little Wea Creek	16	1	696
10159	9/17/2002	4300	8.63	5.93		10.0	Steele Ditch	14	4	1196
10160	16-Sep-02	1330	1.67	16.46		50.0	Harting Ditch	18	4	727
10161	18-Sep-02	1430	5.70	5.05		5.0	Buck Creek	9	4	727
10168	24-Sep-02	1100	1.38	87.94		0.0	Boggs Creek	21	2	1260
10170	26-Sep-02	4400	22.86	12.61		10.0	Lofland Ditch	16	1	3687
10172	03-Oct-02	4200	37.00	6.76	2.4	10.0	Moots Creek	5	5	1730
10173	16-Oct-02	620	1.03	35.60		0.0	Unnamed Tributary Little Flint Creek	16	1	558
10175	16-Oct-02	960	3.73	17.00	1.3	10.0	Charley Creek	9	7	535
10177	23-Oct-02	950	2.74	28.54		5.0	Unnamed Tributary Black Creek	18	2	1350
10178	01-Nov-02	8300	54.81	9.50		3.0	Middle Fork Wildcat Creek	10	4	7006
10179	12-Nov-02	1600	3.42	35.52	2.8	0.0	Unnamed Tributary Burnetts Creek	9	7	430
10180	13-Nov-02	1450	9.83	3.70		30.0	Sims Franklin Ditch	9	4	1028
10181	13-Nov-02	300	3.01	17.07		40.0	Kingsbury Creek	2	6	1172
10182	13-Nov-02	340	3.62	9.05		5.0	Unnamed Tributary Geyer Ditch	2	6	717
10183	26-Nov-02	900	1.62	5.49		80.0	Raccoon Ditch	28	2	476
10184	11-Dec-02	210	1.93	20.51	34.2	0.0	Dillon Creek	3	8	20
10185	18-Dec-02	3800	36.10	3.12		10.0	Deer Creek	11	4	2433
10186	18-Dec-02	4100	45.10	10.61	5.7	0.0	Twelve Mile Creek	6	7	1561
10187	18-Dec-02	150	1.60	19.05	1.9	10.0	Unnamed Tributary Shanton Ditch	5	7	227
10189	30-Dec-02	1250	1.45	114.90		0.0	Unnamed Tributary Indian Creek	21	2	1453
10190	06-Jan-03	6900	52.42	8.02		10.0	South Fork Patoka River	24	2	7448
10191	07-Jan-03	1000	3.18	18.99		5.0	Peach Creek	14	4	1159
10192	08-Jan-03	1350	3.05	29.70		4.0	Lick Creek	16	1	1203
10198	15-Jan-03	3500	5.71	114.30		10.0	Mud Lick Creek	28	3	4371
10199	16-Jan-03	1700	2.95	19.26		40.0	Opossum Run	19	4	1272
10201	22-Jan-03	8800	22.34	15.00		0.0	Poison Creek	28	2	5037
10202	27-Jan-03	850	7.55	8.74	3.0	0.0	Rogers Ditch	3	8	281
10204	28-Jan-03	1750	12.84	23.29		5.0	Williams Creek	15	1	3318
10205	31-Jan-03	850	1.45	18.66		8.0	Fisher Ditch	19	4	622

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
10206	04-Feb-03	650	1.96	16.40	5.3	0.0	Unnamed Tributary Iroquois River	4	5	259
10207	04-Feb-03	440	1.45	11.88	20	0.0	Unnamed Tributary Spring Run	2	5	185
10208	11-Feb-03	6100	19.34	31.01		12.0	Indian Creek	18	4	7597
10209	13-Feb-03	420	1.30	11.88	25	0.0	Unnamed Tributary Spring Run	2	5	171
10210	18-Feb-03	2000	20.47	4.56		0.0	Big Lick Creek	11	4	1676
10213	21-Feb-03	7900	77.92	15.59		5.0	Little Raccoon Creek	15	1	11199
10215	03-Mar-03	3700	8.90	48.96		5.0	East Fork Blue Creek	20	4	5267
10217	14-Mar-03	1500	1.57	170.20		5.0	Fourmile Creek	28	3	1631
10218	20-Mar-03	2500	20.30	7.40	3.3	5.0	East Branch Twelve Mile Creek	6	7	1006
10219	3/1/2003	1200	1.25	39.18		1.0	Unnamed Tributary Sandy Creek	28	2	851
10220	24-Mar-03	3800	5.40	158.94		25.0	Crooked Creek	28	3	4797
10221	28-Mar-03	7500	32.30	13.67		10.0	Lambs Creek	18	4	6363
10222	3/25/2003	7000	54.68	4.68		40.0	Coffee Bayou	16	1	4167
10224	02-Apr-03	420	2.65	57.91	8.9	10.0	UNT East Branch Trail Creek	1	5	497
10225	02-Apr-03	300	1.47	36.56	8.9	10.0	East Branch Trail Creek	1	5	274
10226	03-Apr-03	800	1.64	23.23		5.0	North Branch Ben Davis Creek	19	4	779
10227	4/4/2003	1650	9.28	9.34	1.3	5.0	Little Majenica Creek	12	8	492
10228	08-Apr-03	3000	4.74	117.98		2.0	Lost Fork Creek	28	3	3749
10229	08-Apr-03	550	1.36	8.67		20.0	Fowlerton Drain	11	4	364
10230	15-Apr-03	850	1.27	55.21		60.0	Unnamed Tributary Whitewater River	20	3	827
10232	24-Apr-03	300	1.87	4.39	2.0	5.0	Obrien Ditch	4	5	160
10233	25-Apr-03	750	2.78	5.85	2.6	1.0	Fraser Ditch	5	5	237
10235	29-Apr-03	1100	3.61	12.74	1.1	5.0	North Beck Ditch	9	8	236
10236	01-May-03	450	6.19	13.97		5.0	Kingsbury Creek	2	6	1583
10237	5/19/2003	1700	4.19	13.09		5.0	Cutsinger Ditch	19	4	1114
10241	28-May-03	6000	32.10	8.97		10.0	South Fork Wildcat Creek	10	4	4690
10242	30-May-03	5200	32.10	8.59		5.0	Leuck Ditch	16	1	3871
10244	03-Jun-03	3800	8.44	44.28		0.0	Gulletts Creek	21	2	3726
10245	06-Jun-03	350	1.57	52.41		30.0	Damon Run	1	6	2234
10247	09-Jun-03	420	2.32	99.00		10.0	Wolf Run	1	6	5430
10253	6/18/2003	400	1.38	23.70	2.2	75.0	Unnamed Tributary Junk Ditch	7	8	78
10254	6/18/2003	460	1.82	21.77	2.2	80.0	Unnamed Tributary Junk Ditch	7	8	99
10255	23-Jun-03	1350	2.90	20.29		15.0	Unnamed Tributary Coles Creek	25	2	1232
10256	24-Jun-03	860	1.46	41.67		4.0	Unnamed Tributary Wildcat Creek	10	4	1060
10257	07-Jul-03	2100	8.90	11.90		15.0	Tilley Ditch	16	1	1668
10258	09-Jul-03	680	6.19	27.86		5.0	Unnamed Tributary Galena River	1	6	3100
10262	15-Aug-03	1100	1.20	38.60		5.0	Unnamed Tributary Clifty Creek	21	4	867
10264	31-Jul-03	1300	1.80	105.60		5.0	Unnamed Tributary Whitewater River	20	4	2471
10265	26-Aug-03	250	1.68	13.94	8.5	25.0	Unnamed Tributary Turkey Creek	1	5	219
10272	9/18/2003	770	1.54	12.59		5.0	Unnamed Tributary William Lock Ditch	14	4	479

Table C.1: IDNR Discharge determinations with predicted values

RequestID	RequestDate	Q(DNR)	EffDA	Slope	%W	%U	WaterBody	Basin	Region	Q100
10273	18-Sep-03	600	10.40	4.60	11.9	0.0	Harry Cool Ditch	2	5	588
10284	10-Sep-03	4500	24.76	5.26		10.0	West Fork Pigeon Creek	25	2	3599
10285	01-Oct-03	1700	6.02	19.30		25.0	Brandon Ditch	14	4	2203
10288	08-Oct-03	7600	18.30	42.54		0.0	Blue Creek	20	4	7500
10289	09-Oct-03	400	2.95	12.79		3.0	Green Ditch	2	6	873
10292	17-Oct-03	1300	1.06	52.99		10.0	Wolf Creek	28	1	721
10299	06-Nov-03	460	4.13	5.52	1.4	5.0	Cox Ditch	2	5	313
10301	21-Nov-03	180	4.51	15.00	6.5	12.0	UNT West Branch Crooked Creek	2	5	469
10302	17-Nov-03	2100	67.00	2.47	3.2	10.0	Big Monon Ditch	5	5	1920
10303	17-Nov-03	2200	14.50	8.58	1.9	10.0	Bear Creek	9	8	610
10304	25-Nov-03	2500	3.35	77.62		15.0	Sand Creek	21	2	2328
10305	25-Nov-03	3400	6.73	50.06		5.0	Burkhart Creek	18	4	4260
10306	26-Nov-03	400	5.40	3.21	5.1	50.0	Garrett Ditch	7	8	158
10312	05-Dec-03	500	2.93	292.93	4.0	12.0	Indian Creek	3	7	630
10313	23-Dec-03	14000	65.99	20.26		0.0	Pipe Creek	20	4	12594
10319	16-Dec-03	1100	1.83	34.67		5.0	Wires Ditch	25	2	1078
10321	22-Dec-03	800	1.35	4.44		15.0	Green Ditch	18	4	220
10322	12/31/2003	350	2.13	22.29	23.7	25.0	Wilson Ditch	2	5	306
10324	16-Jan-04	2700	4.91	26.46		0.0	West Fork East Fork Whitewater River	20	4	1828
10325	22-Jan-04	4000	9.39	42.82		0.0	Blue Creek	20	4	4371
10327	27-Jan-04	250	1.25	20.39	5.2	5.0	Zimmer Ditch	2	5	199
10330	29-Jan-04	4200	38.65	1.91	4.1	4.0	McKillip Ditch	5	5	1166
10332	04-Feb-04	4300	29.77	10.36		30.0	Burnett Creek	9	1	4065
10333	04-Feb-04	1600	1.34	182.67		50.0	Unnamed Tributary Chain Mill Creek	28	3	1459
10334	05-Feb-04	4000	8.39	63.47		0.0	Brushy Fork	28	3	4782
10335	05-Feb-04	2100	2.83	82.19		10.0	Judah Branch	21	2	2099
10337	09-Feb-04	2800	6.28	37.23		0.0	Town Creek	22	3	2924
10338	12-Feb-04	1300	1.45	120.53		15.0	Unnamed Tributary Clear Creek	21	2	1480
10340	23-Feb-04	4000	7.74	17.69		25.0	Bobs Creek	23	3	2553
10342	24-Feb-04	7000	35.00	13.72		15.0	Indian Creek	28	3	8859
10343	27-Feb-04	1400	1.59	52.99		25.0	South Fork Buck Creek	28	2	1147
10344	27-Feb-04	2900	10.64	19.19		3.0	Hog Run	10	4	3034
10345	04-Mar-04	3800	17.90	12.32		10.0	Lauramie Creek	10	4	3650
10352	15-Mar-04	1700	4.39	11.24		20.0	Etter Ditch	18	4	1140
10356	19-Mar-04	3500	16.92	26.67		15.0	Opossum Run	16	1	4485
10364	01-Apr-04	1500	4.00	24.30		5.0	Hayworth Slough	16	1	1331

Table C.1: IDNR Discharge determinations with predicted values

Appendix D

The entries in table D.1 are as follows:

HUC14 – 14 digit Hydrologic Unit Code

Hu_Name – Watershed Name (USGS)

DA – Drainage area of Watershed (sq mi)

W% -- Calculated percentage of watershed that is water or wetlands

U% -- Calculated percentage of watershed that is urbanized

NonContrib – Area of watershed not contributing to stream discharge

Region – Region of watershed for application of the predictive equations

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
04040001020010	Lake Michigan Shoreline-Ind Harbor Canal	30.78	12.91	68.90	0.00	5
04040001020020	Grand Calumet River-Gary	25.29	14.70	59.54	0.00	5
04040001030010	Turkey Creek-Headwaters (Lake)	21.11	5.39	25.57	0.00	5
04040001030020	Turkey Creek-Merrillville	17.02	4.96	47.23	0.00	5
04040001030030	Main Beaver Dam Ditch-Headwaters	18.20	4.10	17.43	0.00	5
04040001030040	Main Beaver Dam Ditch-Niles Ditch	26.22	2.02	8.80	0.00	5
04040001030050	Deep River-Deer Creek	21.30	6.31	3.40	0.00	5
04040001030060	Deep River-Lake George Dam	20.12	8.54	17.84	0.00	5
04040001040010	Duck Creek (Lake)	15.75	4.09	8.36	0.00	5
04040001040020	Deep River-Little Calumet River	19.57	10.45	48.45	0.00	5
04040001040030	Burns Ditch-Willow Creek	19.58	8.57	30.11	0.00	5
04040001050010	Salt Creek-Sagers Lake/Valporaiso	16.45	6.81	32.00	0.00	5
04040001050020	Salt Creek-Clark Ditch	19.89	9.78	15.22	0.00	5
04040001050030	Salt Creek-Pepper Creek	14.51	8.99	11.06	0.00	5
04040001050040	Damon Run	11.94	12.99	8.72	0.00	6
04040001050050	Salt Creek-Squirrel Creek	14.58	8.86	19.16	0.00	6
04040001060010	Little Calumet River-Reynolds Creek	19.92	12.14	1.10	2.02	6
04040001060020	Little Calumet River-Kemper Ditch	22.56	11.37	3.54	0.00	6
04040001060030	Little Calumet River-Sand/Coffee Creeks	21.52	11.51	7.34	0.00	6
04040001060040	Little Calumet River-Burns Ditch Outlet	10.70	18.51	30.92	0.00	6
04040001070010	East Branch Trail Creek	21.78	8.94	4.67	5.38	5/6
04040001070020	West Branch Trail Creek	23.96	7.29	9.32	1.42	6
04040001070030	Trail Creek-Otter Creek	13.43	10.66	35.21	0.00	6
04040001080010	Lake Michigan Shoreline-Dunes	3.34	25.77	33.02	0.00	6
04040001080020	Dunes Creek	11.57	23.43	20.73	0.00	6
04040001080030	Beverly Shores Tributary	4.83	25.94	3.23	0.00	6
04040001080040	Kintzele Ditch	12.68	14.07	23.22	0.00	6
04040001090010	Lake Michigan Shoreline-LaPorte	1.44	20.47	31.60	0.00	6
04040001090020	White Ditch	8.67	15.26	11.38	0.00	6
04040001090040	New Buffalo Tributary (Michigan)	0.54	18.55	0.49	0.00	6
04040001100010	Dowling Creek	3.64	17.86	0.35	0.00	6
04040001100050	Galena River-Headwaters	18.34	12.86	0.86	1.21	6
04040001100060	Galena River-Hog Lake Trib	9.58	13.77	0.43	0.23	6
04040001100070	Spring Creek (LaPorte)	11.69	11.69	0.18	0.44	6
04040001100080	South Branch Galien R-Blood Run	2.96	12.90	0.88	0.00	6
04050001020010	Tallahassee Drain-Ray (Coldwater River (MI))	0.25	10.23	3.04	0.00	5
04050001080010	South Trib Prairie R (MI)-Lake Pleasant	6.23	15.94	3.01	0.46	5
04050001080020	Prairie River-Lake Lavine (MI)	0.02	0.00	0.00	0.00	5

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
04050001090010	Lake George-Crooked Creek	5.48	15.14	4.74	2.62	5
04050001090020	Snow Lake-Crooked Creek/Otter Lakes	25.82	12.46	3.84	0.41	5
04050001090030	Crooked Creek-Lake James/Jimmerson Lake	17.27	20.12	2.66	1.77	5
04050001090040	Tamarack-Lime-Gage-Crooked-Loon Lakes	20.23	20.22	5.25	4.64	5
04050001090050	Fawn River-Orland	16.29	8.00	1.17	10.91	5
04050001090060	Fawn River-Lime Lake/Will-Mud Lake	17.87	9.69	1.58	7.22	5
04050001090070	Himebaugh Drain (MI)	0.06	7.73	0.00	0.00	5
04050001090080	Fawn River-Mill Pond (MI)	0.20	0.00	0.00	0.00	5
04050001090100	Fawn River-Cedar Lake	21.24	5.96	1.76	5.35	5
04050001090120	Fawn River-Wenger Ditch	6.01	2.76	2.29	0.00	5
04050001100060	St. Joseph River-Mottvile	0.01	0.00	0.00	0.00	5
04050001110010	Pigeon Creek-Ryan Ditch	12.44	6.18	0.16	3.77	5
04050001110020	Pigeon Creek-Pigeon Lake	21.80	3.81	0.26	3.63	7
04050001110030	Pigeon Creek-Mud Creek	18.19	6.46	5.00	3.31	7
04050001110040	Pigeon Creek-Long Lake-Pleasant/Fox Lakes	14.92	8.46	1.43	6.55	7
04050001110050	Mud Lake-Johnson Ditch	14.10	2.98	2.90	0.00	7
04050001110060	Pigeon Creek-Hogback Lake-Silver Lake	20.22	12.82	1.58	4.72	5
04050001110070	Pigeon Creek-Otter Lake	16.40	5.70	0.37	0.00	5
04050001110080	Pigeon Creek-Green Lake/Shallow Lake	21.19	12.04	0.09	7.03	5
04050001110090	Turkey Creek-Headwaters (Helmer)	18.42	3.24	0.68	0.00	7
04050001110100	Turkey Creek-Big Turkey Lake/Mud Creek	17.22	8.21	0.82	0.00	7
04050001110110	Little Turkey L-Big Long L/Lake of the Woods	20.73	12.32	0.52	1.54	7
04050001110120	Mongo Reservoir-Pigeon Creek/Turkey Creek	16.40	9.35	0.08	5.27	5
04050001120010	Pigeon River-Cline Lake Outlet/Ontario	27.03	12.80	0.26	4.21	5
04050001120020	Fly Creek-Headwaters (LaGrange)	17.04	2.82	3.75	0.64	7
04050001120030	Fly Creek-East Fly Creek	26.22	9.17	0.24	0.90	5
04050001120040	Buck Creek/Buck Lake-East Buck Creek	25.75	3.94	0.23	0.95	7
04050001120050	Pigeon River/Pigeon Lake-Twin Lakes	17.58	8.71	2.26	0.00	5
04050001120060	Pigeon River-VanNatta Ditch	14.17	7.86	0.16	0.00	5
04050001120070	Page Ditch-Lake Shipshewana	19.78	7.35	2.60	2.83	5
04050001120080	Pigeon River-Fish Lake-Stone Lake	13.52	6.60	2.29	2.43	5
04050001130020	Trout Creek-Indian Lake	2.07	10.65	1.54	0.68	5
04050001130030	St. Joseph River-Township Ditch	15.08	6.87	2.65	0.00	5
04050001140010	Bontrager Ditch-Emma Lake	13.57	1.32	0.10	0.00	7
04050001140020	Bontrager Ditch-Hostetler Ditch	20.68	1.55	0.26	0.00	7
04050001140030	Little Elkhart River Ditch (Topeka)	18.56	1.13	1.90	5.60	5
04050001140040	Little Elkhart River-Harper Ditch	10.33	1.78	0.32	0.30	7
04050001140050	Rowe Eden Ditch	30.14	0.57	0.78	0.00	5
04050001140060	Little Elkhart River-Mather Ditch	18.00	6.79	4.23	0.00	7
04050001140070	Little Elkhart River-Bonneyville Mills	18.29	7.90	0.94	5.50	7

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
04050001150010	St. Joseph River-Washington Twp. Ditch	6.72	5.79	5.20	0.00	5
04050001150020	St. Joseph River-Sheep Creek	13.79	2.75	5.04	0.00	7
04050001150030	Pine Creek-North/South Forks	31.80	3.35	1.99	8.79	7
04050001150040	Puterbaugh Creek-Heaton Lake	11.09	10.43	9.38	0.00	5
04050001150050	St. Joseph River-Osola Twp. Dt.-Simonton L	13.56	8.86	31.35	0.00	5
04050001160060	Christiana Creek-Outlet (Michigan)	4.87	8.21	31.23	0.00	5
04050001170010	Little Elkhart Creek-Tamarack-Cree Lakes	19.36	6.92	0.86	0.00	7
04050001170020	Little Elkhart Creek-Dallas Lake	20.49	18.19	2.36	0.00	7
04050001170030	Little Elkhart Creek-Messick-Oliver Lakes	16.53	15.40	0.84	0.00	7
04050001170040	North Branch Elkhart River-Jones Lake	13.91	11.57	0.03	0.00	5
04050001170050	Henderson Lake Ditch-Waterhouse Ditch	19.95	8.25	12.59	0.00	7
04050001170060	Middle Branch Elkhart River-Oviatt Ditch	17.32	14.06	2.22	0.00	7
04050001170070	Waldron Lake-Clock Creek/Dry Run	26.33	11.16	0.97	0.00	5
04050001170080	North Branch Elkhart River-Boyd/Huston Dts	28.85	5.89	0.22	0.00	5
04050001180010	Forker Creek-Rivir Lake-Long Lake	18.64	7.09	0.01	0.00	7
04050001180020	Carrol Creek-Winebrenner Branch	18.39	10.20	0.90	0.00	7
04050001180030	South Branch Elkhart River-Muncie Lake	16.43	9.18	0.30	0.00	7
04050001180040	Croft Ditch-Skinner Lake-Rimmell Branch	24.82	5.72	2.13	0.00	5
04050001180050	South Branch Elkhart River-Long Dt/Long L	13.85	10.71	0.85	0.00	5
04050001180060	South Branch Elkhart River-Diamond-Eagle L	21.93	13.77	0.34	0.00	5
04050001190010	Elkhart River-Sparta Lake Outlet	10.79	8.04	2.37	0.81	5
04050001190020	Elkhart River-Ligonier	20.74	3.20	4.18	0.00	5
04050001190030	Stony Creek-Phillips Ditch	20.33	2.70	1.49	2.21	5
04050001190040	Elkhart River-Dry Run	12.52	4.05	0.31	0.00	5
04050001190050	Solomon Creek-Headwaters	23.67	2.08	0.56	0.00	5
04050001190060	Solomon Creek-Meyer/Hire Ditches	22.16	2.27	0.57	0.00	5
04050001190070	Elkhart River-Whetten Ditch	14.69	9.37	1.39	0.00	5
04050001200010	Turkey Creek-Headwaters (Noble)	15.86	7.27	0.44	0.00	5
04050001200020	Turkey Creek-Lake Wawasee	22.28	34.23	6.10	0.00	5
04050001200030	Turkey Creek-Skinner/Hoopingarner Ditches	21.24	5.02	3.14	0.00	5
04050001200040	Wabee Lake-Dewart Lake Outlet	15.79	12.05	1.11	3.20	5
04050001200050	Turkey Creek-Coppes Ditch	22.49	1.37	1.35	0.00	5
04050001200060	Turkey Creek-Omar Neff Ditch	18.68	0.61	0.00	0.00	5
04050001200070	Berlin Court Ditch	18.53	0.85	7.96	0.00	5
04050001200080	Turkey Creek-Kieffler Ditch	17.51	3.30	1.41	0.00	5
04050001200090	Dausman Ditch	12.18	1.12	0.21	0.00	5
04050001200100	Turkey Creek-Swoveland Ditch	18.35	5.95	2.30	0.00	5
04050001210010	Elkhart River-Goshen	9.22	8.49	32.71	0.00	5
04050001210020	Rock Run Creek-Hoover Ditch-Boyer Ditch	21.34	0.84	0.41	0.73	5
04050001210030	Rock Run Creek-Horn Ditch	22.07	2.14	9.09	0.96	5

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
04050001210040	Elkhart River-Leedy Ditch	21.97	3.49	12.87	0.00	5
04050001210050	Yellow Creek-Headwaters (Elkhart)	24.90	1.15	0.22	0.00	5
04050001210060	Elkhart River-Yellow Creek (lower)	14.57	3.17	26.23	0.00	5
04050001220010	St. Joseph River-Elkhart West	19.85	5.42	43.44	0.00	5
04050001220020	Cobus Creek	14.19	2.99	7.63	1.70	5
04050001230010	Baugo Creek-Wisler Ditch	23.84	1.06	2.54	0.00	5
04050001230020	Grimes Ditch	20.24	1.59	0.07	0.00	5
04050001230030	Baugo Creek-Township Ditch	16.31	1.67	1.10	0.00	5
04050001230040	Baugo Creek-Rogers Ditch	19.50	3.01	4.77	0.00	5
04050001240010	St. Joseph River-Eller Ditch	23.26	4.93	15.17	0.00	5
04050001240020	St. Joseph River-Willow Creek	20.48	2.73	29.60	0.00	5
04050001240030	St. Joseph River-Auten Ditch	34.90	2.89	41.16	0.00	5
04050001240040	St. Joseph River-Airport	28.21	2.65	37.86	16.23	5
04050001240050	Juday Creek	29.52	0.77	20.92	3.97	5
04050001240060	St. Joseph River-State Line/Bertrand (MI)	11.03	2.14	21.10	0.00	5
04050001240070	Brandywine Creek (Michigan)	0.02	0.00	17.87	0.00	5
04050001280020	McCoys Creek (Michigan)	1.19	4.01	0.06	0.00	6
04100003020010	Clear Lake (Steuben)	6.89	22.79	1.13	0.00	5
04100003020020	West Branch West Fork St. Joseph River (MI)	3.97	18.56	0.48	0.00	5
04100003030020	Nettle Creek-Mill Stream Drain-Long Lake	2.07	13.24	0.59	0.00	5
04100003030060	Bear Creek (St. Joseph River OH)	2.04	1.26	0.00	0.00	5
04100003050010	Fish Creek-Headwaters	6.02	3.73	0.06	0.00	5
04100003050020	West Branch Fish Creek	15.60	4.07	0.62	0.00	5
04100003050030	Fish Creek-Alvarado	13.38	6.01	0.15	0.00	5
04100003050040	Hamiton Lake-Black Creek	16.54	10.58	1.43	0.00	7
04100003050050	Fish Creek-Myers Dt-Bull Lake/Baker Ditch	22.26	3.97	0.90	1.35	7
04100003050060	Fish Creek-Cornell Ditch	18.48	3.90	0.01	0.67	5
04100003060030	Big Run-Headwaters (DeKalb)	16.74	2.12	0.45	0.00	7
04100003060040	Big Run-Outlet (DeKalb)	10.42	2.10	6.03	0.00	5
04100003060050	St. Joseph River-Peter Grube/Christoffel Dts	4.08	2.28	0.00	0.00	5
04100003060060	Buck Creek-Mason/Metcalf Ditches	18.17	1.62	0.08	0.00	5/7
04100003060070	St. Joseph River-Sol Shank Ditch	26.00	1.90	0.17	0.00	5/7
04100003070010	St. Joseph River-Davis Ditch	10.22	3.96	0.68	0.00	5
04100003070020	Bear Creek-Hursey Ditches	27.34	2.89	0.24	0.00	5
04100003070030	St. Joseph River-Walker/Metcalf Ditches	23.35	3.82	0.68	0.00	5
04100003070040	St. Joseph River-Swartz Carnahan Ditch	19.82	3.91	0.25	0.00	5
04100003070050	St. Joseph River-Cedarville Reservoir	20.15	7.70	5.69	0.00	5
04100003080010	Cedar Lake-Leins Ditch-McCullough Ditch	23.34	3.05	0.05	0.00	7
04100003080020	Dibbling Ditch-Hoffeider Ditch	18.55	1.96	0.28	0.00	7

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
04100003080030	Cedar Creek-Sedan Trib/Swartz Ditch	14.01	3.18	4.16	0.00	7
04100003080040	Matson Ditch	17.45	1.76	0.00	0.00	7
04100003080050	Cedar Creek-Smith Ditch	18.99	1.82	9.93	0.00	5/7
04100003090010	John Diehl Ditch-Headwaters	20.38	3.60	0.55	0.00	5/7
04100003090020	John Diehl Ditch-Peckhart Ditch-Ober Ditch	18.68	2.71	3.57	0.00	5
04100003090030	Cedar Creek-Dosch Ditch	25.94	5.10	3.52	0.00	5
04100003090040	Little Cedar Creek-Sycamore Creek	24.66	3.86	2.08	0.00	5/7
04100003090050	Little Cedar Creek-King Lake	21.52	4.15	2.74	0.00	5/7
04100003090060	Little Cedar Creek-Black Creek	26.51	3.96	0.55	0.00	5/7
04100003090070	Willow Creek-Yant Ditch	15.13	3.52	0.20	0.00	5/7
04100003090080	Willow Creek-Willow Creek Ditch	17.15	4.57	2.61	0.00	5
04100003090090	Cedar Creek-Cedar Canyons	10.60	7.66	2.77	0.00	5
04100003100010	St. Joseph River-Ely Run	13.85	3.51	8.92	0.00	5
04100003100020	St. Joseph River-Tiernan Ditch	14.57	2.32	20.44	0.00	5
04100003100030	Becketts Run	9.37	1.88	24.47	0.00	5
04100003100040	St. Joseph River-Schoppman Drain	11.11	2.71	69.10	0.00	5
04100004030040	St. Marys River-Willshire	2.19	0.53	0.00	0.00	5
04100004030050	Duck Creek (OHIO)	4.22	0.03	0.00	0.00	5
04100004040010	St. Marys River-Twentyseven Mile Creek	4.10	1.67	0.01	0.00	5
04100004040020	Blue Creek-Headwaters (Adams)	24.40	0.27	0.02	0.00	5
04100004040030	Gates Ditch-Habegger/Farlow Ditches	19.59	0.77	5.62	1.04	5
04100004040040	Little Blue Creek	15.49	0.21	0.00	0.00	5
04100004040050	Blue Creek-Duer Ditch (Adams)	21.07	0.75	0.03	0.00	5
04100004040060	St. Marys River-Pleasant Mills	14.62	1.59	0.14	0.00	5
04100004040070	Yellow Creek-Martz Creek	27.06	0.36	1.20	0.00	5
04100004040080	St. Marys River-Borum Run	21.19	0.27	0.36	0.00	5
04100004040090	St. Marys River-Decatur	9.00	1.62	18.62	0.00	5
04100004050010	Holthouse Ditch-Berry Ditch	21.03	0.45	0.00	0.00	5
04100004050020	Holthouse Ditch-Kohne Ditches	13.37	1.75	6.99	0.00	5
04100004050030	St. Marys River-Gerke/Weber Ditches	17.81	0.64	0.43	0.00	5
04100004050040	St. Marys River-Buhlman Ditch	23.56	0.88	0.26	0.00	5
04100004050050	Nickelsen Creek-Lambert Ditch	25.73	0.83	0.15	0.00	5
04100004060010	St. Marys River-Simmerman Ditch	21.55	1.51	0.51	0.00	5
04100004060020	Houk Ditch	17.18	1.09	2.62	0.00	5
04100004060030	St. Marys River-Snyder Ditch	19.76	2.47	27.98	0.00	5
04100004060040	Fairfield Ditch-Harber/Deptmer Ditches	24.38	1.01	10.69	0.00	5
04100004060050	St. Marys River-Junk Ditch	17.75	2.18	58.45	0.00	5
04100004060060	St. Marys River-Sly Run Creek	15.37	2.24	39.61	0.00	5

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
04100005010010	Maumee River-River Haven	14.31	5.40	63.58	0.00	5
04100005010020	Schmidt Ditch-Cochoit Ditch	16.33	2.11	7.17	0.00	5
04100005010030	Trier Ditch	11.83	2.78	29.56	0.00	5
04100005010040	Maumee River-Bullerman Ditch	8.76	1.30	49.10	0.00	5
04100005010050	Martin Ditch	10.53	0.73	5.58	0.00	5
04100005010060	Maumee River-Sixmile Creek	12.13	2.98	2.40	0.00	5
04100005010070	Gar Ditch	12.05	0.34	4.21	0.00	5
04100005010080	Maumee River-Spindler Ditch	9.57	1.18	1.14	0.00	5
04100005010090	Wilbur Ditch-Bottern Ditch	13.84	0.10	0.14	0.00	5
04100005010100	Maumee River-Grover Ditch	10.51	2.93	0.63	0.00	5
04100005010110	Black Creek (Allen)	19.19	0.44	1.67	0.00	5
04100005010120	Maumee River-Marsh Ditch	19.34	1.38	1.96	0.00	5
04100005010130	Maumee River-Viland Ditch	13.71	0.78	0.23	0.00	5
04100005010140	Ham Interceptor Ditch	22.87	1.41	0.04	0.00	5
04100005020040	Marie DeLarme Creek-Tustison Creek	4.81	0.18	0.00	0.00	5
04100005020050	Gordon Creek-South Fork Gordon Creek	1.29	1.05	0.00	0.00	5
04100007100020	Blue Creek-Headwaters (OHIO)	0.66	0.00	0.00	0.00	5
04100007120010	Flatrock Creek-Headwaters (OHIO)	14.60	0.10	0.00	0.00	5
04100007120020	Flatrock Creek-Brown Ditch	23.87	0.52	1.23	0.00	5
04100007120030	Hoffman Creek-Headwaters	23.23	0.63	0.25	0.00	5
04100007120040	Hoffman Creek-Bohnke Ditch-Ellison Ditch	22.94	0.84	0.05	0.00	5
04100007120050	Flatrock Creek-White/Maurey Ditches	12.31	0.66	0.02	0.00	5
05080001110010	Greenville Creek	20.24	0.79	0.04	0.00	4
05080001110020	Dismal Creek	10.71	0.93	3.66	0.00	4
05080001110030	Kraut Creek-North Fork Kraut Creek	1.09	0.48	0.00	0.00	4
05080002070020	Fourmile Creek-East Fork	0.62	0.00	0.00	0.00	3
05080002070030	Little Fourmile Creek	16.93	0.56	0.22	0.00	3
05080002080010	Indian Creek-Cottage Grove/Sand Run	16.03	0.25	0.43	0.00	3
05080002080020	Indian Creek-Brandywine Creek	12.51	0.65	2.21	0.00	3
05080002080030	Indian Creek-Tent Branch/Little Indian Cr	8.23	0.27	0.04	0.00	3
05080002090080	Great Miami River-Doublelick Run	9.11	10.26	9.40	0.00	3
05080003010010	Whitewater River-Little Creek	16.91	0.46	0.32	0.00	4
05080003010020	Whitewater River-Awl Branch	12.64	0.46	1.51	0.00	4
05080003010030	Nettle Creek	20.82	0.60	1.06	0.00	4
05080003010040	Whitewater River-Pronghorn Run	14.94	0.64	1.19	0.00	4
05080003010050	Symonds Creek-Glue Run Branch	22.62	0.81	0.51	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05080003010060	Whitewater River-Crietz Creek	7.10	0.92	12.99	0.00	4
05080003010070	Simon Creek-Headwaters	15.51	0.86	1.56	0.00	4
05080003010080	Simon Creek-Roy Run	15.39	1.28	1.56	0.00	4
05080003010090	Martindale Creek-Jordan Creek	21.74	0.76	0.46	0.00	4
05080003010100	Martindale Creek-Economy	10.11	0.58	0.24	0.00	4
05080003010110	Morgan Creek-West Brook	14.96	0.13	0.03	0.00	4
05080003010120	Martindale Creek-Beard Run	14.10	3.18	1.09	0.00	4
05080003010130	Martindale Creek-Dry Branch	9.83	1.38	1.04	0.00	4
05080003010140	Whitewater River-Milton	5.24	4.56	2.17	0.00	4
05080003020010	Greens Fork Creek-Copy Run	14.08	0.49	1.30	0.00	4
05080003020020	Mud Creek-Little Mud Creek	17.29	0.60	1.08	0.00	4
05080003020030	Greens Fork Creek-Morgan Creek	18.54	1.28	0.02	0.00	4
05080003020040	Greens Fork Creek-Williamsburg Creek	16.78	0.87	0.51	0.00	4
05080003020050	Greens Fork Creek-Black Water Branch	15.94	1.16	0.82	0.00	4
05080003020060	Greens Fork Creek-Franklin Creek	11.69	1.59	0.24	0.00	4
05080003020070	Whitewater River-Shaker Run	14.40	2.58	0.05	0.00	4
05080003030010	Nolands Fork-Headwaters	16.94	0.38	1.28	0.00	4
05080003030020	Nolands Fork-Fountain Creek	16.24	0.38	0.35	0.00	4
05080003030030	Nolands Fork-Long Creek/Fork Creek	28.39	1.14	1.96	0.00	4
05080003030040	Nolands Fork-Common Run	23.53	2.21	1.52	0.00	4
05080003030050	Nolands Fork-Butlers Creek	16.33	1.94	0.01	0.00	4
05080003040010	Whitewater River-Mud Run	6.90	1.82	2.98	0.00	3
05080003040020	Lick Creek (Fayette)	14.91	0.59	3.46	0.00	3
05080003040030	Whitewater River-Connersville	12.52	1.98	23.65	0.00	3
05080003040040	Village Creek	18.87	0.87	1.34	0.00	3
05080003040050	Williams Creek-Brushy Fork	19.83	0.53	0.03	0.00	3
05080003040060	Williams Creek-Bunker Hill	14.50	0.33	1.25	0.00	3
05080003040070	Williams Creek-Little Williams Creek	11.84	0.23	1.60	0.00	3
05080003040080	Whitewater River-Fall/Wilson Creeks	16.64	0.24	0.47	0.00	3
05080003040090	Whitewater River-Bear Creek	17.26	0.97	0.37	0.00	4
05080003040100	Garrison Creek	25.89	0.15	0.04	0.00	4
05080003040110	Whitewater River-Laurel	6.10	1.57	2.76	0.00	4
05080003040120	Sanes Creek	19.49	0.24	0.39	0.00	4
05080003040130	Whitewater River-Sillimans Creek	8.53	1.29	0.13	0.00	4
05080003050010	Salt Creek-Headwaters	17.29	0.20	0.09	0.00	4
05080003050020	Salt Creek-Enochsburg	13.60	0.36	0.90	0.00	4
05080003050030	Salt Creek-Righthand Fork	14.76	2.79	3.18	0.00	4
05080003050040	Salt Creek-Harvey Branch	11.94	0.25	2.11	0.00	4
05080003050050	Bull Fork Salt Creek	21.54	0.36	0.38	0.00	4
05080003050060	Salt Creek-Fremont Branch	9.62	0.31	0.01	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05080003050070	Little Salt Creek-South Fork	25.12	0.36	0.11	0.00	4
05080003050080	Salt Creek-Triple Lakes	3.28	1.03	0.02	0.00	4
05080003060010	Duck Creek-Headwaters	24.85	0.15	0.18	0.00	4
05080003060020	Whitewater River-Metamora	4.91	1.09	1.13	0.00	4
05080003060030	Pipe Creek-Headwaters	21.72	0.80	1.56	0.00	4
05080003060040	Pipe Creek-Russell Branch	14.33	0.69	0.04	0.00	4
05080003060050	Clear Fork	15.79	0.28	0.26	0.00	4
05080003060060	Pipe Creek-Walnut Fork	15.37	0.31	0.10	0.00	4
05080003060070	Whitewater River-Yellow Bank Creek	9.29	1.20	0.03	0.00	4
05080003060080	Whitewater River-Snail Creek	12.59	0.59	1.67	0.00	4
05080003070020	East Fork Whitewater R-New Paris	8.36	2.36	24.25	0.00	4
05080003070030	Middle Fork East Fork Whitewater-Headwaters	16.08	0.72	0.20	0.00	4
05080003070040	Middle Fork East Fork Whitewater-Mud Creek	12.36	3.21	3.17	0.00	4
05080003070050	West Fork East Fork Whitewater River	21.06	1.14	7.56	0.00	4
05080003070060	East Fork Whitewater R-Short Creek	16.29	1.32	25.71	0.00	4
05080003070070	Lick Creek-Clear Creek	16.07	0.83	21.52	0.00	4
05080003070080	Elkhorn Creek	19.92	2.33	0.39	0.00	4
05080003070090	East Fork Whitewater R-Smith Creek	19.92	1.06	0.16	0.00	4
05080003070100	East Fork Whitewater R-Clay Creek	16.92	0.97	0.03	0.00	4
05080003070110	East Fork Whitewater R-Simpson Creek	17.46	0.99	0.37	0.00	3
05080003070120	East Fork Whitewater R-Richland Creek	18.99	1.84	0.08	0.00	3
05080003070130	Silver Creek-Whitewater Lake	19.26	1.92	2.27	0.00	3
05080003070140	East Fork Whitewater R-Ellys Creek	21.12	4.47	0.14	0.00	3
05080003070150	Hanna Creek-Dubois Creek	34.52	0.76	0.35	0.00	3
05080003070160	East Fork Whitewater R-Spring Creek	15.39	22.05	0.20	0.00	3
05080003070170	Templeton Creek-Franklin Creek	22.73	2.76	0.10	0.00	3
05080003070180	East Fork Whitewater R-Wolf Creek	15.46	14.22	3.50	0.00	4
05080003080010	Blue Creek-Headwaters (Franklin)	9.39	1.07	0.38	0.00	4
05080003080020	East Fork Blue Creek	8.89	0.31	0.12	0.00	4
05080003080030	Blue Creek-Neukam Branch	8.04	0.38	0.00	0.00	4
05080003080040	Whitewater River-Wolf Creek/Blue Creek	7.41	0.54	0.32	0.00	4
05080003080050	Whitewater River-Little Cedar Creek	13.46	1.48	0.34	0.00	4
05080003080060	Whitewater River-Gobles Creek	12.25	1.50	0.13	0.00	4
05080003080070	Big Cedar Creek-Headwaters	14.86	0.44	0.01	0.00	3
05080003080080	Big Cedar Creek-Lower	14.78	0.49	0.14	0.00	3
05080003080090	Whitewater River-New Trenton	17.16	3.60	0.51	0.00	3
05080003080100	Whitewater River-Logan Creek	15.49	0.30	1.49	0.00	3
05080003080110	Whitewater River-Johnson Fork	15.14	1.02	0.54	0.00	3
05080003080120	Whitewater River-Jamison Creek	11.14	1.43	3.56	0.00	3
05080003080130	Dry Fork-Headwaters	13.95	0.14	0.06	0.00	3

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05080003080140	Dry Fork-Sours Run/Saters Run	9.40	0.25	0.32	0.00	3
05080003080150	Howard Creek	0.61	0.17	0.00	0.00	3
05080003080160	Dry Fork-Lee Creek	1.01	0.00	0.07	0.00	3
05080003080170	Whitewater River-Sand Run	2.10	0.03	1.52	0.00	3
05090203030010	East Fork Tanners Creek-Turkey Run	15.73	0.25	1.53	0.00	3
05090203030020	East Fork Tanners Creek-Slab Camp Cr	16.44	0.40	0.37	0.00	3
05090203030030	East Fork Tanners Creek- Brushy Fork	7.23	0.19	0.45	0.00	3
05090203030040	West Fork Tanners Creek-Taylor Creek	13.96	0.28	0.26	0.00	3
05090203030050	West Fork Tanners Creek-Leatherwood Cr	10.12	0.51	0.35	0.00	3
05090203030060	West Fork Tanners Creek-Flys Run	13.57	0.78	1.16	0.00	3
05090203030070	Tanners Creek-Mud Lick Creek	8.40	0.46	1.80	0.00	3
05090203030080	Salt Fork	13.85	0.30	6.79	0.00	3
05090203030090	Tanners Creek-Greendale	7.01	3.88	14.63	0.00	3
05090203040010	North Hogan Creek-Mahler Creek	13.98	0.64	0.85	0.00	3
05090203040020	North Hogan Creek-Butternut Run	16.71	0.47	0.62	0.00	3
05090203040030	Little Hogan Creek	12.81	0.29	0.28	0.00	3
05090203040040	North Hogan Creek-Elk Run	7.72	0.55	0.05	0.00	3
05090203040050	North Hogan Creek-Wilmington	10.10	1.71	3.88	0.00	3
05090203040060	South Hogan Creek-Headwaters	12.88	0.34	0.85	0.00	3
05090203040070	South Hogan Creek-Milan tributary	15.06	0.97	3.72	0.00	3
05090203040080	Whitaker Creek	7.59	0.11	3.07	0.00	3
05090203040090	South Hogan Creek-Dillsboro Station	8.47	1.00	3.85	0.00	3
05090203040100	Allen Branch	11.71	0.28	0.25	0.00	3
05090203040110	South Hogan Creek-Cochran	11.32	2.30	6.96	0.00	3
05090203050010	Ohio River-Second Creek	2.60	1.08	38.22	0.00	3
05090203050020	Ohio River-Taylor Creek	0.30	46.00	16.15	0.00	3
05090203050030	Wilson Creek	9.19	1.89	9.28	0.00	3
05090203050040	Ohio River-Aurora	0.92	2.79	15.67	0.00	3
05090203060010	Laughery Creek-Headwaters	13.28	0.61	1.03	0.00	3
05090203060020	Tub Creek	11.29	0.48	1.15	0.00	3
05090203060030	Laughery Creek-Walnut Fork	6.61	0.28	0.73	0.00	3
05090203060040	Laughery Creek-South tributary	8.83	0.48	0.00	0.00	3
05090203060050	Little Laughery Creek-Headwaters	14.75	0.39	10.16	0.00	3
05090203060060	Little Laughery Creek-Bob Creek	12.51	3.27	3.09	0.00	3
05090203060070	Ripley Creek-Headwaters	19.08	0.63	0.87	0.00	3
05090203060080	Ripley Creek-North tributary	13.42	0.60	0.09	0.00	3
05090203060090	Ripley Creek-North Branch	9.91	0.34	0.01	0.00	3
05090203060100	Laughery Creek-State Road 48	7.70	0.48	0.00	0.00	3
05090203060110	Laughery Creek-Jericho Creek	8.74	0.71	0.00	0.00	3

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05090203060120	Plum Creek (Ripley)	8.87	0.17	5.97	0.00	3
05090203060130	Castators Creek	7.58	1.02	0.93	0.00	3
05090203060140	Laughery Creek-Henderson Bend	10.21	1.47	0.02	0.00	3
05090203060150	Falling Timbers Creek	6.00	0.42	0.40	0.00	3
05090203060160	Versailles Lake-Cedar Creek	8.75	4.72	3.50	0.00	3
05090203070010	Laughery Creek-Cave Hill	12.14	1.34	2.04	0.00	3
05090203070020	Laughery Creek-Turkey Creek	7.96	0.51	0.39	0.00	3
05090203070030	Laughery Creek-Raccoon Creek	12.19	0.14	0.11	0.00	3
05090203070040	Laughery Creek-Caesar Creek	15.46	0.50	0.51	0.00	3
05090203070050	Bear Creek (Switzerland)	25.56	0.29	0.16	0.00	3
05090203070060	Laughery Creek-Bell Branch	9.35	0.49	0.09	0.00	3
05090203070070	Hayes Branch	20.03	0.56	1.43	0.00	3
05090203070080	Laughery Creek-Mud Lick	5.87	0.50	0.73	0.00	3
05090203080010	South Fork Laughery-Headwaters	14.01	1.35	0.25	0.00	3
05090203080020	Willow Creek	9.55	0.34	0.66	0.00	3
05090203080030	South Fork Laughery-Lower	13.56	0.22	0.14	0.00	3
05090203080040	Laughery Creek-Goodpasture Branch	16.00	0.94	1.19	0.00	3
05090203080050	Laughery Creek-Kinnet Branch	12.95	2.80	0.88	0.00	3
05090203100010	Ohio River-Island Branch/Willoughby Creek	6.02	0.73	0.12	0.00	3
05090203100030	Ohio River-Rising Sun	1.88	0.42	15.50	0.00	3
05090203110010	Arnold Creek-Headwaters	14.20	0.27	0.19	0.00	3
05090203110020	North Branch Arnold Creek	8.53	0.19	0.04	0.00	3
05090203110030	Arnold Creek-Lower	6.18	2.33	7.16	0.00	3
05090203130010	Grants Creek	22.02	1.16	0.14	0.00	3
05090203130040	Ohio River-Forty Winks Creek	5.14	3.50	0.54	0.00	3
05090203150010	Ohio River-Goose Creek	6.97	1.89	0.67	0.00	3
05090203150030	Ohio River-Wade Creek	3.78	1.34	1.73	0.00	3
05090203150070	Ohio River-Egypt Bottoms	1.56	0.94	0.25	0.00	3
05090203150080	Bryant Creek (Switzerland)	13.29	2.29	0.08	0.00	3
05090203150090	Ohio River-Turtle Creek	4.62	1.23	0.33	0.00	3
05090203170040	Ohio River-Markland Lock & Dam	0.46	11.47	2.83	0.00	3
05090203180010	Log Lick Creek-Headwaters	7.48	0.48	0.58	0.00	3
05090203180020	Mill Creek (Switzerland)	6.87	0.14	0.37	0.00	3
05090203180030	Log Lick Creek-Two Lick Creek	9.33	0.25	0.35	0.00	3
05090203190010	Ohio River-Agneils Creek/Hunt Creek	3.17	0.06	1.69	0.00	3
05090203190020	Plum Creek (Switzerland)	17.45	0.21	0.48	0.00	3
05090203190030	Ohio River-Black Rock Creek	1.43	0.24	21.04	0.00	3
05090203200010	Indian Creek-Headwaters (Switzerland)	14.17	0.51	0.09	0.00	3
05090203200020	NW Tributary Indian Creek	12.39	0.22	0.25	0.00	3
05090203200030	Indian Creek-Tumblebug Creek	4.11	0.09	0.22	0.00	3

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05090203200040	Upper Indian Creek	9.73	0.67	0.13	0.00	3
05090203200050	Indian Creek-Pendleton Branch	11.15	0.08	0.10	0.00	3
05090203200060	Long Run	11.03	0.16	0.07	0.00	3
05090203200070	Indian Creek-Vevay	2.72	0.41	5.73	0.00	3
05090203210030	Ohio River-Tucker Run	6.61	0.03	0.96	0.00	3
051201010010020	Wabash River-Simison Creek(Stony Creek OH)	7.03	1.80	0.00	0.00	5
051201010010030	Wabash River-Jutte Run	1.43	0.00	0.07	0.00	5
051201010040010	Wabash River-Hickory Branch-Scherman Ditch	10.49	1.64	0.10	0.00	5
051201010040020	Wabash River-Brewster Ditch	23.86	2.27	0.05	0.00	5
051201010050010	Camp Run-Shirk Votaw Ditch	17.56	0.77	0.00	0.00	5
051201010050020	Loblolly Creek-Votaw Dt/Wolf Creek	20.31	0.64	0.01	0.00	5
051201010050030	Bear Creek-Headwaters (Jay)	14.48	1.88	0.00	0.00	5
051201010050040	Loblolly Creek-Bear Creek	14.73	0.96	0.94	0.00	5
051201010050050	Limberlost Creek-Wilson/Bull Creeks	19.01	0.69	0.00	0.00	5
051201010050060	Limberlost Creek-Oakley Ditch	22.60	0.96	1.27	0.00	5
051201010060010	Wabash River-Engle/Jamstutz Ditches	13.81	3.65	1.74	0.00	5
051201010060020	Wabash River-Sullivan Ditch	17.16	1.20	0.11	0.00	5
051201010060030	Wabash River-Threemile Creek	15.67	0.84	0.14	0.00	5
051201010060040	Wabash River-Veracruz	21.36	2.28	0.12	0.00	5
051201010060050	Sixmile Creek-Johns Ditch	14.34	0.66	0.22	0.00	5
051201010060060	Sixmile Creek-Miller Ditch	17.45	0.52	0.03	0.00	5
051201010070010	Wabash River-Markley Ditch	13.69	0.77	2.15	0.00	5
051201010070020	Wabash River-Johns Creek	11.94	1.21	9.46	0.00	5
051201010070030	Wabash River-Halls Creek	11.85	0.68	9.64	0.00	5
051201010070040	Wabash River-Dowty Ditch	15.08	1.30	0.43	0.00	5
051201010070050	Wabash River-Bender/Lesh Ditches	16.02	1.43	0.13	0.00	5
051201010070060	Wabash River-Griffin Ditch	21.58	2.59	2.66	0.00	5
051201010080010	Rock Creek-Headwaters (Wells)	11.84	0.30	0.47	0.00	5
051201010080020	Elm Creek	14.30	0.45	0.21	0.00	5
051201010080030	Rock Creek-Neff Ditch	13.64	0.24	0.01	0.00	5
051201010080040	Rock Creek-Stites Ditch	18.30	0.73	0.21	0.00	5
051201010080050	Mossburg Ditch-Palmer/Stevens Ditches	16.91	0.60	0.00	0.00	5
051201010080060	Rock Creek-Whitelock Ditch	18.59	0.77	0.02	0.00	5
051201010080070	Rock Creek-Eikenberry Ditch	10.56	1.22	1.47	0.00	5
051201010090010	Wabash River-Huntington Lake Dam	15.92	6.45	0.36	0.00	5
051201010090020	Wabash River-Huntington Waterworks	6.74	3.70	4.89	0.00	5
051201011000010	Robinson Creek	16.49	0.93	1.84	0.00	5
051201011000020	Graham McCulloch Ditch #1	21.61	3.81	23.35	0.00	5
051201011000030	Little River-Allen	13.40	1.37	1.91	0.00	5

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120101100040	Seager Ditch	17.31	3.10	0.35	0.00	5
05120101100050	Aboite Creek-Beal Taylor Ditch	18.06	3.08	4.64	0.00	5
05120101100060	Aboite Creek-Big Indian/Little Indian Creeks	17.26	2.63	1.39	0.00	5
05120101100070	Little River-Calf/Cow Creeks	24.16	1.53	1.97	0.00	5
05120101110010	Eightmile Creek-Maple Creek	19.37	0.65	0.18	0.00	5
05120101110020	Eightmile Creek-Moser Lake Outlet	19.39	0.49	3.52	0.00	5
05120101110030	Eightmile Creek-Big Creek	17.82	1.37	0.35	0.00	5
05120101110040	Eightmile Creek-Witzgall Ditch	11.66	1.07	0.94	0.00	5
05120101110050	Eightmile Creek-Pleasant Run Ditch	12.44	1.55	6.69	0.00	5
05120101120010	Flat Creek-Headwaters (Wells)	10.94	0.44	0.23	0.00	5
05120101120020	Little River-Flat Creek (lower)	20.08	1.49	1.07	0.00	5
05120101120030	Little River-Bull Creek	15.08	1.09	0.03	0.00	5
05120101120040	Little River-Mud Creek	15.72	0.40	1.02	0.00	5
05120101120050	Little River-Flint Creek	16.92	1.09	24.16	0.00	5
05120101130010	Clear Creek-Headwaters (Huntington)	14.16	1.27	0.01	0.00	5
05120101130020	West Branch-Brown Ditch	16.50	0.70	0.00	0.00	5
05120101130030	Clear Creek-Clear Creek Church	13.51	0.76	0.02	0.00	5
05120101130040	Clear Creek-NW Trib/Prigrims Rest Cemetary	12.16	0.89	2.44	0.00	5
05120101140010	Wabash River-Silver Creek-Nieman Creek	31.83	1.11	1.00	0.00	5
05120101140020	Loon Creek	21.41	0.59	0.83	0.00	5
05120101140030	Wabash River-Rager Creek-Possum Hollow	17.14	2.06	0.01	0.00	5
05120101150010	Wabash River-Largo/Enyeart Creeks	21.60	1.37	0.71	0.00	7
05120101150020	Wabash River-Ross Run/Burr Creek	17.56	1.78	1.83	0.00	7
05120101150030	Treaty Creek-Headwaters	15.15	0.63	0.30	0.00	7
05120101150040	Treaty Creek-Stone Creek	14.91	0.56	1.68	0.00	7
05120101150050	Wabash River-Charley Creek	19.58	1.18	14.83	0.00	7
05120101150060	Kentner Creek	9.42	0.01	0.89	0.00	7
05120101150070	Mill Creek-Ridgeway Creek	16.23	0.31	0.02	0.00	7
05120101150080	Wabash River-Gilbert Branch/Schron Creek	17.49	1.02	0.40	0.00	7
05120101150090	Wabash River-Asher Branch	12.37	1.74	0.00	0.00	7
05120101150100	Wabash River-Daniel Creek	13.08	1.77	0.43	0.00	7
05120101160010	Wabash River-Peru	14.16	2.59	19.29	0.00	7
05120101160020	Little Pipe Creek (Miami)	21.16	0.89	0.36	0.00	4
05120101160030	Wabash River-Prairie Ditch	16.75	1.86	3.14	0.00	7
05120101160040	Wabash River-Lowe Ditch/Goose Run	15.38	3.39	0.77	0.00	7
05120101170010	Pipe Creek-Headwaters (Grant)	19.36	0.49	0.11	0.00	4
05120101170020	Sims Franklin Ditch	9.85	0.06	0.92	0.00	4
05120101170030	Pipe Creek-Stony Creek/Sweetser	19.22	0.70	1.91	0.00	4
05120101170040	Taylor Creek	13.11	0.26	2.47	0.00	4
05120101170050	Little Pipe Creek (Howard)	21.31	0.34	2.13	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120101170060	Pipe Creek-Potter Ditch	13.91	0.26	0.23	0.00	4
05120101170070	Sugar Creek (Howard)	12.91	0.24	0.14	0.00	4
05120101170080	Honey Creek-Amboy	14.42	0.54	1.27	0.00	4
05120101170090	Pipe Creek-Santa Fe	16.97	0.50	0.14	0.00	4
05120101170100	Pipe Creek-Niger Ditch	17.19	1.11	0.49	0.00	4
05120101170110	Pipe Creek-Bunker Hill	15.58	1.37	4.66	0.00	4
05120101170120	Little Deer Creek-Government Ditch	15.10	0.62	9.86	0.00	4
05120101170130	Pipe Creek-Bear Creek	5.81	0.50	0.00	0.00	7
05120101180010	Wabash River-Williams Ditch	5.90	1.96	0.75	0.00	7
05120101180020	Wabash River-Rock Island	10.15	7.01	0.99	0.00	7
05120101180030	Minnow Creek (Cass)	7.21	0.38	1.01	0.00	7
05120101180040	Wabash River-Biddle Island	5.18	6.53	23.60	0.00	7
05120102010010	Salamonie River-Madison Creek	13.25	1.22	0.37	0.00	5
05120102010020	McLaughlin Ditch	13.39	0.65	0.05	0.00	5
05120102010030	Salamonie River-Berger Ditch	21.30	1.75	5.40	0.00	5
05120102010040	Little Salamonie River-Buckeye Creek	22.44	1.80	0.68	0.00	5
05120102010050	Salamonie River-Butternut Creek	13.93	1.54	0.53	0.00	5
05120102010060	Salamonie River-Miller Ditch	11.45	1.33	0.15	0.00	5
05120102010070	Sipe Ditch	17.05	0.66	4.11	0.00	5
05120102010080	Salamonie River-Glenn Miller Ditch	22.57	1.17	0.01	0.00	5
05120102010090	Brooks Creek-Cowboy Run	21.69	1.32	0.02	0.00	5
05120102010100	Brooks Creek-Mud Creek	16.20	2.36	0.01	0.00	5
05120102020010	Salamonie River-Twomile Creek	25.68	1.10	0.79	0.00	5
05120102020020	Salamonie River-Beaver Creek-Haines Creek	20.66	2.83	0.05	0.00	5
05120102020030	Slocum Ditch-Jones Ditch	13.81	0.90	0.00	0.00	5
05120102020040	Salamonie River-East Creek	19.35	1.55	0.75	0.00	5
05120102030010	Salamonie River-Rhoton Ditch	9.76	2.18	6.24	0.00	5
05120102030020	Scuffle Creek	14.37	0.34	0.31	0.00	5
05120102030030	Salamonie River-Shadle Drain	11.21	1.26	0.02	0.00	5
05120102030040	Prairie Creek-Headwaters (Blackford)	14.89	0.27	0.99	0.00	5
05120102030050	Prairie Creek-Burgh/Greenlee Ditches	17.36	0.94	0.15	0.00	5
05120102030060	Salamonie River-Custard Drain	10.99	2.58	0.00	0.00	5
05120102030070	Owl Creek (Wells)	9.27	0.33	0.01	0.00	5
05120102030080	Salamonie River-Morrison Ditch	9.96	1.44	0.04	0.00	5
05120102030090	Black Creek-Baker Ditch	25.04	0.53	0.35	0.00	5
05120102030100	Black Creek-Van Buren	24.92	0.71	1.51	0.00	5
05120102040010	Salamonie River-Weasel Creek/Detamore Ditch	25.51	1.20	2.83	0.00	5
05120102040020	Salamonie River-Lancaster	22.69	2.63	0.09	0.00	5
05120102040030	Richland Creek-Prairie Creek/Pond Creek	22.02	0.62	0.08	0.00	5

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120102040040	Majencia Creek-Headwaters	19.46	0.19	0.23	0.00	5
05120102040050	Majencia Creek-Little Majencia Creek	15.21	1.33	0.05	0.00	5
05120102040060	Salamonie Reservoir-Upper/Mt. Etna	13.67	16.14	0.43	0.00	5
05120102040070	Rush Creek-Logan/Small Rush Creeks	20.84	0.50	0.06	0.00	5
05120102040080	Salamonie River-Salamonie Dam/Back Creek	18.88	7.34	0.33	0.00	7
05120103010010	Mississinewa River-Mitchell Ditch	5.36	0.68	1.00	0.00	4
05120103010020	Little Mississinewa River	19.93	0.89	3.55	0.00	4
05120103010030	Mississinewa River-Jordan Creek	8.88	1.15	0.06	0.00	4
05120103010040	Harshman Creek-Lows Branch	13.75	1.08	0.42	0.00	4
05120103010050	Mississinewa River-Porter/Miller Creeks	17.19	1.22	0.55	0.00	4
05120103010060	Mississinewa River-Clear Creek	19.83	1.55	0.44	0.00	4
05120103010070	Mississinewa River-Mud/O'Brien Creeks	15.17	1.19	0.76	0.00	4
05120103020010	Mississinewa River-Ridgeville	13.66	2.75	2.58	0.00	4
05120103020020	Mississinewa River-Days Creek	18.44	0.85	0.02	0.00	4
05120103020030	Bear Creek (Randolph)	15.98	0.79	0.00	0.00	4
05120103020040	Mississinewa River-Howes Ditch	11.88	3.52	0.00	0.00	4
05120103020050	Bush Creek-Elkhorn Creek	20.08	1.92	0.05	0.00	4
05120103020060	Mississinewa River-Platt Nibarger Ditch	18.17	2.40	0.32	0.00	4
05120103020070	Mississinewa River-Mud Creek	12.76	1.34	0.12	0.00	4
05120103020080	Halfway Creek-Redkey Run	25.03	1.25	3.70	0.00	4
05120103030010	Campbell Creek (Delaware)	20.76	1.06	0.18	0.00	4
05120103030020	Mississinewa River-Bosman Ditch	24.74	2.99	0.86	0.00	4
05120103030030	Rees Ditch	15.52	0.97	2.02	0.00	4
05120103030040	Mississinewa River-Holdren Ditch	19.65	2.85	3.25	0.00	4
05120103030050	Mississinewa River-Pike Creek	22.26	1.24	0.44	0.00	4
05120103040010	Big Lick Creek-Headwaters	13.24	0.95	4.31	0.00	4
05120103040020	Big Lick Creek-Millgrove	19.64	1.11	0.77	0.00	4
05120103040030	Little Lick Creek (Blackford)	13.47	0.73	9.83	0.00	4
05120103040040	Big Lick Creek-Moore Prong/Little Joe Creek	14.04	1.72	4.78	0.00	4
05120103040050	Big Lick Creek-Townsand Lucas Ditch	15.76	2.39	0.71	0.00	4
05120103050010	Mississinewa River-Hoppas Ditch	16.75	1.51	1.70	0.00	4
05120103050020	Mississinewa River-Lake Branch	19.48	1.92	1.11	0.00	4
05120103050030	Barren Creek-Fowler Ditch	20.70	0.88	0.61	0.00	4
05120103050040	Mississinewa River-Branch/Octain Creeks	18.04	2.97	4.89	0.00	4
05120103050050	Back Creek (Grant)	18.86	0.82	8.30	0.00	4
05120103050060	Deer Creek-Little Deer Creek/Little Creek	25.91	0.88	0.14	0.00	4
05120103050070	Deer Creek-Bell Creek/Dry Fork Ditch	20.42	2.21	4.73	0.00	4
05120103050080	Walnut Creek-Little Walnut Creek	16.34	0.85	0.07	0.00	4
05120103050090	Walnut Creek-Monroe Prairie Creek	12.00	1.01	1.87	0.00	4

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Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120103050100	Mississinewa River-Walnut Creek (lower)	14.94	2.60	9.52	0.00	4
05120103050110	Monroe Ditch (Lugar Creek)	12.22	0.28	0.26	0.00	4
05120103050120	Lugar Creek-Tippey Ditch	18.00	0.71	1.03	0.00	4
05120103050130	Mississinewa River-Boots/Massey Creeks	21.28	1.27	37.08	0.00	4
05120103060010	Mississinewa River-Hummel Creek	15.01	1.32	6.89	0.00	4
05120103060020	Mississinewa River-Little Crane Pond Ditch	17.57	3.78	7.64	0.00	4
05120103060030	Metocinah Creek-Jocinah Creek	14.97	0.32	0.00	0.00	4
05120103060040	Mississinewa River-Cart Creek	16.32	2.60	0.01	0.00	4
05120103060050	Grant Creek-Badger Creek	13.84	0.80	1.97	0.00	4
05120103060060	Mississinewa River-Forked Branch	11.78	7.41	0.91	0.00	4
05120103060070	Tenmile Creek (Grant)	10.63	1.05	0.00	0.00	4
05120103060080	Mississinewa Lake-Rock Run	10.93	11.94	0.06	0.00	4
05120103060090	Mississinewa Lake Dam-Liston Creek	14.78	12.14	0.14	0.00	4
05120103060100	Mississinewa River-Outlet	9.36	3.13	0.19	0.00	4
05120104010010	Eel River-Berward/Shoaff Dawson Ditches	19.08	1.49	0.79	0.00	7
05120104010020	Eel River-Johnson Dt/Johnson Drain	24.66	4.41	2.30	0.00	7
05120104010030	Eel River-Smith/Krider Ditches	18.36	3.69	0.12	0.00	7
05120104010040	Eel River-Solon Ditch	22.68	2.59	1.49	0.00	7
05120104010050	Gangwer Ditch	19.81	1.02	0.63	0.00	7
05120104020010	Blue River-Headwaters (Noble)	20.88	3.62	0.29	0.00	7
05120104020020	Blue River-Blue Lake/Mud Run	20.98	4.40	1.05	0.00	7
05120104020030	Blue River-Thorn Creek	19.01	5.21	1.45	0.00	7
05120104020040	Blue River-North Trib/Columbia City	19.51	2.26	9.66	0.00	7
05120104030010	Eel River-County Farm Ditch	14.82	2.55	0.79	0.00	7
05120104030020	Eel River-Stony Creek	19.23	2.52	0.28	0.00	7
05120104030030	Spring Creek-Black Lake Outlet	16.27	3.36	0.18	0.00	7
05120104030040	Spring Creek-Shoenauer Ditch	18.14	2.59	0.25	0.00	7
05120104030050	Spring Creek-Clear Creek	10.82	4.14	0.22	0.00	7
05120104030060	Sugar Creek-Headwaters (Whitley)	18.88	0.58	0.26	0.00	7
05120104030070	Sugar Creek-Huffman Branch	11.98	0.65	0.09	0.00	7
05120104040010	Eel River-Mishler Ditch	20.43	2.37	2.23	1.35	7
05120104040020	Eel River-Hurricane Creek	17.75	1.16	0.00	0.00	7
05120104040030	Eel River-Plunge/Wheeler Creeks	18.60	1.50	0.03	0.00	7
05120104040040	Eel River-Simonton Creek	20.60	1.07	0.20	0.00	5
05120104040050	Eel River-Swank Creek	11.47	4.10	3.10	0.00	7
05120104040060	Pony Creek-Headwaters	20.05	0.20	0.07	0.00	5
05120104040070	Eel River-Pony Creek (Lower)	13.40	0.67	2.87	0.00	5
05120104040080	Eel River-Clear Creek-Nelson Creek	22.02	1.69	2.69	0.00	7
05120104050010	Eel River-Otter Creek/Long Lake	20.45	3.84	1.10	0.00	7

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Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120104050020	Silver Creek-Silver Lake/Morrett Ditch	15.09	4.35	1.85	0.00	7
05120104050030	Eel River-Silver Creek (lower)	20.16	3.17	0.16	0.00	7
05120104050040	Beargrass Creek	23.09	0.97	0.03	0.00	7
05120104050050	Bolley Ditch-Lukens Lake	16.51	3.01	0.02	2.36	7
05120104050060	Squirrel Creek-Berger Ditch	15.30	1.30	0.03	0.00	7
05120104050070	Eel River-Roann/Squirrel Creek(lower)	22.21	1.92	0.72	0.00	7
05120104050080	Paw Paw Creek-Sharp Ditch	22.08	0.51	0.59	0.00	7
05120104050090	Paw Paw Creek-Oren Ditch	14.36	1.16	0.00	0.00	7
05120104050100	Paw Paw Creek-Bachelor Creek	18.35	0.47	0.11	0.00	7
05120104060010	Eel River-Flowers Creek-Wilson Rhodes Ditch	21.20	1.38	0.07	0.00	7
05120104060020	Eel River-Washonis Creek	19.80	2.32	0.09	0.00	7
05120104060030	Weesau Creek-Little Weesau Creek	23.16	0.96	0.99	0.00	7
05120104060040	Eel River-Mexico	12.64	2.20	0.72	0.00	7
05120104070010	Eel River-Hoover	17.89	3.09	0.79	0.00	7
05120104070020	East Branch Twelvemile Creek	24.49	1.89	0.02	0.00	7
05120104070030	West Branch Twelvemile Creek	20.18	2.04	0.34	0.00	7
05120104070040	Twelvemile Creek-Goose Creek	8.42	2.77	0.05	0.00	7
05120104070050	Eel River-Mud Branch	13.07	1.82	0.03	0.00	7
05120104070060	Eel River-Tick Creek	13.41	3.25	0.88	0.00	7
05120104070070	Eel River-Horney Creek	13.11	3.04	18.36	0.00	7
05120105010010	Wabash River-Grants Run	33.42	3.80	4.78	0.00	7
05120105010020	Crooked Creek-Headwaters (Cass)	16.67	1.23	0.03	0.00	7
05120105010030	Crooked Creek-Miller Ditch	22.30	0.86	0.00	0.00	7
05120105010040	Crooked Creek-Galbreath Ditch	20.28	2.77	0.14	0.00	7
05120105020010	Wabash River-Keeps/Little Rock Creeks	22.47	2.34	0.26	0.00	7
05120105020020	Burnetts Creek (Carroll)	21.01	1.31	0.88	0.00	7
05120105020030	Rock Creek-Toney Ditch	15.86	0.13	2.28	0.00	4
05120105020040	Rock Creek-Widow Creek	21.64	0.32	0.01	0.00	4
05120105020050	Little Rock Creek-Dry Run	21.41	0.04	0.09	0.00	4
05120105020060	Rock Creek-Ryan Appleton Ditch	28.91	0.90	0.12	0.00	4
05120105030010	Rattlesnake Creek-Headwaters	16.57	0.57	0.34	0.00	7
05120105030020	Wabash River-Rattlesnake Creek	16.91	2.62	0.01	0.00	7
05120105030030	Wabash River-Mitchell Creek	14.53	4.06	0.06	0.00	7
05120105030040	Wabash River-Pleasant Run/Tannery Branch	21.17	2.12	0.73	0.00	7
05120105040010	Deer Creek-Copper Creek	17.38	0.20	0.04	0.00	4
05120105040020	Deer Creek-Wise Grinslade Ditch	18.20	0.91	0.08	0.00	4
05120105040030	Deer Creek-Russell Ditch	22.94	1.07	1.16	0.00	4
05120105040040	South Fork Deer Creek-Matthew Anaker Ditch	20.02	0.65	0.50	0.00	4
05120105040050	South Fork Deer Creek-Manson Kingery Ditch	19.69	2.14	4.05	0.00	4

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Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120105050010	Deer Creek-Greetings/Dehaven Ditches	12.44	2.27	0.25	0.00	4
05120105050020	McClosky Ditch-Harness Ditch	16.09	0.38	0.37	0.00	4
05120105050030	Deer Creek-Toney/Brown Ditches	16.40	1.19	0.24	0.00	4
05120105050040	McKay Dredge Ditch-Harrison Harlan Ditch	14.22	0.86	0.47	0.00	4
05120105050050	Little Deer Creek-Henry Gilbert Ditch	20.08	0.33	0.01	0.00	4
05120105050060	Little Deer Creek-Ridenour Ditch	20.08	0.52	0.03	0.00	4
05120105050070	Paint Creek	18.95	0.29	0.16	0.00	4
05120105050080	Deer Creek-Camden	10.52	1.28	1.80	0.00	4
05120105050090	Bachelor Run-Headwaters	18.20	0.36	0.49	0.00	4
05120105050100	Bachelor Run-Kuns Ditch	17.77	0.25	3.30	0.00	4
05120105050110	Deer Creek-Johns Ditch/Bridge Creek	24.66	0.53	0.22	0.00	4
05120105050120	Deer Creek-Robinson Branch	15.22	1.48	6.51	0.00	4
05120105060010	Wabash River-Bowen Ditch	10.69	2.81	0.08	0.00	7
05120105060020	Wabash River-Bridge Creek	12.83	2.50	0.52	0.00	4
05120105070010	Sugar Creek-Little Sugar Creek (Tippecanoe)	28.66	0.77	0.26	0.00	4
05120105070020	Buck Creek (Tippecanoe)	11.68	0.56	0.54	0.00	4
05120105070030	Wabash River-Harrison Creek	7.96	7.69	1.60	0.00	4
05120106010010	Tippecanoe River-Crooked Lake/Big Lake	9.86	9.85	1.56	0.00	7
05120106010020	Loon Lake-Goose Lake/Old Lake	11.33	10.17	0.61	0.00	7
05120106010030	Tippecanoe River-Smalley Lake/Wilmot Pond	13.92	8.67	0.04	0.00	5
05120106010040	Tippecanoe River-Webster Lake	13.95	17.15	1.97	0.00	5
05120106010050	Elder Ditch-Cedar Lake Branch	15.83	5.37	0.03	0.00	7
05120106010060	Grassy Creek-Robinson Lake/Ridinger Lake	18.75	5.69	1.53	0.00	7
05120106010070	Grassy Creek-Big Barbee/Sechrist Lakes	17.24	14.92	3.88	0.00	5
05120106010080	Tippecanoe River-James/Tippecanoe Lakes	12.78	20.51	3.17	0.00	5
05120106020010	Tippecanoe River-Ruple Ditch	12.16	6.39	1.70	0.00	5
05120106020020	Deeds Creek-McCarter Ditch	17.69	2.75	1.93	2.65	7
05120106020030	Deeds Creek-Heeter Dt-Chapman Lakes	18.17	11.54	2.69	0.83	5
05120106020040	Tippecanoe River-Deeds Creek-Pike Lake	14.14	10.62	16.39	0.00	5
05120106020050	Wyland Ditch-Sellers/Sherburn Lakes	13.92	5.76	1.16	0.00	7
05120106020060	Winola Lake-Peterson/Keefer Evans Ditches	18.13	8.34	4.94	0.00	7
05120106020070	Walnut Creek-Carr/Fish/Muskelonge Lakes	14.10	5.21	0.16	0.00	7
05120106020080	Walnut Creek-Eagle Creek/Center Lake	14.10	9.80	12.31	0.00	7
05120106030010	Tippecanoe River-Huffer Ditch	14.82	3.22	4.12	2.81	5
05120106030020	Tippecanoe River-Pyle/Pole Run Ditches	16.94	5.80	0.71	1.39	5
05120106030030	Ring Ditch/Adams Ditch	18.05	5.28	0.62	0.00	7
05120106030040	Palestine Lake-Williams Ditch/Robbins Ditch	14.28	6.37	0.86	0.00	7
05120106030050	Tippecanoe River-Trimble Creek/Dorsey Ditch	16.57	12.57	0.31	0.74	5
05120106030060	Robinson Ditch-Hoffman Lake	10.49	6.64	1.18	0.00	5

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Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120106030070	Danner Ditch-Ridenour Ditch	20.27	1.49	2.04	0.00	5
05120106030080	Tippecanoe River-Danner Ditch(lower)-Arm #2	9.61	4.55	0.67	0.00	5
05120106040010	Tippecanoe River-Shatto Ditch	24.84	11.24	0.59	0.67	5
05120106040020	Outlet Creek-Headwaters	15.30	1.43	0.01	0.00	5
05120106040030	Outlet Creek-Deer Creek	20.18	0.96	0.03	0.00	5
05120106040040	Tippecanoe River-Clarence Baker Ditch	15.96	6.51	2.00	0.00	5
05120106040050	Yellow Creek-Yellow Creek Lake	11.14	10.59	1.24	0.00	7
05120106040060	Yellow Creek-Rickle Ditch	20.83	1.43	0.78	2.61	5
05120106040070	Yellow Creek-Little Yellow Creek	15.77	2.50	0.21	1.53	5
05120106040080	Tippecanoe River-Redinger Ditch	19.15	0.89	0.08	3.01	5
05120106040090	Tippecanoe River-Reister Creek	17.56	1.24	0.15	1.88	5
05120106040100	Chippewanuck Creek-Lake 16 Outlet	18.24	4.54	1.96	0.97	5
05120106040110	Chippewanuck Creek-Gast Ditch	13.82	0.61	0.07	1.66	5
05120106040120	Chippewanuck Creek-Byrant Leininger Ditch	12.31	2.99	0.02	0.60	5
05120106050010	Robbin Taylor Ditch/Strebe Ditch	18.02	2.36	0.23	1.58	5
05120106050020	Lake Manitou-Rain Creek/Graham Ditch	26.12	8.69	1.38	0.62	5
05120106050030	Tippecanoe River-McMahan Dt/Mill Creek	12.86	6.55	6.93	0.00	5
05120106050040	Tippecanoe River-Zink Lake Outlet	18.84	6.42	3.85	0.00	5
05120106050050	Mud Creek-South Branch	12.49	4.38	1.46	0.00	5
05120106050060	Mud Creek-Smith Ditch	14.95	0.94	0.19	0.00	5
05120106050070	Mud Creek-Neff/Baker Ditches	23.21	0.77	0.35	0.00	5
05120106050080	Mud Creek-Grube/Wilson Ditches	16.19	1.52	0.00	0.00	5
05120106050090	Collins Ditch-Bailey Ditch	18.41	2.73	0.01	4.10	5
05120106050100	Mud Creek-Holtz/Tilden Ditches	16.50	1.20	0.52	0.00	5
05120106050110	Eddy Creek-Headwaters	16.87	1.53	0.01	6.91	5
05120106050120	Eddy Creek-Cowan Ditch	9.54	3.69	0.01	0.91	5
05120106060010	Lake Maxinkuckee-Lost Lake	14.15	23.69	2.89	0.00	5
05120106060020	Tippecanoe River-Wilson/Collins Ditches	18.38	4.63	0.20	0.00	5
05120106060030	Tippecanoe River-Slonaker Ditch	22.96	8.70	0.32	1.08	5
05120106060040	Zechiel Arm	12.98	4.63	0.75	1.30	5
05120106060050	House Ditch-McGaffey Branch	16.07	3.18	0.02	0.00	5
05120106060060	Tippecanoe River-Bartee/Taylor Ditches	19.22	5.28	0.10	0.00	5
05120106060070	Tippecanoe River-Dilts Anstis/Stadden Ditches	20.22	9.13	0.01	0.00	5
05120106060080	Bruce Lake	6.37	8.73	0.96	0.00	5
05120106060090	Tippecanoe River-Bruce Lake Outlet	15.21	4.50	0.03	0.00	5
05120106060100	Quigley Marsh Ditch	17.93	0.78	1.31	0.00	5
05120106060110	Tippecanoe River-Tyler Weisjahn Ditch	19.33	4.55	3.05	0.00	5
05120106070010	Mill Creek-Headwaters (Fulton)	18.35	1.19	0.83	0.00	5
05120106070020	Mill Creek-Reed Olmstead Ditch	16.58	1.94	0.03	0.00	5
05120106070030	Mill Creek-Wilson Ditch	21.72	0.87	0.29	0.00	5

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120106070040	Little Mill Creek (Fulton)	17.80	1.19	0.76	0.00	5
05120106070050	Mill Creek-Prather Ditch	15.76	1.20	0.18	0.00	5
05120106080010	Agnew Ditch-Hoover Ditch	16.66	0.86	0.18	0.00	5
05120106080020	Tippecanoe River-Agnew Ditch-Moss Ditch	15.62	1.94	0.41	0.00	5
05120106080030	Mud Creek-Hoffman Ditch	15.99	0.75	0.57	0.00	5
05120106080040	Tippecanoe River-Budd Fisher Ditch	17.71	1.90	0.06	0.00	6
05120106080050	Dickey Creek	13.25	1.00	0.00	0.00	5
05120106080060	Tippecanoe River-Stout Ditch	12.90	2.02	0.00	0.00	6
05120106090010	Indian Creek-Headwaters (Pulaski)	17.65	1.04	0.18	0.00	5
05120106090020	Grassy Creek-Fletcher Lake Outlet	22.18	1.80	0.06	0.00	5
05120106090030	Grassy Creek-Walsh Ditch	13.09	1.01	0.00	0.00	5
05120106090040	Indian Creek-Thornhope	12.90	1.05	0.10	0.00	5
05120106090050	Little Indian Creek-Fredericks Ditch	15.85	1.72	1.85	0.00	7
05120106090060	Little Indian Creek-Struber/Hancock/Kennel Dt	22.74	0.70	0.00	0.00	7
05120106090070	Indian Creek-Outlet (Pulaski)	6.77	1.00	0.00	0.00	5
05120106100010	Tippecanoe River-Weltzin Dt-Swingle Dt	15.51	3.49	0.00	0.00	6
05120106100020	Tippecanoe River-Ackerman Ditch	14.21	2.19	0.23	0.00	5
05120106100030	Tippecanoe River-Harp Ditch	17.53	7.55	0.81	0.00	6
05120106110010	Big Monon Ditch-Headwaters	14.83	2.30	0.55	0.00	6
05120106110020	Scholtz Ditch	22.59	2.23	0.04	0.00	6
05120106110030	Big Monon Ditch-Dresske Ditch	13.09	1.83	0.06	0.00	6
05120106110040	Big Monon Ditch-Thompson Ditch	19.03	2.26	0.01	0.00	6
05120106110050	Big Monon Ditch-Lincoln Ditch	16.16	1.06	0.01	0.00	6
05120106110060	Antrim Ditch-Stump Ditch	15.76	1.94	0.21	0.00	6
05120106110070	Antrim Ditch-Dunker Ditch	13.66	1.17	1.31	0.00	6
05120106110080	Big Monon Ditch-Antrim Outlet/Stein Ditch	13.25	1.57	0.07	0.00	6
05120106110090	Mosley Ditch-Mosley Branch	18.97	0.63	0.64	0.00	6
05120106110100	Big Monon Ditch-Pelsey Ditch	18.58	0.28	1.52	0.00	6
05120106110110	Big Monon Ditch-Outlet	18.17	4.23	0.03	0.00	6
05120106110120	Hill Ditch	17.21	0.50	0.01	0.00	6
05120106110130	Big Monon Creek-Brown Ditch	22.47	2.81	0.15	0.00	6
05120106120010	McKillip Ditch-McKillip Branch Ditch	16.09	0.99	0.00	0.00	5
05120106120020	McKillip Ditch-Kesler Ditch	13.61	1.33	0.23	0.00	5
05120106120030	McKillip Ditch-Monon	18.33	4.09	3.46	0.00	5
05120106120040	Hoagland Ditch-Headwaters	13.88	0.27	0.01	0.00	1
05120106120050	Hollingsworth Ditch	19.24	0.12	0.16	0.00	1
05120106120060	Hoagland Ditch-Winters Ditch	20.33	0.43	1.23	0.00	5
05120106120070	Hoagland Ditch-Minch Ditch	14.95	0.82	0.00	0.00	5
05120106120080	Hoagland Ditch-Lake Shafer	10.92	4.13	1.42	0.00	5
05120106120090	Honey Creek-Headwaters (White)	19.55	0.99	0.01	0.00	5

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120106120100	Fraser Ditch	12.53	2.64	1.91	0.00	5
05120106120110	Honey Creek-Lake Shafer Dam	10.28	4.05	1.15	0.00	5
05120106130010	Lake Shafer-Carnahan/Timmons Ditches	23.62	3.74	1.01	0.00	5
05120106130020	Lake Shafer-Keans Creek-Burgett Ditch	22.04	2.46	0.92	0.00	5
05120106140010	Pike Creek (White)	29.76	0.53	0.21	0.00	5
05120106140020	Tippecanoe River-Lake Freeman	30.04	8.91	7.40	0.00	5
05120106150010	Big Creek-Bell Ditch	26.41	0.46	0.07	0.15	1
05120106150020	Big Creek-Dorsey/Dieter Ditches	23.61	0.35	0.16	0.00	5
05120106150030	Big Creek-Outlet	15.64	1.66	0.01	0.00	5
05120106150040	Spring Creek-Chalmers/Enge Ditch	21.65	0.79	0.52	0.00	5
05120106150050	Tippecanoe River-Main Stem	16.77	7.14	0.38	0.00	5
05120106150060	Rayman Ditch/Myers Ditch	20.63	0.28	0.30	0.00	5
05120106150070	Moots Creek-Chilton Ditch	13.84	0.72	1.15	0.00	5
05120106150080	Moots Creek-Tippecanoe River Outlet	19.22	2.41	1.28	0.00	5
05120107010010	Grassy Fork Ditch-Harper Ditch	24.33	0.89	0.07	0.00	4
05120107010020	Middle Fork Ditch	25.41	0.64	0.09	0.00	4
05120107010030	Mud Creek-Headwater (Tipton)	16.29	1.46	0.77	0.00	4
05120107010040	Mud Creek-North Creek	14.52	1.13	0.18	0.00	4
05120107010050	Turkey Creek-Headwaters (Tipton)	19.55	0.31	1.94	0.00	4
05120107010060	Turkey Creek-Askren/Round Prairie Ditches	23.97	0.51	1.32	0.00	4
05120107010070	Wildcat Creek-Mud Creek-Irwin Creek	21.66	1.75	0.08	0.00	4
05120107010080	Wildcat Creek-Jerome	21.86	1.95	2.23	0.00	4
05120107010090	Wildcat Creek-Kokomo Reservoir #2 Dam	10.83	7.46	2.50	0.00	4
05120107010100	Wildcat Creek-Stahl/Cannon Goyer Ditches	25.98	1.67	29.66	0.00	4
05120107010110	Kokomo Creek-Headwaters	24.90	1.89	0.81	0.00	4
05120107010120	Kokomo Creek-Lower	11.63	1.87	29.58	0.00	4
05120107020010	Wildcat Creek-Kitty Run/Edwards Ditch	19.97	3.78	16.93	0.00	4
05120107020020	Little Wildcat Creek-East & West Forks	18.35	2.25	5.20	0.00	4
05120107020030	Little Wildcat Creek-Lower	16.55	2.43	3.17	0.00	4
05120107020040	West Honey Creek-Walnut Fork	13.46	0.64	1.69	0.00	4
05120107020050	Wildcat Creek-Honey Creek	13.55	2.34	1.25	0.00	4
05120107020060	Wildcat Creek-Dearinger Ditch-Shanghai	17.07	1.79	0.40	0.00	4
05120107020070	Wildcat Creek-Petes Run	16.04	1.31	0.80	0.00	4
05120107020080	Wildcat Creek-Hurricane Creek	18.40	2.68	0.52	0.00	4
05120107020090	Wildcat Creek-Cutler to Owasco	20.76	2.10	0.16	0.00	4
05120107020100	Wildcat Creek-Pyrmont	23.33	2.13	0.37	0.00	4
05120107030010	Middle Fork Wildcat Creek-Harness Ditch	23.20	0.49	0.01	0.00	4
05120107030020	Middle Fork Wildcat Creek-Robertson Branch	18.74	0.56	0.05	0.00	4
05120107030030	Middle Fork Wildcat Creek-Rossville	16.78	1.21	1.12	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120107030040	Campbells Run-Headwaters (us Rossville)	18.31	0.83	0.23	0.00	4
05120107030050	Campbells Run-Cripe Run	13.28	0.85	1.46	0.00	4
05120107030060	Middle Fork Wildcat Creek-Hog Run	20.11	1.16	0.54	0.00	4
05120107030070	Middle Fork Wildcat Creek-Pettit	10.57	1.76	0.05	0.00	4
05120107040010	South Fork Wildcat Creek-Talbert Ditch	20.45	0.54	0.62	0.00	4
05120107040020	South Fork Wildcat Creek-Michigantown	21.56	1.25	0.74	0.00	4
05120107040030	Prairie Creek (Clinton)	26.80	0.51	8.62	0.00	4
05120107040040	South Fork Wildcat Creek-Blinn Ditch	13.06	2.33	9.26	0.00	4
05120107040050	Kilmore Creek-Shanty Creek	16.46	1.09	0.03	0.00	4
05120107040060	Swamp Creek	17.28	0.97	1.08	0.00	4
05120107040070	Kilmore Creek-Stump Ditch	16.54	0.42	0.62	0.00	4
05120107040080	Kilmore Creek-SR 29 to Kilmore	12.23	2.33	0.01	0.00	4
05120107040090	Kilmore Creek-Boyles Ditch	14.97	1.50	0.04	0.00	4
05120107040100	South Fork Wildcat Creek-Spring Creek-Lick Run	16.93	0.90	1.94	0.00	4
05120107040110	South Fork Wildcat Creek-Mulberry	20.81	1.85	0.98	0.00	4
05120107040120	Lauramie Creek	23.53	1.47	1.97	0.00	4
05120107040130	South Fork Wildcat Creek-Dayton	22.33	2.35	2.74	0.00	4
05120107040140	South Fork Wildcat Creek-Cary Camp	7.06	1.46	3.36	0.00	4
05120107050010	Wildcat Creek-Dry Run	14.02	3.64	15.28	0.00	4
05120108010010	Burnett Creek-Headwaters	26.18	1.69	2.98	0.00	1
05120108010020	North Fork Burnett Creek-Brown Ditch	18.10	2.31	1.36	0.00	1
05120108010030	Burnett Creek-Wabash R Bottoms	10.25	5.59	3.04	0.00	1
05120108010040	Wabash River-Lafayette	22.00	11.16	47.04	0.00	1
05120108020010	Lofland Ditch-Phillip Dewey/Stoddard Ditches	22.77	0.45	0.89	0.00	1
05120108020020	Romney Fraley Ditch	13.71	0.33	0.01	0.00	1
05120108020030	Wea Creek-Haywood/Kellerman Leaming Dt	17.62	1.55	0.31	0.00	1
05120108020040	East Branch Wea Creek-Headwaters	17.14	0.57	0.03	0.00	1
05120108020050	East Branch Wea Creek-Platt Ditch	11.51	0.81	0.16	0.00	1
05120108020060	Wea Creek-Kenny Ditch	23.72	3.03	1.39	0.00	1
05120108020070	Elliot Ditch	18.55	1.40	21.62	0.00	1
05120108020080	Little Wea Creek	33.39	1.85	0.22	0.00	1
05120108020090	Wea Creek-Outlet	4.70	13.26	5.26	0.00	1
05120108030010	Wabash River-Jordan Creek	15.66	8.38	3.95	0.00	1
05120108030020	Indian Creek (Tippecanoe)	29.62	4.90	4.28	0.00	1
05120108030030	Wabash River-Lost Creek	26.30	6.36	0.01	0.00	1
05120108030040	Flint Creek-Flint Run	21.81	2.11	0.03	0.00	1
05120108030050	Wabash River-Flint Creek/Grindstone Creek	23.81	5.25	0.29	0.00	1
05120108030060	Little Pine Creek-McFarland/Otterbein Ditches	20.59	0.83	1.17	0.00	1
05120108030070	Little Pine Creek-Armstrong Creek	20.94	3.73	0.02	0.00	1

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120108030080	Little Pine Creek-Peterson Ditch	10.48	4.24	0.16	0.00	1
05120108030090	Wabash River-Independence	28.54	7.22	0.18	0.00	1
05120108030100	Kickapoo Creek-Headwaters	23.82	0.77	0.01	0.00	1
05120108030110	Kickapoo Creek-West Fork	17.35	3.40	1.97	0.00	1
05120108040010	Big Pine Creek-Roudebush Ditch	17.58	0.26	0.31	0.00	1
05120108040020	Big Pine Creek-Miller Ditch	15.47	0.45	0.00	0.00	1
05120108040030	Big Pine Creek Ditch	15.30	0.21	0.02	0.00	1
05120108040040	Big Pine Creek-Owens Ditch	14.23	0.40	0.00	0.00	1
05120108040050	Big Pine Creek-Greenwood Ditch	13.76	0.55	0.00	0.00	1
05120108040060	Little Pine Creek	15.71	0.23	0.00	0.00	1
05120108040070	Big Pine Creek-Brumm Ditch	17.21	0.71	0.25	0.00	1
05120108040080	Big Pine Creek-Darby Ditch	18.39	2.33	0.10	0.00	1
05120108040090	Harrington Creek	20.08	0.84	0.05	0.00	1
05120108040100	Brown Ditch (Oxford)	18.51	0.39	1.86	0.00	1
05120108040110	Big Pine Creek-Pine Village	20.20	5.73	0.32	0.00	1
05120108040120	Big Pine Creek-North Trib (Rainsville)	7.38	1.64	0.06	0.00	1
05120108050010	Mud Pine Creek-Headwaters	18.75	0.15	2.24	0.00	1
05120108050020	Mud Pine Creek-Seamons Ditch	22.54	0.23	0.59	0.00	1
05120108050030	Mud Pine Creek-Goose Creek	26.32	0.85	1.26	0.00	1
05120108050040	Mud Pine Creek-Brisco	29.01	1.75	0.37	0.00	1
05120108060010	Big Pine Creek-Carbondale	13.24	4.26	0.16	0.00	1
05120108060020	Fall Creek (Warren)	12.47	1.95	0.38	0.00	1
05120108060030	Big Pine Creek-Kramer	11.25	8.40	0.21	0.00	1
05120108070010	Wabash River-Fall Branch	23.15	6.38	4.86	0.00	1
05120108070020	Shawnee Creek-Headwaters (Fountain)	37.15	0.97	0.00	0.00	1
05120108070030	Shawnee Creek-Kell Dt/Little Shawnee Creek	27.15	3.06	0.29	0.00	1
05120108080010	Wabash River-Rock Creek	23.15	7.05	1.25	0.00	1
05120108080020	Wabash River-Bear Creek	18.45	7.85	0.22	0.00	1
05120108080030	Redwood Creek-Foster Branch	20.27	0.48	0.64	0.00	1
05120108080040	Wabash River-Raccoon Creek (lower)	19.83	10.28	0.52	0.00	1
05120108080050	Opossum Run	21.71	5.73	0.49	0.00	1
05120108080060	Wabash River-Mud Run/Mallory Branch	17.92	6.35	2.27	0.00	1
05120108090010	Wabash River-South Covington	13.60	13.48	3.26	0.00	1
05120108090020	Spring Creek (Vermillion)	30.48	3.93	0.44	0.00	1
05120108090030	Jordan Creek (Vermillion)	18.60	1.72	0.79	0.00	1
05120108090040	Wabash River-Perrysville/Collett Pond	17.33	15.86	0.60	0.00	1
05120108100010	North Fork Coal Creek-Joseph Ludlow Ditch	20.54	1.05	0.20	0.00	1
05120108100020	North Fork Coal Creek-Lower	22.97	1.28	0.43	0.00	1
05120108100030	Turkey Run-Mellott	18.39	1.08	0.62	0.00	1
05120108100040	Coal Creek-Stonebluff	20.11	4.24	0.73	0.00	1

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120108100050	Coal Creek-Dry Run	24.06	3.71	2.30	0.00	1
05120108100060	East Fork Coal Creek-Headwaters	18.44	1.64	1.38	0.00	1
05120108100070	East Fork Coal Creek-East Hillsboro	24.20	2.31	0.52	0.00	1
05120108100080	East Fork Coal Creek-West Hillsboro	21.93	3.44	0.63	0.00	1
05120108110010	Coal Creek-Cooper Chapel	15.37	8.25	0.25	0.00	1
05120108110020	Graham Creek-Mud Creek	24.72	3.05	0.14	0.00	1
05120108110030	Prairie Creek (Fountain)	24.70	3.85	0.01	0.00	1
05120108110040	Coal Creek-Coal Creek(town)/Lodi	29.31	6.84	0.17	0.00	1
05120108120010	Mill Creek-Lake Dam (Fountain)	11.61	5.01	0.12	0.00	1
05120108120020	Mill Creek-Kingman Tributary	20.08	4.02	0.44	0.00	1
05120108140010	Wabash River-Dry Branch	16.16	11.87	2.11	0.00	1
05120108140030	Little Vermillion River-Yankee Branch (ILL)	0.34	2.41	0.00	0.00	1
05120108140040	Little Vermillion River-Horseshoe Bend	8.96	7.68	0.00	0.00	1
05120108140050	Johnathan Creek	10.82	2.68	0.00	0.00	1
05120108140060	Little Vermillion River-Newport-Wabash Bottoms	27.46	8.08	1.38	0.00	1
05120108150010	Wabash River-Montezuma	16.20	8.09	2.00	0.00	1
05120108150020	Wabash River-Little Raccoon Creek	21.49	4.41	2.75	0.00	1
05120108160010	Big Raccoon Creek-Headwaters	27.37	0.52	0.62	0.00	4
05120108160020	Big Raccoon Creek-New Ross	18.96	0.10	0.89	0.00	4
05120108160030	Big Raccoon Creek-Little Raccoon Creek	15.27	0.82	2.63	0.00	4
05120108160040	Haw Creek-Lick Creek-Muddy Run	27.89	0.18	0.24	0.00	4
05120108160050	Cornstalk Creek	20.18	0.25	0.03	0.00	4
05120108160060	Big Raccoon Creek-Cline Creek	16.43	0.36	1.58	0.00	4
05120108160070	Big Raccoon Creek-Gage Station	14.56	0.69	0.01	0.00	4
05120108160080	North Ramp Creek	17.77	0.19	0.05	0.00	4
05120108160090	Ramp Creek-South Ramp Creek	15.23	0.39	0.00	0.00	4
05120108160100	Big Raccoon Creek-Byrd Branch	18.56	0.50	0.07	0.00	4
05120108160110	Big Raccoon Creek-Mansfield Reservoir	23.00	11.59	0.49	0.00	4
05120108170010	Big Raccoon Creek-Ferndale	9.11	4.02	0.02	0.00	1
05120108170020	Rocky Fork Creek-Little Rocky Fork Creek	22.36	0.58	0.03	0.00	1
05120108170030	Big Raccoon Creek-Strangers Creek	20.53	4.82	0.06	0.00	1
05120108170040	Big Raccoon Creek-Cox Ditch #1	24.18	5.54	0.70	0.00	1
05120108180010	Little Raccoon Creek-Demeree Creek	23.16	3.15	0.86	0.00	4
05120108180020	Little Raccoon Creek-Moore Lake/Guion	12.38	3.79	0.14	0.00	4
05120108180030	South Fork Little Raccoon Creek	28.75	2.13	0.64	0.00	4
05120108180040	Little Raccoon Creek-Judson/SE Trib	22.00	3.85	0.33	0.00	1
05120108180050	Little Raccoon Creek-Sand Cr/Leatherwood Br	18.36	4.28	0.25	0.00	1
05120108180060	Williams Creek-Molasses Creek	15.38	3.85	4.52	0.00	1
05120108180070	Little Raccoon Creek-Sunderland Branch	20.50	5.85	0.05	0.00	1
05120108180080	Little Raccoon Creek-Weisner Creek	13.22	3.01	0.06	0.00	1

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120108190010	Big Raccoon Creek-Rock Run	18.17	5.68	1.46	0.00	1
05120108190020	Big Raccoon Creek-Mecca	17.17	7.49	0.41	0.00	1
05120108190030	Leatherwood Creek-Cat Creek	16.43	2.22	1.33	0.00	1
05120108190040	Leatherwood Creek-Rocky Run	15.66	5.29	0.02	0.00	1
05120108190050	Big Raccoon Creek-Wabash Bottoms	6.45	5.54	0.02	0.00	1
05120108200010	Wabash River-Summit Grove	10.30	12.47	1.67	0.00	1
05120108200020	Norton Creek	25.66	2.56	0.30	0.00	1
05120108200030	Wabash River-Feather Creek	8.48	3.58	9.70	0.00	1
05120108200040	Wabash River-Lyford Dike & Levee/Asso Ditch	13.27	11.76	8.16	0.00	1
05120109080010	Jordan Creek-Leak Ditch	21.81	0.11	0.04	0.00	1
05120109080020	Jordan Creek-Little Creek	21.04	0.14	0.11	0.00	1
05120109080030	Jordan Creek-Pence	8.56	0.37	0.26	0.00	1
05120109080040	Jordan Creek-South Trib (ILL)	0.55	0.00	0.06	0.00	1
05120109080050	Middle Branch-North Trib (Heaton	7.21	0.02	0.00	0.00	1
05120109090010	Leuck Ditch-Headwaters	12.86	0.12	0.55	0.00	1
05120109090020	Lueck Ditch-Ambia (state line)	18.13	0.08	0.56	0.00	1
05120109090030	Lueck Ditch-Cheneyville (ILL)	1.11	0.00	3.24	0.00	1
05120109100010	Stony Creek-Headwaters (ILL)	8.67	0.05	0.47	0.00	1
05120109100020	Stony Creek-Iliana	3.31	0.04	4.00	0.00	1
05120109100050	Vermillion River-White Branch	1.95	6.23	0.02	0.00	1
05120109100060	Coal Branch (Vermillion)	10.27	2.73	0.17	0.00	1
05120109100070	Vermillion River-Whipperwill Branch	20.28	6.72	1.35	0.00	1
05120110010010	Sugar Creek-Mallott Ditch	15.70	0.63	0.02	0.00	4
05120110010020	Stowers Ditch-Stoker Ditch	14.67	0.59	0.12	0.00	4
05120110010030	Sugar Creek-Gangwer/McClamrock Ditches	18.00	0.63	1.20	0.00	4
05120110010040	Scott Wincoup Ditch	14.63	0.67	0.22	0.00	4
05120110010050	Mud Creek-Headwaters (Boone)	15.46	0.71	0.17	0.00	4
05120110010060	Sugar Creek-Mud Creek(lower)	13.04	0.88	0.01	0.00	4
05120110010070	Sugar Creek-Davis/Barnes Ditch	12.12	1.39	0.07	0.00	4
05120110010080	Browns Wonder Creek-Ross Ditch	15.53	0.43	0.01	0.00	4
05120110010090	Sugar Creek-Browns Wonder Creek(lower)	13.94	1.59	0.07	0.00	4
05120110010100	Reagan Run	16.91	0.43	0.00	0.00	4
05120110010110	Sugar Creek-Spring Creek	22.46	2.09	0.80	0.00	4
05120110010120	Sugar Creek-Brush Creek	16.19	1.27	0.36	0.00	4
05120110020010	Prairie Creek-Sanitary Ditch	22.17	0.95	10.53	0.00	4
05120110020020	Prairie Creek-Northfield Village trib	14.41	1.03	8.40	0.00	4
05120110020030	Prairie Creek-Deer Creek	12.73	0.81	0.74	0.00	4
05120110020040	Wolf Creek-Dixon Creek	25.36	0.68	0.07	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120110020050	Sugar Creek-Goldsberry Creek	17.65	2.04	2.19	0.00	4
05120110020060	Sugar Creek-Withe Creek	17.01	1.89	1.56	0.00	4
05120110020070	Sugar Creek-Hazel Creek	25.25	0.97	0.91	0.00	4
05120110030010	Little Potato Creek-Headwaters	18.20	0.47	0.45	0.00	4
05120110030020	Little Potato Creek-Lower (Colfax)	15.91	1.37	0.32	0.00	4
05120110030030	Bowers Creek	18.60	0.61	0.03	0.00	4
05120110030040	Lye Creek Drain	17.00	0.20	0.00	0.00	4
05120110030050	Lye Creek	9.23	2.00	0.00	0.00	4
05120110040010	Sugar Creek-Garfield	12.44	1.64	0.27	0.00	4
05120110040020	Little Sugar Creek-Little Creek	25.25	0.66	0.17	0.00	4
05120110040030	Little Sugar Creek-Needham Booher Ditch	20.16	1.32	0.60	0.00	4
05120110040040	Walnut Fork Sugar Creek-Headwaters	14.82	0.40	0.42	0.00	4
05120110040050	Walnut Fork Sugar Creek-Mace	18.75	0.97	1.37	0.00	4
05120110040060	Walnut Fork Sugar Creek-Main Stem	14.13	1.04	0.92	0.00	4
05120110050010	Sugar Creek-Dry Branch	14.57	1.04	26.01	0.00	4
05120110050020	Black Creek-Headwaters (Montgomery)	17.95	0.29	0.35	0.00	4
05120110050030	Black Creek-Liberty Chapel Trib	16.89	0.75	1.73	0.00	4
05120110050040	Sugar Creek-Mill Creek	22.54	1.19	0.74	0.00	4
05120110050050	Offield Creek	19.21	0.21	0.13	0.00	4
05120110050060	Sugar Creek-Rattlesnake Creek	14.41	0.64	2.55	0.00	4
05120110050070	Sugar Creek-Karnes Creek	20.36	3.20	0.52	0.00	4
05120110050080	Indian Creek (Montgomery)	25.25	0.58	0.00	0.00	4
05120110050090	Sugar Creek-Welchel Branch	14.92	4.94	0.02	0.00	4
05120110050100	Sugar Creek-Keller Branch	16.44	5.77	0.20	0.00	4
05120110060010	Sugar Mill Creek-Headwaters	14.74	1.83	0.04	0.00	4
05120110060020	Sugar Mill Creek-North Trib (Wooly Corner)	7.65	2.44	0.04	0.00	4
05120110060030	Stillwater Creek	12.32	2.31	0.15	0.00	4
05120110060040	Sugar Mill Creek-Wolf/Buffalo Creeks	19.52	2.89	0.13	0.00	4
05120110060050	Sugar Mill Creek-Panther Creek	10.53	6.35	0.05	0.00	4
05120110060060	Sugar Mill Creek-Green Creek	11.25	3.87	0.01	0.00	4
05120110060070	Sugar Creek-Roaring Creek	12.47	4.35	0.91	0.00	4
05120110060080	Rush Creek-East/West Forks	16.26	3.29	0.64	0.00	4
05120110060090	Sugar Creek-Main Stem	14.84	9.76	0.01	0.00	4
05120111010110	Salt Fork Crabapple Cr-Lick Run	2.72	0.00	0.03	0.00	1
05120111010120	Crabapple Creek-Goose Creek	8.70	0.16	2.36	0.00	1
05120111020010	Brouilletts Creek-Little Creek	8.88	0.50	1.47	0.00	1
05120111020020	Brouilletts Creek-Blandford	12.60	5.67	0.98	0.00	1
05120111020030	Coal Creek (Vermillion)	4.97	7.13	0.84	0.00	1
05120111020040	Brouilletts Creek-Centenary/North Trib	10.99	6.56	0.60	0.00	1

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120111020050	Brouilletts Creek-Gin Creek/N. Salt Creek	19.96	8.42	2.08	0.00	1
05120111030010	Spring Creek (Parke)	15.89	3.99	0.42	0.00	1
05120111030020	Otter Creek-Headwaters (Clay)	15.75	1.53	3.00	0.00	1
05120111030030	Otter Creek-Waterworks Creek	14.79	4.65	5.58	0.00	1
05120111030040	North Branch Otter CreekHeadwaters	22.60	3.53	0.35	0.00	1
05120111030050	North Branch Otter Creek-Little Creek	16.63	6.44	0.83	0.00	1
05120111030060	Sulphur Creek-South Trib (Stauton)	23.08	4.49	3.51	0.00	1
05120111030070	Gundy Ditch	18.28	1.43	1.28	0.00	1
05120111030080	Wabash River-Otter Creek-Main Stem	15.76	13.30	10.65	0.00	1
05120111040010	Coal Creek-North Coal Creek	14.80	1.61	0.50	0.00	1
05120111040020	Wabash River-Coal Creek-Outlet	11.61	13.26	3.84	0.00	1
05120111040030	Lost Creek-South Fork	14.17	5.92	8.25	0.00	1
05120111040040	Lost Creek-North Tributary	11.98	7.67	28.93	0.00	1
05120111040050	Wabash River-above Gage (Terre Haute)	9.21	33.29	11.92	0.00	1
05120111050030	Sugar Creek-Indian Creek(ILL)	2.37	5.22	0.94	0.00	1
05120111050040	Sugar Creek-West Little Sugar Creek	7.43	5.81	3.46	0.00	1
05120111050050	Sugar Creek-Little Sugar Creek	18.40	8.86	6.57	0.00	1
05120111050060	Wabash River-Terre Haute Area	11.95	17.28	61.47	0.00	1
05120111060010	Honey Creek-Headwaters	18.86	8.35	1.63	0.00	1
05120111060020	Honey Creek-Stone Quarry Branch	18.47	5.35	1.82	0.00	1
05120111060030	Little Honey Creek	7.36	2.84	2.77	0.00	1
05120111060040	Honey Creek-Paint Mill Lake Tributary	17.04	7.55	2.27	0.00	1
05120111060050	Honey Creek-Allendale	10.32	4.14	11.39	0.00	1
05120111060060	Thompson Ditch (Vigo)	13.77	2.60	30.19	0.00	1
05120111060070	Honey Creek-Wabash River Bottoms	6.96	6.02	2.58	0.00	1
05120111070030	Clear Creek-Lower (Vigo)	9.72	15.29	2.62	0.00	1
05120111070040	Wabash River-Hawks Creek	8.26	14.42	1.69	0.00	1
05120111070050	Crooked Creek (Vigo)	0.02	58.45	0.00	0.00	1
05120111070060	Wabash River-Ashmore Creek	1.10	51.25	0.02	0.00	1
05120111090010	Sugar Creek	0.21	54.92	0.00	0.00	1
05120111090040	Wabash River-Oxendine Bayou	8.89	23.68	0.01	0.00	1
05120111100010	Hayworth Slough	15.17	5.90	1.39	0.00	1
05120111100020	Prairie Creek-Headwaters (Vigo)	22.32	2.73	0.60	0.00	1
05120111100030	Prairie Creek-Negro Ditch	21.69	7.38	0.23	0.00	1
05120111100040	Prairie Creek-Lower (Vigo)	13.96	20.99	0.72	0.00	1
05120111100050	Wabash River-Riverview	7.86	16.32	0.39	0.00	1
05120111120040	Wabash River-Kelly Bayou	8.77	20.17	0.01	0.00	1
05120111130010	Turman Creek-Thunderbird Lake	24.50	2.23	1.66	0.00	1
05120111130020	Turman Creek-Hauger Creek	10.98	4.01	0.08	0.00	1
05120111130030	Turman Creek-West Fork	18.59	3.72	0.15	0.00	1

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120111130040	Sugar Creek (Sullivan)	14.00	2.06	0.08	0.00	1
05120111130050	Turman Creek-Dodds Bridge	22.91	5.52	0.05	0.00	1
05120111150010	Wabash River-Clear Pond Outlet	9.00	25.89	0.01	0.00	1
05120111150020	Turtle Creek-Turtle Creek Lake	28.28	9.69	1.36	0.00	1
05120111150030	Wabash River-Turtle-Little Turtle Creeks	11.58	12.07	0.06	0.00	1
05120111150040	Wabash River-Buzzard Pond	10.49	11.33	0.12	0.00	1
05120111150050	Rogers Ditch	18.73	2.46	0.05	0.00	1
05120111160010	Busseron Creek-Chowning Creek	17.50	3.12	0.28	0.00	1
05120111160020	East Fork Busseron Creek-Hooker/Boston Cks	12.64	3.84	0.22	0.00	1
05120111160030	Busseron Creek-West Fork Busseron Creek	18.27	8.39	1.88	0.00	1
05120111160040	Busseron Creek-West Trib/Sulphur Creek	19.27	14.49	1.19	0.00	1
05120111160050	Big Branch-Headwaters	18.10	8.74	3.04	0.00	1
05120111160060	Big Branch-Mud Creek	16.92	11.12	1.52	0.00	1
05120111160070	Busseron Creek-Kettle Creek	20.08	18.37	2.27	0.00	1
05120111160080	Busseron Creek-Morrison Creek	16.69	16.89	3.89	0.00	1
05120111160090	Buttermilk Creek	20.85	8.98	1.73	0.00	1
05120111160100	Busseron Creek-Buck/Robbins Creeks	20.24	3.66	7.13	0.00	1
05120111160110	Busseron Creek-Paxton/New Lebanon	20.04	5.04	0.52	0.00	1
05120111160120	Middle Fork Creek (Sullivan)	24.68	1.18	0.29	0.00	1
05120111160130	Busseron Creek-Tanyard Branch	11.01	8.83	2.63	0.00	1
05120111170010	Wabash River-No Business Creek	0.42	52.12	1.06	0.00	1
05120111170020	Wabash River-Sugar Creek-Sweet Creek	1.51	59.47	0.15	0.00	1
05120111170030	Wabash River-Horseshoe Cutoff Trib	0.02	77.56	0.00	0.00	1
05120111180010	Wabash River-Old Busseron Creek	18.44	17.73	0.75	0.00	1
05120111180020	Lower Shaker Prairie Ditch	23.72	1.71	1.07	0.00	1
05120111190010	Maria Creek-Headwaters	27.30	1.09	0.38	0.00	1
05120111190020	Maria Creek-Tilley Creek	22.14	1.68	0.34	0.00	1
05120111190030	Marsh Creek	23.95	0.68	0.62	0.00	1
05120111190040	Maria Creek-Lower/Wabash River Bottoms	23.77	8.80	0.49	0.00	1
05120111200010	Wabash River-Smalls Creek	21.19	7.22	1.42	0.00	1
05120111200020	Kelso Creek-Snapp Creek	23.78	2.20	5.43	0.00	1
05120111200030	Wabash River-Vincennes/Allison Dt #3 (ILL)	6.18	9.38	13.47	0.00	1
05120113010010	Wabash River-England Ditch (ILL)	1.81	44.68	0.12	0.00	1
05120113010050	Wabash River-Big Slough (ILL)	1.05	53.74	0.36	0.00	1
05120113010060	Wabash River-Tributary in ILL	0.72	51.59	0.34	0.00	1
05120113020010	City Ditch (Vincennes)	10.36	4.37	9.92	0.00	1
05120113020020	Swan Pond Ditch	29.24	2.23	8.12	0.00	1
05120113020030	River DeShee-Vieke Drainage System Ditch	26.62	1.24	0.38	0.00	1
05120113030010	Wabash River-Catfish Bend	5.86	16.50	0.06	0.00	1

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120113030030	Wabash River-Grand Rapids	2.14	16.36	0.00	0.00	1
05120113040010	Wabash River-Greathouse Creek (ILL)	1.24	67.71	0.23	0.00	1
05120113050010	Brown Ditch-Skelton Creek	21.58	0.40	0.70	0.00	1
05120113050020	Coffee Bayou-McCarty/Stormont Ditches	34.58	30.51	5.12	0.00	1
05120113050030	Loefler Ditch	11.19	0.29	0.99	0.00	1
05120113050040	Scott Ditch-Wabash River Bottoms	24.29	9.42	0.11	0.00	1
05120113060010	Wabash River-Goose Pond Ditch	10.77	36.00	0.23	0.00	1
05120113080010	Wabash River-French Creek (ILL)	3.04	49.49	0.57	0.00	1
05120113080020	Big Bayou	22.70	21.93	0.55	0.00	1
05120113090010	Black River-Headwaters	14.72	0.23	1.09	0.00	1
05120113090020	Black River-Poseyville	19.67	0.67	2.47	0.00	1
05120113090030	Higginbotham Ditch-Barren Creek	19.82	0.95	0.60	0.00	1
05120113090040	Higginbotham Ditch-Blood Ditch	11.86	1.94	0.06	0.00	1
05120113090050	Black River-Bethel Oil Field	8.27	5.52	0.00	0.00	1
05120113090060	SE Tributary Black River	9.93	0.72	1.15	0.00	1
05120113090070	Black River-Griffin	7.13	9.37	1.09	0.00	1
05120113100010	Wabash River-Harmony Creek	20.97	3.17	0.85	0.00	1
05120113100020	Fox River	0.92	25.43	0.04	0.00	1
05120113100030	Wabash River-Rush Creek	18.40	11.75	0.92	0.00	1
05120113100040	Wabash River-Browns Pond Ditch (ILL)	8.40	28.90	0.19	0.00	1
05120113100050	Wabash River-Wabash Levee Ditch (ILL)	0.25	76.75	0.00	0.00	1
05120113110010	Pond Flat Ditch-Headwaters	19.57	1.13	1.31	0.00	1
05120113110020	Buente Creek-Maidlow Ditch	12.78	0.91	1.28	0.00	1
05120113110030	Pond Flat Ditch-Jordan Creek	15.80	1.91	0.84	0.00	1
05120113110040	Big Creek-Neuman Lateral	15.35	1.89	1.21	0.00	1
05120113110050	Barr Creek	14.06	1.46	1.19	0.00	1
05120113110060	Caney Creek (Posey)	13.41	0.33	1.20	0.00	1
05120113110070	Big Creek-Blairsville (gage)	12.97	1.87	0.93	0.00	1
05120113110080	Big Creek-Lick Creek	24.28	3.12	0.81	0.00	1
05120113110090	Little Creek-Headwaters (Vanderburgh)	19.73	1.77	4.89	0.00	1
05120113110100	Little Creek-Wolf Creek	10.62	1.65	8.67	0.00	1
05120113110110	Neu Creek	15.70	2.13	2.11	0.00	1
05120113110120	Little Creek-Lower	16.46	3.24	0.23	0.00	1
05120113110130	Big Creek-McAdoo Creek	18.30	0.95	0.13	0.00	1
05120113110140	Big Creek-above Solitude	14.44	3.76	0.30	0.00	1
05120113110150	Big Creek-Indian Creek	19.82	2.31	1.16	0.00	1
05120113110160	Big Creek-Alexander Creek	12.70	6.04	0.29	0.00	1
05120113120010	Wabash River-Pitcher Ditch	18.51	16.83	0.30	0.00	1
05120113120020	Wabash River-Greathouse Island	15.06	24.78	0.04	0.00	1
05120113130010	Wabash River-Levy Slough	17.96	12.42	0.05	0.00	1

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120113130020	Wabash River-Running/Yellowbank Sloughs	9.24	30.44	0.01	0.00	1
05120201010010	White River-Owl Creek	20.99	1.08	0.01	0.00	4
05120201010020	White River-Peach Creek	14.53	2.25	3.54	0.00	4
05120201010030	White River-Salt/Sugar Creeks	15.13	0.87	7.19	0.00	4
05120201010040	White River-Eightmile Creek	20.48	1.04	0.08	0.00	4
05120201010050	White River-Sparrow Creek	17.73	1.48	2.01	0.00	4
05120201010060	Cabin Creek-Lamb Ditch	25.87	1.77	0.05	0.00	4
05120201010070	Stoney Creek-Little Stoney Creek	24.93	0.57	0.13	0.00	4
05120201010080	Little White River	22.80	1.04	0.05	0.00	4
05120201010090	White River-Stoney Creek	10.12	2.54	0.10	0.00	4
05120201010100	White River-Mud Creek	19.00	1.50	4.50	0.00	4
05120201010110	Prairie Creek-Cunningham/Carmichael Ditches	16.93	11.93	0.13	0.00	4
05120201010120	White River-Truitt Ditch	18.40	1.09	7.65	0.00	4
05120201010130	White River-Muncie Creek	13.41	1.51	22.61	0.00	4
05120201020010	Buck Creek-Little Buck Creek	23.85	0.33	1.13	0.00	4
05120201020020	Buck Creek-Macedonia Creek	25.13	0.88	16.85	0.00	4
05120201020030	Bell Creek-Bethel Brook	17.70	0.67	0.86	0.00	4
05120201020040	Bell Creek-Williams Ditch	15.29	0.77	0.38	0.00	4
05120201020050	Bell Creek-No Name Creek	11.60	0.96	2.71	0.00	4
05120201020060	White River-Buck Creek (lower)	13.71	1.87	37.16	0.00	4
05120201030010	White River-York Prairie Creek	18.72	1.45	25.07	0.00	4
05120201030020	White River-Shoemaker Ditch (Delaware)	21.75	1.78	5.57	0.00	4
05120201030030	White River-Turkey Creek	18.40	2.12	23.33	0.00	4
05120201040010	Killbuck Creek-Mud Creek	15.66	0.87	7.49	0.00	4
05120201040020	Killbuck Creek-Thruston Ditch	13.04	1.16	0.32	0.00	4
05120201040030	Jakes Creek-Eagle Branch	18.13	0.96	19.55	0.00	4
05120201040040	Killbuck Creek-Pleasant Run Creek	11.14	0.73	1.75	0.00	4
05120201040050	Killbuck Creek-Moon/Pond Branches	15.98	2.08	3.57	0.00	4
05120201040060	Little Killbuck Creek-Nelson Brook	23.37	1.42	3.75	0.00	4
05120201040070	Killbuck Creek-Shady Run	6.24	2.82	39.95	0.00	4
05120201040080	White River-Edgewood	13.68	2.15	47.05	0.00	4
05120201040090	Indian Creek (Madison)	18.79	1.13	1.42	0.00	4
05120201040100	White River-Perkinsville	8.61	5.25	0.25	0.00	4
05120201050010	Pipe Creek-Yeager Finley Menard Ditch	18.22	1.93	1.76	0.00	4
05120201050020	Pipe Creek-Richards Ditch/Stem Run	15.92	1.45	0.13	0.00	4
05120201050030	Pipe Creek-Polecat Creek	15.00	2.07	5.80	0.00	4
05120201050040	Pipe Creek-Alexandria Creek	10.29	1.55	10.87	0.00	4
05120201050050	Mud Creek (Madison)	21.60	3.29	3.76	0.00	4
05120201050060	Pipe Creek-Lilly Creek	15.22	1.37	1.35	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120201050070	Pipe Creek-Plummer Brook	16.61	1.67	0.77	0.00	4
05120201050080	Pipe Creek-Swanfelt Ditch	17.59	0.82	4.78	0.00	4
05120201050090	Pipe Creek-Kirkthawenund Camp	22.52	1.65	0.17	0.00	4
05120201060010	Duck Creek-Todd Ditch	17.57	0.64	0.01	0.00	4
05120201060020	Duck Creek-Little Duck Creek	20.19	1.55	15.53	0.00	4
05120201060030	Duck Creek-Polywog Creek	22.48	0.85	0.51	0.00	4
05120201060040	Duck Creek-Lamberson Ditch	16.13	1.44	0.62	0.00	4
05120201060050	Bear Creek-West Fork Bear Creek	17.22	0.86	0.07	0.00	4
05120201060060	Duck Creek-Long Branch	11.29	2.10	0.20	0.00	4
05120201070010	White River-Dyers Creek	12.97	2.57	0.26	0.00	4
05120201070020	White River-Sugar Run	12.51	3.09	2.08	0.00	4
05120201070030	White River-Mallory Granger Ditch	19.55	2.72	7.37	0.00	4
05120201070040	Stony Creek-Headwaters	15.48	1.39	2.20	0.00	4
05120201070050	Stony Creek-William Lock Dtich	16.80	0.73	2.04	0.00	4
05120201070060	Stony Creek-William Lehr Ditch	13.75	0.72	0.39	0.00	4
05120201070070	Stony Creek-North Trib (Noblesville)	11.03	1.33	13.04	0.00	4
05120201080010	Cox Ditch-Christy/Kigin Ditches	20.57	1.25	0.00	0.00	4
05120201080020	Prairie Creek-Rearce/McKinzie Ditches	23.63	0.65	0.36	0.00	4
05120201080030	Cicero Creek-Dixon Creek-Crum Ditch	17.18	1.37	0.37	0.00	4
05120201080040	Cicero Creek-Buck Creek-Campbell Ditch	18.52	0.99	3.51	0.00	4
05120201080050	Cicero Creek-Tobin Ditch	13.55	1.89	5.86	0.00	4
05120201080060	Cicero Creek-Bacon Prairie Cr/Buscher Dt	19.40	1.52	0.71	0.00	4
05120201080070	Cicero Creek-Weasel Creek	21.40	2.55	3.22	0.00	4
05120201080080	Little Cicero Creek-Teter Branch	20.82	1.48	1.33	0.00	4
05120201080090	Little Cicero Creek-Bennett Dt/Taylor Creek	22.47	1.79	0.01	0.00	4
05120201080100	Hinkle Creek-Jones Ditch	20.10	1.20	0.30	0.00	4
05120201080110	Morse Reservoir-Bear Slide Creek	16.36	15.48	7.39	0.00	4
05120201080120	Cicero Creek-Sly Run	11.29	3.81	3.43	0.00	4
05120201090010	White River-Shoemaker Ditch (Hamilton)	14.77	3.52	11.06	0.00	4
05120201090020	White River-Vestal Ditch/Michener Ditch	18.19	1.39	11.04	0.00	4
05120201090030	Cool Creek-Grassy Branch/Little Cool Creek	23.61	0.97	26.44	0.00	4
05120201090040	White River-Carmel Creek	20.72	3.19	39.41	0.00	4
05120201090050	White River-Haverstick Creek/Howland Dt	17.69	5.87	65.73	0.00	4
05120201090060	Williams Creek	22.18	0.54	18.76	0.00	4
05120201090070	Crooked Creek (Marion)	19.77	0.67	53.14	0.00	4
05120201090080	White River-Broadripple	14.91	5.45	58.62	0.00	4
05120201100010	Fall Creek-Honey Creek	16.96	0.68	1.36	0.00	4
05120201100020	Fall Creek-Sugar Creek/Deer Creek	15.61	0.48	1.05	0.00	4
05120201100030	Fall Creek-Mud Creek/Little Creek	12.55	1.05	0.51	0.00	4
05120201100040	Sly Fork-Brandon Ditch	17.71	0.46	3.55	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120201100050	Fall Creek-Sugar Fork	10.96	1.52	5.10	0.00	4
05120201100060	Fall Creek-Spring Branch	13.73	1.02	6.99	0.00	4
05120201100070	Prairie Creek (Madison)	14.93	1.67	26.88	0.00	4
05120201100080	Foster Branch	15.77	0.81	4.19	0.00	4
05120201100090	Fall Creek-Pendleton to Lick Creek	15.95	1.85	6.46	0.00	4
05120201100100	Lick Creek-Headwaters (Markleville)	21.47	0.87	1.44	0.00	4
05120201100110	Lick Creek-Manifold/McFadden Ditches	16.66	1.23	2.40	0.00	4
05120201100120	Fall Creek-Flatfork Creek	11.92	0.48	7.25	0.00	4
05120201100130	Thorpe Creek (Geist Reservoir)	9.57	0.74	1.58	0.00	4
05120201100140	Dry Branch (Geist Reservoir)	7.65	0.15	12.74	0.00	4
05120201100150	Geist Reservoir-Bee Camp	17.37	17.55	10.12	0.00	4
05120201110010	Indian Creek-Steele Ditch	18.29	0.16	21.59	0.00	4
05120201110020	Fall Creek-Indian Lake/Lawrence Creek	14.69	2.08	25.97	0.00	4
05120201110030	Mud Creek-Headwaters	26.10	0.60	0.76	0.00	4
05120201110040	Mud Creek-Sand Creek	16.72	0.98	9.61	0.00	4
05120201110050	Fall Creek-Devon Creek	11.43	3.24	62.69	0.00	4
05120201110060	Fall Creek-Minnie Creek	15.36	2.22	84.02	0.00	4
05120201120010	Eagle Creek-Dixon Branch	16.38	0.71	1.86	0.00	4
05120201120020	Eagle Creek-Kreager Ditch	12.07	1.26	0.16	0.00	4
05120201120030	Eagle Creek-Finley Creek	10.37	1.11	0.51	0.00	4
05120201120040	Mounts Run-Neese Ditch	15.89	0.56	0.09	0.00	4
05120201120050	Eagle Creek-Jackson Run	18.74	0.37	4.46	0.00	4
05120201120060	Little Eagle Branch-Headwaters	15.68	1.02	0.32	0.00	4
05120201120070	Little Eagle Branch-Woodruff Branch	13.56	0.73	1.56	0.00	4
05120201120080	Eagle Creek-Long Branch/Irishman Run	18.72	1.77	11.69	0.00	4
05120201120090	Fishback Creek (Eagle Creek Reservoir)	20.86	0.75	1.21	0.00	4
05120201120100	Eagle Creek Reservoir-School Branch	19.67	10.91	5.36	0.00	4
05120201120110	Eagle Creek-Dam to Little Eagle Creek	15.63	1.99	48.28	0.00	4
05120201120120	Little Eagle Creek-Guion Creek	13.64	0.35	46.01	0.00	4
05120201120130	Little Eagle Creek-Falcon Creek/Dry Run	13.65	0.45	60.54	0.00	4
05120201120140	Eagle Creek-Neeld Ditch/Blue Lake	5.28	0.94	78.81	0.00	4
05120201130010	Pogus Run	8.87	0.77	84.93	0.00	4
05120201130020	White River-Indianapolis	14.32	1.37	92.79	0.00	4
05120201130030	Pleasant Run-Michigan Street Sewer	14.66	0.44	83.58	0.00	4
05120201130040	White River-Pleasant Run-Bean Creek	12.45	3.92	78.01	0.00	4
05120201130050	Lick Creek-Headwaters (Beech Grove)	10.77	0.42	48.65	0.00	4
05120201130060	Lick Creek-Beech Creek	15.25	1.37	60.71	0.00	4
05120201130070	State Ditch	10.72	0.08	67.14	0.00	4
05120201130080	White River-Hide Creek	15.82	5.51	36.91	0.00	4
05120201130090	Little Buck Creek (Southport)	17.28	0.49	44.62	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120201130100	White River-Mann Creek/Harness Ditch	13.56	3.40	19.18	0.00	4
05120201130110	Pleasant Run Creek-Buffalo Creek	23.59	0.43	50.70	0.00	4
05120201140010	Honey Creek-Turkey Pen Creek	18.50	0.34	16.20	0.00	4
05120201140020	Goose Creek-Quack Branch	12.09	0.30	5.66	0.00	4
05120201140030	White River-North Bluff/Bluff Creeks	15.84	4.57	4.91	0.00	4
05120201140040	White River-Sinking Creek	14.02	3.53	5.13	0.00	4
05120201140050	Crooked Creek-Banta Creek	15.90	0.98	1.24	0.00	4
05120201140060	White River-North Trib(Centenary Church)	7.08	2.26	0.92	0.00	4
05120201140070	North Prong Stotts Creek-Headwaters	10.88	0.29	2.03	0.00	4
05120201140080	North Prong Stotts Creek-Henderson Creek	10.92	0.69	0.12	0.00	4
05120201140090	South Prong Stotts Creek-Headwaters	13.65	0.37	1.56	0.00	4
05120201140100	South Prong Stotts Creek-Kasts Creek	9.26	0.45	0.12	0.00	4
05120201140110	South Prong Stotts Creek-Lost Creek	10.73	0.52	0.08	0.00	4
05120201140120	Stotts Creek-Exchange	4.53	0.72	0.01	0.00	4
05120201140130	White River-Henderson Bridge	5.85	5.30	0.79	0.00	4
05120201140140	Clear Creek-East/West/Grassy Forks	22.91	2.46	2.07	0.00	4
05120201150010	White Lick Creek-Wiley Thompson Ditch	20.18	0.33	0.69	0.00	4
05120201150020	White Lick Creek-Beamon Ditch	14.34	0.29	10.86	0.00	4
05120201150030	West Fork White Lick Creek-Hughes Branch	23.44	0.20	2.46	0.00	4
05120201150040	White Lick Creek-Tilden	22.09	0.62	9.17	0.00	4
05120201150050	White Lick Creek-Abner Creek	15.45	0.80	5.47	0.00	4
05120201150060	Clarks Creek	13.98	0.33	15.54	0.00	4
05120201150070	White Lick Creek-Plainfield	14.91	2.73	14.76	0.00	4
05120201150080	West Fork White Lick Creek-Headwaters	15.55	0.49	0.08	0.00	4
05120201150090	West Fork White Lick Creek-Thompson Creek	13.23	0.46	3.69	0.00	4
05120201150100	West Fork White Lick Creek-Cosner Branch	20.50	0.58	4.64	0.00	4
05120201150110	West Fork White Lick Creek-Main Stem	13.96	0.77	1.09	0.00	4
05120201150120	McCracken Creek (White Lick Creek)	20.94	0.49	3.09	0.00	4
05120201150130	White Lick Creek-Mooresville	4.70	3.31	11.34	0.00	4
05120201150140	East Fork White Lick Creek-Headwaters	23.09	0.53	21.87	0.00	4
05120201150150	East Fork White Lick Creek-Sterling Run	14.29	0.58	9.57	0.00	4
05120201150160	East Fork White Lick Creek-Silon Creek	14.36	0.62	12.44	0.00	4
05120201150170	White Lick Creek-Orchard Creek	13.35	1.29	4.00	0.00	4
05120201150180	White Lick Creek-Monical Branch	11.69	1.64	5.39	0.00	4
05120201160010	White River-Centerton	6.98	3.86	2.00	0.00	4
05120201160020	Sycamore Creek	18.69	1.55	3.42	0.00	4
05120201160030	White River-Highland Creek	8.01	0.40	0.31	0.00	4
05120201160040	Lambs Creek-Patton Lake	15.08	1.60	0.62	0.00	4
05120201160050	Lambs Creek-Goose Creek	17.38	0.47	0.10	0.00	4
05120201160060	White River-Martinsville	15.73	5.49	7.87	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120201170010	Indian Creek-Headwaters (Brown)	11.38	4.21	0.71	0.00	4
05120201170020	Indian Creek-Goose/Barnes Creeks	14.75	0.38	0.21	0.00	4
05120201170030	Indian Creek-Bear Creek/Long Run	12.15	2.23	2.07	0.00	4
05120201170040	Indian Creek-Crooked/Oliver Creeks	14.24	0.43	0.01	0.00	4
05120201170050	Indian Creek-Camp Creek	12.90	2.15	1.06	0.00	4
05120201170060	Indian Creek-Robertson Creek	16.07	0.43	0.00	0.00	4
05120201170070	Indian Creek-Sand Creek	12.24	1.55	12.93	0.00	4
05120201180010	Little Indian Creek-Jordan Creek	17.01	0.23	0.42	0.00	4
05120201180020	Burkhart Creek	13.39	0.14	0.41	0.00	4
05120201180030	White River-Paragon Bridge	9.15	5.18	0.30	0.00	4
05120201180040	Bryant Creek (Morgan)	11.35	0.24	0.56	0.00	4
05120201180050	Fall Creek (Morgan)	12.17	0.45	0.81	0.00	4
05120201180060	White River-Pocket Hollow	9.17	2.83	0.67	0.00	4
05120201180070	Butler Creek-Butler Branch	11.63	0.42	0.01	0.00	4
05120201180080	Indian Creek (Owen)	11.92	0.11	0.03	0.00	4
05120201180090	White River-Gosport	7.23	4.04	1.22	0.00	4
05120202010010	Bean Blossom Creek-Headwaters	18.32	1.00	0.39	0.00	2
05120202010020	North Bear Fork	12.96	1.90	0.36	0.00	2
05120202010030	Bean Blossom Creek-Lick/Bear Creeks	21.33	1.31	0.47	0.00	2
05120202010040	Bean Blossom Creek-Lake Lemon	18.35	13.60	0.98	0.00	2
05120202010050	Bean Blossom Creek-Honey Creek	21.97	1.22	0.06	0.00	2
05120202010060	Bean Blossom Creek-Buck Cr/Muddy Fork	18.91	0.56	1.11	0.00	2
05120202010070	Griffy Creek-Griffy Reservoir	14.08	1.61	20.49	0.00	2
05120202010080	Bean Blossom Creek-Stout Creek	24.23	1.16	4.31	0.29	2
05120202010090	Bean Blossom Creek-Indian Creek	18.22	0.39	0.15	0.00	2
05120202010100	Bean Blossom Creek-Jacks Defeat Creek	23.99	0.13	9.92	0.00	2
05120202020010	White River-Big Creek/Limestone Creek	26.03	1.69	0.64	0.00	2
05120202020020	Mill Creek-Little Mill Creek	19.10	0.81	0.11	0.00	2
05120202020030	White River-Fall Creek/McCormicks Creek	22.48	1.22	0.29	1.46	2
05120202020040	White River-Spencer	17.14	2.62	4.47	0.88	2
05120202020050	Rattlesnake Creek	25.12	0.54	0.12	0.00	2
05120202020060	White River-Mills Creek/Goose Creek	20.27	3.39	0.14	0.00	2
05120202020070	Raccoon Creek-Little Raccoon Creek	19.94	0.05	0.11	3.06	2
05120202020080	Raccoon Creek-Lick Creek	26.44	0.28	0.01	1.15	2
05120202020090	White River-Jack Creek	12.95	1.67	0.01	0.00	2
05120202020100	East Fork Fish Creek	16.44	0.58	0.11	0.00	2
05120202020110	West Fork Fish Creek	12.43	0.50	0.03	0.00	2
05120202020120	Fish Creek-Sand Lick Creek	10.29	0.48	0.03	0.00	2
05120202020130	Fish Creek-West Fork	10.20	2.02	0.00	0.00	2

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120202020140	Fish Creek-Mack Creek	11.33	4.04	0.00	0.00	2
05120202020150	White River-Bucknell Creek/Goose Creek	19.42	2.43	0.01	0.00	2
05120202030010	White River-Kelly Branch	13.64	2.81	0.14	0.00	2
05120202030020	Lattas Creek-Headwaters	21.07	2.14	0.61	0.00	2
05120202030030	Lattas Creek-Miller Creek	18.50	0.72	1.11	0.00	2
05120202030040	Lattas Creek-Sloan Ditch	15.72	0.66	3.11	0.00	2
05120202030050	White River-Miller Branch	10.55	7.67	4.20	0.00	2
05120202040010	Richland Creek-Little Richland Creek	25.76	0.06	1.14	5.11	2
05120202040020	Richland Creek-Blakeman Hollow	18.82	0.20	0.13	0.00	2
05120202040030	Richland Creek-Dry Branch	17.04	0.46	0.08	0.00	2
05120202040040	Beech Creek	23.20	0.10	0.20	0.00	2
05120202040050	Richland Creek-Ore Branch	20.74	0.45	2.33	0.00	2
05120202040060	Plummer Creek-Black Ankle Creek	23.48	0.32	0.07	0.00	2
05120202040070	Bridge Creek (American Bottoms)	8.42	0.22	0.00	8.42	2
05120202040080	Clifty Branch	17.46	0.17	0.01	0.00	2
05120202040090	Plummer Creek-Lower	18.35	0.48	0.02	0.00	2
05120202050010	White River-Gilbert Creek	12.76	2.90	0.00	0.00	2
05120202050020	Doans Creek-Headwaters	16.62	0.18	0.10	0.00	2
05120202050030	Doans Creek-Bogard Creek	10.07	0.30	0.00	0.00	2
05120202050040	White River-Newberry	4.50	7.12	0.79	0.00	2
05120202050050	First Creek-Lake Greenwood	14.75	8.69	0.26	0.00	2
05120202050060	First Creek-Culpepper Branch	14.32	0.34	0.71	0.00	2
05120202050070	First Creek-Rocky Branch	22.77	0.76	0.28	0.00	2
05120202050080	Fourmile Creek-Timmons Ditch (Greene)	27.88	0.63	1.31	0.00	2
05120202050090	White River-Weaver/Vertrees Ditches	23.62	2.82	1.15	0.00	2
05120202050100	White River-McGinnis Levee	19.14	4.22	0.25	0.00	2
05120202050110	Smothers Creek-Kane Ditch	13.77	0.13	3.32	0.00	2
05120202050120	Smothers Creek-Cutoff	21.84	0.52	0.15	0.00	2
05120202060010	Black Creek (Ditch)-Headwaters	34.44	4.54	1.60	0.00	2
05120202060020	Black Creek-Brewer Ditch	19.97	3.70	0.37	0.00	2
05120202060030	Buck Creek (Greene)	15.53	1.59	0.39	0.00	2
05120202060040	Beehunter Ditch	19.46	1.25	10.85	0.00	2
05120202060050	Black Creek-Ramsey/Calico Slash Ditches	19.47	0.24	0.33	0.00	2
05120202060060	Singer Ditch(upper)-Hill Ditch	18.96	4.03	2.46	0.00	2
05120202060070	Black Creek-Singer Ditch-White R Oxbows	9.27	4.37	0.12	0.00	2
05120202070010	White River-Pollard Ditch	27.29	1.24	1.13	0.00	2
05120202070020	White River-Smothers Creek (inside Levee)	19.87	3.82	0.88	0.00	2
05120202070030	Pickel Ditch	15.67	2.15	1.43	0.00	2
05120202070040	Indian Creek (Knox)	14.81	1.04	6.59	0.00	1
05120202070050	White River-Bens Creek	16.86	3.92	0.29	0.00	1

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120202080010	North Fork Prairie Creek-Headwaters	19.03	0.68	0.07	0.00	2
05120202080020	North Fork Prairie Creek-Barnes Creek	18.05	1.03	0.06	0.00	2
05120202080030	North Fork Prairie Creek-Bethel Creek	24.56	1.43	0.13	0.00	2
05120202080040	South Fork Prairie Creek-Flat Creek	19.70	1.35	1.12	0.00	2
05120202080050	South Fork Prairie Creek-Dinken Creek	16.58	0.76	0.41	0.00	2
05120202080060	South Fork Prairie Creek-Eagan Ditch	16.70	0.12	0.58	0.00	2
05120202080070	Prairie Creek-Killion Canal	23.79	0.06	0.40	0.00	2
05120202080080	Prairie Creek-Hawes Ditch	13.46	0.13	0.01	0.00	2
05120202090010	White River-Hawkins Creek	22.07	2.53	12.46	0.00	1
05120202090020	Veale Creek Slough	21.83	0.32	3.86	0.00	2
05120202090030	Veale Creek-Lower	16.80	0.45	1.50	0.00	1
05120202090040	Kessinger Ditch-Headwaters	15.78	0.58	0.30	0.00	1
05120202090050	Roberson Ditch-Indian/Flat Creeks	17.67	0.13	0.16	0.00	1
05120202090060	Kessinger Ditch-Opossum/Steen Ditch	24.48	0.32	1.22	0.00	1
05120202090070	White River-Kessinger-Frick Dt/Jackson Pond	21.04	2.58	0.02	0.00	1
05120202100010	Lick Creek (Pike)	6.23	8.63	3.42	0.00	2
05120202100020	Prides Creek	13.54	1.43	6.83	0.00	2
05120202100030	White River-Upper (East Fork to Wilson)	32.72	5.39	0.09	0.00	2
05120202100040	Wilson Creek-McCoy Creek	19.87	1.93	0.29	0.00	1
05120202100050	Conger Creek-Little Conger Creek	21.02	0.86	0.01	0.00	2
05120202100060	Harpin Creek	12.59	2.55	0.26	0.00	1
05120202100070	Upper River DeShee-Headwaters	14.85	0.36	0.69	0.00	1
05120202100080	Upper River DeShee-Williams Ditch	19.87	2.58	0.09	0.00	1
05120202100090	Plass Ditch-Muddy Run	11.54	0.41	0.52	0.00	1
05120202100100	White River-Middle (Wilson to Robb)	25.15	15.34	0.97	0.00	1
05120202100110	Robb Creek	9.73	0.25	0.69	0.00	1
05120202100120	White River-Lower (Robb to Wabash)	43.79	15.71	0.25	0.00	1
05120203010010	West Fork Big Walnut Creek-Headwaters	11.01	0.09	0.00	0.00	4
05120203010020	Main Edlin Ditch-Smith Ditch	14.63	0.08	0.01	0.00	4
05120203010030	Main Edlin Ditch-Grassy Branch	8.84	0.28	0.20	0.00	4
05120203010040	West Fork Big Walnut Creek-Lower	15.77	0.55	2.55	0.00	4
05120203010050	Middle Fork Big Walnut Creek	13.56	0.27	2.12	0.00	4
05120203010060	East Fork Big Walnut Creek-Ross Ditch	14.00	0.32	0.86	0.00	4
05120203010070	East Fork Big Walnut Creek-Lower	13.90	0.71	1.03	0.00	4
05120203010080	Hunt Creek	10.75	0.16	0.00	0.00	4
05120203010090	Ramp Run-East Fork Outlet	12.94	0.17	0.01	0.00	4
05120203020010	Big Walnut Creek-Barnard	15.64	0.38	0.00	0.00	4
05120203020020	Big Walnut Creek-Ernie Pyle Memorial Hwy	13.14	1.16	0.47	0.00	4
05120203020030	Big Walnut Creek-Plum Creek/Bledsoe Branch	18.93	0.26	1.31	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120203020040	Clear Creek-Headwaters (Putnam)	17.38	3.36	0.65	0.00	4
05120203020050	Clear Creek-Miller Creek	13.71	0.20	0.44	0.00	4
05120203020060	Big Walnut Creek-Dry Branch	12.72	0.43	0.66	0.00	4
05120203020070	Big Walnut Creek-Greencastle	22.13	0.93	8.64	0.00	4
05120203030010	Owl Creek	16.13	3.85	0.33	0.00	4
05120203030020	Little Walnut Creek-Headwaters	12.13	0.04	0.05	0.00	4
05120203030030	Jones Creek	13.60	0.67	0.06	0.00	4
05120203030040	Little Walnut Creek-Leatherman Creek	11.40	0.41	0.00	0.00	4
05120203030050	Little Walnut Creek-Long Branch	10.91	0.04	0.12	0.00	4
05120203040010	Big Walnut Creek-Snake Creek/Maiden Run	24.23	0.79	1.16	0.00	4
05120203040020	Big Walnut Creek-Johnson Branch	14.78	1.32	0.60	0.00	4
05120203050010	Deer Creek-Headwaters (Putnam)	16.51	0.29	0.98	0.00	4
05120203050020	Deer Creek-Little Deer Creek	13.74	0.25	0.14	0.00	4
05120203050030	Deer Creek-Owl Branch	15.19	0.40	4.19	0.00	4
05120203050040	Limestone Creek (Putnam)	13.07	0.18	0.21	0.00	4
05120203050050	Deer Creek-Mosquito Creek	12.64	0.85	1.75	0.00	4
05120203050060	Deweese Creek	10.94	1.13	7.35	0.00	4
05120203050070	Deer Creek-Leatherwood Creek	9.17	0.53	1.29	0.00	4
05120203060010	Mill Creek-Headwaters (Hendericks)	12.68	0.23	1.14	0.00	4
05120203060020	Mill Creek-Crittenden Creek	11.58	0.19	0.16	0.00	4
05120203060030	East Fork Mill Creek-Headwaters	12.82	0.12	0.31	0.00	4
05120203060040	East Fork Mill Creek-Lower	11.68	0.09	0.09	0.00	4
05120203060050	Mill Creek /Ditch-Sallust Branch	23.61	0.34	1.42	0.00	4
05120203060060	Mud Creek-Headwaters (Hendricks)	25.61	0.04	1.45	0.00	4
05120203060070	Mud Creek-Lower (Hendericks)	10.83	0.15	1.03	0.00	4
05120203060080	Lake Ditch-Headwaters	15.95	0.09	0.75	0.00	4
05120203060090	Lake Ditch-Snake Creek	24.89	0.53	0.37	0.00	4
05120203060100	Mill Creek-Cotton/Belle Union Branches	20.14	0.18	0.47	0.00	4
05120203060110	Rhodes Creek	20.72	0.71	0.03	0.00	4
05120203060120	MIll Creek-Vermillion/Higgins Branches	18.25	0.41	0.56	0.00	4
05120203060130	Mill Creek-Sand Branch	14.94	0.78	0.03	0.00	4
05120203060140	Brush Creek (Owen)	16.97	0.49	0.21	0.00	4
05120203060150	Mill Creek-upstream Cagles Mill Lake	10.51	3.28	0.19	0.00	4
05120203060160	Doe Creek-Ferguson Branch	22.79	0.52	3.48	0.00	4
05120203060170	Mill Creek-Cagle Mill Lake	20.30	11.06	0.34	0.00	4
05120203070010	Croys Creek-Van Buren Creek	18.58	0.62	0.65	0.00	4
05120203070020	Croys Creek-Billy Creek	20.77	0.61	3.89	0.00	4
05120203070030	Eel River-Slate/Ahlemeyer Branches	14.69	1.52	0.18	0.00	2
05120203070040	Eel River-McIntyre Creek	19.00	1.46	0.16	0.00	2
05120203070050	Jordan Creek-Headwaters (Owen)	10.25	0.44	0.02	0.00	2

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120203070060	North Fork Jordan Creek	15.20	1.45	0.12	0.00	2
05120203070070	Jordan Creek-Lower	13.01	0.45	0.30	0.00	2
05120203080010	Eel River-Hog Creek	10.86	1.84	0.75	0.00	2
05120203080020	Sixmile Creek-Sulphur Creek	27.17	0.60	0.07	0.00	2
05120203080030	Eel River-Turkey Creek	11.76	3.64	0.07	0.00	2
05120203080040	Birch Creek-Little Birch Creek	15.84	3.77	11.02	0.00	2
05120203080050	East Fork Birch Creek	12.37	4.31	1.24	0.00	2
05120203080060	Birch Creek-Prairie Creek	18.76	3.61	0.53	0.00	2
05120203080070	Brush Creek-Crooked Creek	14.28	0.77	0.06	0.00	2
05120203080080	Birch Creek-Outlet (Zion Church)	9.76	0.45	0.00	0.00	2
05120203090010	Splunge Creek-Headwaters	18.74	5.59	0.42	0.00	1
05120203090020	Splunge Creek-Cutoff/Little Slough	27.67	1.50	0.04	0.00	1
05120203090030	Eel River-Watkins Creek	19.08	1.44	0.21	0.00	2
05120203090040	Eel River-Lafferty Ditch	11.75	0.63	0.00	0.00	2
05120203090050	Connelly Ditch-Headwaters	18.09	2.08	0.13	0.00	2
05120203090060	Connelly Ditch-Clay City Tributary	12.97	0.17	5.09	0.00	2
05120203090070	Eel River-White Oak Creek	16.94	2.10	0.01	0.00	2
05120203090080	Eel River-Muir Lake/Pond Creek	29.77	1.85	1.28	0.00	2
05120203090090	Lagoon Creek-Howesville Ditch	23.86	1.34	2.38	0.00	2
05120203090100	Lick Creek-West Fork Lick Creek	18.79	1.85	0.17	0.00	2
05120203090110	Lick Creek-Hauser Creek	19.93	1.01	0.05	0.00	2
05120203090120	Lick Creek-Need/Brush Creek-Eel River	20.54	2.12	0.01	0.00	2
05120203090130	Eel River-Lemon Ditch/Corbin Creek	17.68	1.42	0.82	0.00	2
05120204010010	Big Blue River-Summit Lake	9.48	11.62	0.06	0.00	4
05120204010020	Big Blue River-Moon Brook	14.13	0.53	1.21	0.00	4
05120204010030	Little Blue River	18.71	0.80	1.03	0.00	4
05120204010040	Big Blue River-Elliott Run	17.50	0.75	29.98	0.00	4
05120204010050	Big Blue River-Westwood Run	12.95	2.74	5.50	0.00	4
05120204010060	Duck Creek-Jakes Branch	13.99	0.76	1.02	0.00	4
05120204010070	Duck Creek-Dry Fork	13.33	0.49	1.19	0.00	4
05120204010080	Big Blue River-Ring Run	12.24	1.30	0.65	0.00	4
05120204010090	Buck Creek (Rush)	19.64	0.98	1.50	0.00	4
05120204010100	Montgomery Creek-Headwaters	16.04	0.33	1.35	0.00	4
05120204010110	Big Blue River-Montgomery/Central Creeks	10.48	0.58	6.08	0.00	4
05120204010120	Big Blue River-Threemile Creek	15.14	1.15	0.23	0.00	4
05120204010130	Big Blue River-Goose Creek	8.37	1.01	0.35	0.00	4
05120204010140	Big Blue River-Carthage	14.30	1.78	2.12	0.00	4
05120204020010	Six Mile Creek-Headwaters	16.90	0.82	3.10	0.00	4
05120204020020	Six Mile Creek-Anthony Creek	15.87	0.52	1.24	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120204020030	Six Mile Creek-Dilly Creek	14.14	0.89	0.30	0.00	4
05120204020040	Nameless Creek	16.43	0.41	0.68	0.00	4
05120204020050	Big Blue River-Prairie Branch (Hancock)	16.04	1.08	0.06	0.00	4
05120204020060	Big Blue River-Prairie Branch (Shelby)	13.81	1.66	3.25	0.00	4
05120204020070	Big Blue River-Bass Ditch	12.76	3.00	0.31	0.00	4
05120204020080	Big Blue River-Foreman Branch	12.13	2.31	2.24	0.00	4
05120204030010	Little Blue River-Headwaters	17.29	0.82	0.31	0.00	4
05120204030020	Little Blue River-Gilson Creek	15.43	1.09	0.00	0.00	4
05120204030030	Little Blue River-Farmers Stream	16.89	1.15	0.92	0.00	4
05120204030040	Beaver Meadow Creek-Linn Creek	16.38	0.25	0.02	0.00	4
05120204030050	Little Blue River-Manilla Branch	16.55	0.55	0.53	0.00	4
05120204030060	Little Blue River-Rays Crossing	22.04	0.68	4.23	0.00	4
05120204030070	Big Blue River-Duprez Ditch	13.31	3.30	14.50	0.00	4
05120204040010	Brandywine Creek-Willow Branch	15.96	0.14	0.24	0.00	4
05120204040020	Brandywine Creek-Richey Ditch	12.78	1.11	0.78	0.00	4
05120204040030	Brandywine Creek-Potts Ditch	10.54	2.40	25.98	0.00	4
05120204040040	Little Brandywine Creek	14.29	0.65	1.93	0.00	4
05120204040050	Brandywine Creek-Andis Ditch	12.23	0.82	1.23	0.00	4
05120204040060	Brandywine Creek-Hills Branch	16.93	0.57	0.69	0.00	4
05120204040070	Brandywine Creek-Swamp Creek	16.87	1.25	1.68	0.00	4
05120204040080	Brandywine Creek-Ed Clark Ditch	6.99	1.06	1.72	0.00	4
05120204050010	Big Blue River-SR44	6.83	5.97	0.03	0.00	4
05120204050020	Lowell Ditch	7.79	0.17	0.00	0.00	4
05120204050030	Big Blue River-Marietta	5.28	4.02	1.12	0.00	4
05120204050040	Shaw Ditch	7.28	0.07	0.00	0.00	4
05120204050050	Big Blue River-Mt. Auburn/Major Ditch	16.85	4.93	1.76	0.00	4
05120204060010	Sugar Creek-Pee Dee Ditch	20.70	0.52	1.22	0.00	4
05120204060020	Sugar Creek-Marsh & Trees Ditch	24.22	1.03	0.02	0.00	4
05120204060030	Sugar Creek-Barrett Ditch	22.02	1.63	1.55	0.00	4
05120204060040	Sugar Creek-Boyd Ditch	18.28	0.76	3.14	0.00	4
05120204060050	Sugar Creek-Smith Johnson Ditch	10.35	0.47	7.04	0.00	4
05120204060060	Little Sugar Creek-Wilson Ditch	19.49	0.43	4.53	0.00	4
05120204060070	Little Sugar Creek-Thompson Ditch	12.20	0.53	0.59	0.00	4
05120204060080	Sugar Creek-Sugar Creek (town)	5.05	0.61	4.16	0.00	4
05120204070010	Buck Creek-Headwaters (Hancock)	14.38	0.17	0.91	0.00	4
05120204070020	Buck Creek-Parker Estes Ditch	12.01	0.63	9.52	0.00	4
05120204070030	Grassy Creek (Marion)	18.76	0.50	30.84	0.00	4
05120204070040	Buck Creek-Breier/Doe Creeks	15.21	0.77	3.33	0.34	4
05120204070050	Buck Creek-Big Run/Wildcats	22.16	0.71	7.20	0.00	4
05120204070060	West Little Sugar Creek-Buck Creek	18.19	0.50	3.73	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120204080010	Sugar Creek-Broad Ripple Camp	3.45	4.73	0.23	0.00	4
05120204080020	Snail Creek-Snodgrass Ditch	12.69	0.19	0.11	0.00	4
05120204080030	Snail Creek-Clover Village	14.07	0.44	1.90	1.27	4
05120204080040	Snail Creek-Dry Fork	10.93	0.22	1.81	0.00	4
05120204080050	Sugar Creek-Needham	12.46	1.09	0.17	0.55	4
05120204080060	Little Sugar Creek-Campbell Ditch	14.51	0.15	1.27	0.00	4
05120204080070	Flat Branch	5.84	0.35	0.82	0.00	4
05120204080080	Little Sugar Creek-Cutsinger Ditch	8.01	0.57	0.21	0.00	4
05120204080090	Sugar Creek-Gibson Ditch	14.90	1.13	0.21	0.00	4
05120204080100	Sugar Creek-McCue Medsker Ditch	20.27	2.34	0.43	0.00	4
05120204090010	Grassy Creek-East Grassy Creek	15.24	0.32	14.16	0.00	4
05120204090020	Youngs Creek-Roberts Ditch	15.60	0.12	1.42	0.00	4
05120204090030	Youngs Creek-Brewers/Canary Ditches	13.50	0.42	12.04	0.00	4
05120204090040	Youngs Creek-Ray Creek	14.22	0.78	12.05	0.00	4
05120204090050	Hurricane Creek (Johnson)	16.41	0.48	4.00	0.00	4
05120204090060	Youngs Creek-Buckhart Creek	21.31	0.94	3.66	0.00	4
05120204090070	Youngs Creek-Amity Ditch	12.22	1.46	2.69	0.00	4
05120204090080	Sugar Creek-Herriotts Creek	15.68	3.28	0.96	0.00	4
05120204100010	Driftwood River-Hendricks Ford (gage)	3.42	11.34	9.15	0.00	4
05120204100020	Mud Creek-Prince Creek	23.25	3.26	1.17	0.00	4
05120204100030	Mud Creek-Nineveh Creek	20.41	0.75	3.42	0.00	4
05120204100040	Driftwood River-Pleasant View Village	10.75	2.23	9.97	0.00	4
05120204100050	Lick Creek-Muddy Branch	10.32	3.24	0.04	0.00	4
05120204100060	Driftwood River-West Tributary	11.04	3.61	0.73	0.00	4
05120204100070	Driftwood River-Catherine Creek	12.77	1.15	0.12	0.00	4
05120204100080	Driftwood River-Wolf Creek	14.64	2.90	5.23	0.00	4
05120205010010	Flatrock River-Wilbur Wright Creek	5.41	0.77	0.78	0.00	4
05120205010020	Flatrock River-Arms No. 1 & 2	7.93	0.31	0.00	0.00	4
05120205010030	Flatrock River-Mud Run	10.31	0.50	0.33	0.00	4
05120205010040	Flatrock River-Rock Branch	19.51	0.53	3.67	0.00	4
05120205010050	Flatrock River-above US40	4.49	0.90	1.82	0.00	4
05120205010060	Flatrock River-Applebutter Creek	4.69	0.38	4.31	0.00	4
05120205010070	Northeast Tributary (Lewisville)	4.68	0.81	0.19	0.00	4
05120205010080	Flatrock River-Mills Ditch	7.36	2.27	0.07	0.00	4
05120205010090	Wikoff Ditch	10.66	0.54	0.44	0.00	4
05120205010100	Shawnee Creek-Headwaters	6.73	0.82	0.00	0.00	4
05120205010110	Shawnee Creek-North Fork	5.79	0.62	0.06	0.00	4
05120205010120	Shawnee Creek-Lower	16.98	0.78	0.06	0.00	4
05120205010130	Flatrock River-Plum Creek Church	2.97	4.69	0.00	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120205010140	Shankatank Creek-Headwaters	7.18	0.12	0.31	0.00	4
05120205010150	Shankatank Creek-Lower	7.87	1.23	0.01	0.00	4
05120205020010	Flatrock River-Gravel Pits	1.67	6.33	0.26	0.00	4
05120205020020	Turkey Creek (Rush)	9.52	0.26	0.02	0.00	4
05120205020030	Flatrock River-Covered Bridges	3.67	3.21	0.10	0.00	4
05120205020040	Ben Davis Creek	18.75	0.51	0.41	0.00	4
05120205020050	Flatrock River-above US52	9.52	2.12	5.01	0.00	4
05120205020060	Flatrock River-Rushville	18.55	2.01	7.09	0.00	4
05120205020070	East Tributary Flatrock River	9.99	0.46	0.00	0.00	4
05120205020080	Flatrock River-Gas Wells	4.10	3.00	0.00	0.00	4
05120205020090	Bob Creek	5.91	0.12	0.00	0.00	4
05120205020100	Flatrock River-Moscow	13.65	2.55	0.09	0.00	4
05120205030010	Little Flatrock River-Headwaters	7.43	0.32	0.03	0.00	4
05120205030020	Frazee Creek	6.74	0.24	0.02	0.00	4
05120205030030	Little Flatrock River-Pleasant Run Cem	11.95	0.23	0.11	0.00	4
05120205030040	Moore Ditch	4.17	0.08	0.00	0.00	4
05120205030050	Little Flatrock River-Milroy	4.58	0.83	3.10	0.00	4
05120205030060	Lick Creek (Rush)	6.46	0.42	1.58	0.00	4
05120205030070	Little Flatrock River-at County Line	6.06	1.16	0.00	0.00	4
05120205030080	Little Flatrock River-Williamstown	6.52	0.73	0.06	0.00	4
05120205030090	Hurricane Creek (Rush)	8.19	0.23	0.00	0.00	4
05120205030100	Little Flatrock River-Downeyville	1.12	0.36	0.15	0.00	4
05120205040010	Flatrock River-St. Omer	7.62	1.08	0.78	0.00	4
05120205040020	Mill Creek (Decatur)	10.69	0.42	1.43	0.00	4
05120205040030	Flatrock River-Germantown (gage)	5.63	2.24	2.36	0.00	4
05120205040040	Mud Creek-Rushing Run	14.74	0.36	0.00	0.00	4
05120205040050	Mud Creek-Hodge Ditch	10.49	0.27	0.03	0.00	4
05120205040060	Goddard Ditch-Homer Run	6.07	0.07	0.71	0.00	4
05120205040070	Mud Creek-South Creek	1.63	0.98	2.36	0.00	4
05120205040080	Deer Creek-Branan Creek	6.09	0.09	0.00	0.00	4
05120205040090	Conns Creek-McGinnis Ditch	12.83	0.83	0.00	0.00	4
05120205040100	Conns Creek-Blue Ridge	6.16	1.45	0.67	0.00	4
05120205040110	Little Conns Creek	4.35	0.62	0.08	0.00	4
05120205040120	Conns Creek-Waldron	7.75	1.74	4.16	0.00	4
05120205040130	Deer Creek	8.89	0.61	0.96	0.00	4
05120205040140	Conns Creek-Mouth (Valley Church)	0.82	1.99	0.17	0.00	4
05120205050010	Flatrock River-Geneva	9.79	1.86	0.71	0.00	3
05120205050020	Flatrock River-Willow Park	6.93	5.70	0.19	0.00	3
05120205050030	Lewis Creek-Headwaters	11.86	0.24	0.77	0.00	4
05120205050040	Lewis Creek-Shelby Twp School	8.32	0.71	1.44	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120205050050	Little Lewis Creek	8.87	1.16	0.78	0.00	4
05120205050060	Lewis Creek-SEC 5	1.29	1.73	0.00	0.00	3
05120205050070	East Trib Lewis Creek (Winchester Church)	7.72	0.78	0.12	0.00	3
05120205050080	Lewis Creek-SEC 7	3.46	0.42	0.00	0.00	3
05120205050090	Thompson Ditch (Shelby)	10.49	0.71	15.43	0.00	4
05120205050100	Lewis Creek-Lewis Creek (town)	4.20	1.38	0.30	0.00	3
05120205050110	East Fork Slash Ditch	8.93	0.13	6.06	0.00	4
05120205050120	Slash Ditch-Headwaters	5.24	0.21	0.36	0.00	4
05120205050130	Slash Ditch-Parrish Ditch	7.87	0.52	0.00	0.00	4
05120205050140	Lewis Creek-at Mouth	3.10	1.30	0.06	0.00	3
05120205050150	Flatrock River-Flatrock	4.91	3.42	2.59	0.00	4
05120205050160	Sidney Branch	5.31	0.17	0.12	0.00	3
05120205050170	Flatrock River-SEC 9	1.20	5.04	0.35	0.00	4
05120205050180	Ensley Ditch	5.30	0.12	0.02	0.00	4
05120205050190	Flatrock River-Northcliff	11.42	2.64	0.86	0.00	4
05120205050200	Big Slough	16.49	0.31	4.06	0.00	4
05120205050210	Flatrock River-Columbus	11.28	3.69	34.56	0.00	4
05120205060010	East Fork White R-Columbus	1.68	14.20	17.70	0.75	4
05120205060020	Haw Creek-Headwaters	11.43	0.39	0.05	0.00	3
05120205060030	Little Haw Creek	6.21	0.48	2.07	0.00	3
05120205060040	Haw Creek-Horse/Chicken Creeks	7.85	0.89	4.12	0.00	3
05120205060050	Big Tough Creek-Headwaters	10.56	0.26	0.35	0.00	3
05120205060060	Big Tough Creek-Chambers Ditch	5.63	0.09	0.19	0.00	3
05120205060070	Haw Creek-Slash Loesch Ditch	5.80	0.28	0.52	0.00	3
05120205060080	Haw Creek-Columbus	9.05	1.56	32.38	0.00	4
05120206010010	Clifty Creek-Middle Branch	17.55	0.44	0.21	0.00	4
05120206010020	Clifty Creek-South Branch	7.94	0.28	0.05	0.00	4
05120206010030	Clifty Creek-North Branch	20.78	0.26	0.00	0.00	4
05120206010040	Clifty Creek-Sandusky to US421	12.74	1.22	0.29	0.00	4
05120206010050	Clifty Creek-Buck Run	7.38	0.53	1.35	0.00	4
05120206010060	Clifty Creek-Pond Branch	11.22	0.50	0.43	0.00	4
05120206010070	Clifty Creek-Hartsville	16.18	0.69	0.73	0.00	3
05120206010080	Fall Fork Clifty Creek-Headwaters	14.95	0.52	0.68	0.00	3
05120206010090	East Tributary Fall Fork Clifty Creek	13.47	0.55	0.05	0.00	3
05120206010100	Fall Fork Clifty Creek-Anderson Falls	9.05	1.12	0.00	0.00	3
05120206010110	Middle Fork Fall Fork Clifty Creek	13.05	0.76	0.23	0.00	3
05120206010120	Clifty Creek-Newbern	5.73	2.15	0.38	0.00	3
05120206010130	Duck Creek	21.19	1.14	0.43	0.00	3
05120206010140	Clifty Creek-Otter Creek	14.42	1.10	1.57	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120206010150	Sloan Branch Clifty Creek	9.86	0.33	2.91	0.00	4
05120206010160	Clifty Creek-Columbus	9.90	2.14	22.60	0.00	4
05120206020010	East Fork White R-Opossum Creek	7.20	5.38	8.86	2.39	4
05120206020020	Denios Creek	18.45	3.08	6.26	0.00	4
05120206020030	East Fork White R-Armuth Ditch	7.81	5.27	0.25	0.00	4
05120206020040	Little Sand Creek-Headwaters	16.99	0.52	1.29	0.00	4
05120206020050	Little Sand Creek-Cooks Creek	8.45	0.67	1.90	0.00	4
05120206020060	Brush Creek-Fishers Fork	17.47	0.30	2.50	0.00	4
05120206020070	East Fork White R-Little Sand Creek	8.30	4.99	0.82	0.00	4
05120206030010	Sand Creek-Gas Creek	17.23	0.15	8.99	0.00	3
05120206030020	Sand Creek-Lost Creek	15.04	0.64	0.28	0.00	3
05120206030030	Muddy Fork	19.72	0.79	6.37	0.00	3
05120206030040	Sand Creek-Gaynorsville	8.46	0.43	0.01	0.00	3
05120206030050	Cobbs Fork-Headwaters	18.46	0.64	0.75	0.00	3
05120206030060	Cobbs Fork-Jordan Creek	11.13	0.47	0.01	0.00	3
05120206030070	Sand Creek-Penther Creek	16.93	0.26	0.03	0.00	3
05120206030080	Sand Creek-Rock/Ice Creek	15.20	0.45	0.00	0.00	3
05120206030090	Sand Creek-Millstone	12.73	0.57	2.73	0.00	3
05120206030100	Sand Creek-Bear Creek	10.63	0.48	0.06	0.00	3
05120206030110	Sand Creek-Fish Creek	13.51	0.61	0.43	0.00	2
05120206030120	Wyaloosing Creek-Headwaters	14.49	0.35	0.69	0.00	3
05120206030130	Wyaloosing Creek-Turnover Creek	12.46	0.38	0.31	0.00	3
05120206030140	Wyaloosing Creek-Rat Tail Creek	8.87	0.39	0.03	0.00	3
05120206030150	Bear Creek-Headwaters (Decatur)	14.79	0.50	0.05	0.00	3
05120206030160	Wyaloosing Creek-Bear/Bennett Creeks	12.44	0.40	0.44	0.00	3
05120206030170	Sand Creek-Nettle Creek	11.65	1.43	0.54	0.00	3
05120206030180	Rock Creek	13.86	0.59	0.40	0.00	3
05120206030190	Sand Creek-Sand Branch(Clarence Hall Ditch)	11.16	1.51	0.28	0.00	4
05120206040010	East Fork White R-Reddington	12.35	4.41	1.71	0.00	4
05120206040020	Thompson Slough	12.58	1.28	1.99	0.00	4
05120206040030	East Fork White R-Heddy Run	18.38	3.98	19.59	0.00	4
05120206040040	Beatty Walker Ditch	13.83	0.36	0.09	0.00	4
05120206040050	East Fork White R-Indian Creek	20.59	4.55	0.25	0.00	4
05120206050010	White Creek-Headwaters	11.44	2.45	0.18	0.00	4
05120206050020	South Fork White Creek	16.79	1.27	0.14	0.00	4
05120206050030	White Creek(Oathout Ditch)	13.43	2.03	0.00	0.00	4
05120206050040	East Fork White Creek-Upper	16.64	3.78	2.47	0.00	4
05120206050050	East Fork White Creek-Lower	22.22	4.17	1.12	0.00	4
05120206050060	White Creek(Oathout Dt)-Cooley Creek	15.42	1.24	0.02	0.00	4
05120206050070	White Creek(Oathout Dt)-Spray Creek	19.95	1.85	0.05	0.00	4

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120206060010	East Fork White R-Hough Creek	18.59	2.56	5.45	0.00	4
05120206060020	East Fork White R-Wayman Ditch	11.94	3.27	0.11	0.00	4
05120206060030	McHargue Ditch	9.03	0.48	0.04	0.00	4
05120206060040	East Fork White R-McMillan Ditch	11.50	3.04	0.80	0.00	4
05120206060050	East Fork White R-Stuckwish Ditch	17.19	2.33	1.07	0.00	4
05120207010010	Big Creek-Headwaters (Ripley)	15.75	2.20	0.25	0.00	3
05120207010020	Big Creek-Marble Creek	19.32	8.54	0.44	0.00	3
05120207010030	Big Creek-Camp Creek	17.14	4.63	0.83	0.00	3
05120207010040	Middle Fork Creek (Jefferson)	17.65	5.01	3.72	0.00	3
05120207010050	Big Creek-Hensley Creek	14.63	1.41	0.62	0.00	3
05120207010060	Big Creek-Harberts Creek	14.69	3.12	3.96	0.00	3
05120207010070	Little Creek-Headwaters (Jefferson)	12.65	1.89	0.48	0.00	3
05120207010080	Ramsey Creek	12.23	2.69	4.18	0.00	3
05120207010090	Little Creek-Chicken Run	14.25	0.57	0.48	0.00	3
05120207010100	Big Creek-Walton Creek	12.26	1.32	0.14	0.00	3
05120207010110	Neils Creek	8.94	0.93	0.59	0.00	3
05120207010120	Big Creek-Lewis Creek	16.58	0.56	0.48	0.00	3
05120207020010	Graham Creek-Headwaters	13.00	0.82	0.82	0.00	3
05120207020020	North Fork Graham Creek	10.86	0.44	0.15	0.00	3
05120207020030	Graham Creek-Campfire Creek	22.07	0.49	0.22	0.00	3
05120207020040	Little Graham Creek-Headwaters	8.23	1.21	0.20	0.00	3
05120207020050	Little Graham-Horse & Poplar Branch	15.87	5.28	0.21	0.00	3
05120207020060	Graham Creek-Turkey Creek	14.60	7.84	0.18	0.00	3
05120207020070	Graham Creek-Zion Lake	14.30	5.62	0.30	0.00	3
05120207020080	Bear Creek (Jennings)	12.94	6.26	0.34	0.00	3
05120207020090	Graham Creek-Paris	2.47	1.17	0.95	0.00	3
05120207030010	Muscatatuck River-Deputy	3.51	1.37	0.92	0.00	2
05120207030020	Coffee Creek	11.46	0.79	0.40	0.00	2
05120207030030	Muscatatuck-Fower/Slate/Crooked Cr	17.53	0.96	0.14	0.00	2
05120207030040	Muscatatuck R-Cana Creek	6.82	2.43	0.33	0.00	2
05120207030050	Quick Creek-Hardy Lake	12.04	10.16	0.45	0.00	2
05120207030060	White Oak Branch-Quick Creek	10.67	1.02	1.23	0.00	2
05120207030070	Muscatatuck R-Austin	18.00	6.74	5.87	0.00	2
05120207040010	Woods Fork-Headwaters	14.44	1.11	0.15	0.00	3
05120207040020	Town Creek	9.09	0.65	1.41	0.00	3
05120207040030	Woods Fork-Lower	4.57	1.03	0.73	0.00	3
05120207040040	Hog Creek	16.52	1.53	1.11	0.00	3
05120207040050	Stucker Fork-Upper	5.53	1.44	0.50	0.00	3
05120207040060	Kimberlin Creek-Headwaters	9.26	1.95	0.23	0.00	3

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120207040070	Newland Creek	7.73	1.16	0.32	0.00	3
05120207040080	Kimberlin Creek-Lower	8.40	1.61	1.14	0.00	3
05120207040090	Pigeon Roost Creek-Headwaters	10.07	0.67	2.09	0.00	3
05120207040100	Pigeon Roost Creek-Lower	15.11	1.01	6.85	0.00	3
05120207040110	Flat Creek	13.11	1.65	1.55	0.00	3
05120207040120	Hutto Creek	8.54	2.41	6.31	0.00	3
05120207040130	Stucker Fork(W L McClain Ditch)	6.52	12.50	18.61	0.00	3
05120207050010	North Fork Vernon Fork-Headwaters	7.97	0.87	0.25	0.00	3
05120207050020	North Fork Vernon Fork-Smyrna	13.05	0.28	0.00	0.00	3
05120207050030	North Fork-Honey Creek/Square Run	10.55	0.29	0.16	0.00	3
05120207050040	North Fork-Flatrock/Wolf Creeks	10.95	0.47	0.00	0.00	3
05120207050050	North Fork-Sugar/Leatherwood Creek	16.50	0.40	0.02	0.00	3
05120207050060	North Fork-Finch Branch	11.47	1.07	0.12	0.00	3
05120207050070	Brush Creek (Jennings)	14.61	2.03	0.16	0.00	3
05120207050080	North Fork-Pleasant Run/Long Branch	12.62	0.76	2.28	0.00	3
05120207050090	North Fork-Deer Creek	14.94	0.88	6.71	0.00	3
05120207060010	Otter Creek-Long Branch	18.64	0.40	0.00	0.00	3
05120207060020	Little Otter Creek	12.49	0.60	1.18	0.00	3
05120207060030	Otter Creek-Falling Timbers Branch	12.27	1.10	1.22	0.00	3
05120207060040	Little Otter Fork	11.02	2.83	0.01	0.00	3
05120207060050	Otter Creek-Huckleberry Branch	16.49	0.39	0.67	0.00	3
05120207060060	Otter Creek-Crooked Creek	12.47	0.78	0.73	0.00	3
05120207070010	Vernon Fork-Crosley Lake	12.32	1.52	3.01	0.00	3
05120207070020	Vernon Fork-Indian Creek	16.91	0.76	4.63	0.00	3
05120207070030	Vernon Fork-Polly Branch	10.01	0.38	0.10	0.00	2
05120207070040	Tea Creek	11.49	0.47	0.03	0.00	2
05120207070050	Sixmile Creek-Twomile Creek	17.73	1.73	9.35	0.00	3
05120207070060	Vernon Fork-Sixmile Creek	14.79	0.70	0.87	0.00	2
05120207070070	Vernon Fork-Gum Lick Creek	13.08	4.93	1.02	0.00	2
05120207080010	Mutton Creek-Upper	13.80	0.66	1.83	0.00	2
05120207080020	Mutton Creek-Lower	17.34	3.68	1.60	0.00	2
05120207080030	Storm Creek-Upper	12.00	0.94	0.31	0.00	2
05120207080040	Storm Creek-Lower	11.26	8.99	0.19	0.00	2
05120207080050	Mutton Creek-Sandy Branch	15.57	6.87	9.14	0.00	2
05120207090010	Vernon Fork-Lewis Branch	28.12	3.89	0.60	0.00	2
05120207090020	Grassy Creek (Jackson)	15.50	3.39	5.05	0.00	2
05120207090030	Grassy Fork-Headwaters	15.14	0.12	2.69	0.00	2
05120207090040	Horse Lick	8.94	0.40	0.08	0.00	2
05120207090050	Grassy Fork-Lower	10.58	4.19	0.13	0.00	2
05120207090060	Muscatatuck R-Smart Ditch	20.28	13.54	0.07	0.00	2

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120207100010	Big Ox Creek-Headwaters	9.91	0.88	0.03	0.00	3
05120207100020	Big Ox Creek-Little Ox Creek	12.74	1.40	0.98	0.00	3
05120207100030	Honey Run	8.81	4.43	6.44	0.00	3
05120207100040	Ox Ditch-Weddel Creek	12.42	3.84	0.39	0.00	3
05120207100050	Cammie Thomas Ditch-Henry Creek	9.12	13.79	1.24	0.00	2
05120207100060	Elk Creek	27.03	1.10	0.16	0.00	2
05120207100070	Cammie Thomas Ditch-Outlet	8.75	0.90	0.00	0.00	2
05120207110010	Muscatatuck River-Cutoff	5.15	2.87	0.09	0.00	2
05120207110020	Pond Creek-Upper	15.97	0.81	0.02	0.00	2
05120207110030	Pond Creek-Lower	10.16	1.64	0.01	0.00	2
05120207110040	Delany Creek	34.26	1.09	0.06	0.00	2
05120207110050	Muscatatuck River-Snyder Ditch	5.30	2.06	0.00	0.00	2
05120207110060	Mill Creek (Jackson)	10.68	2.57	0.10	0.00	2
05120207110070	Muscatatuck River-Millport	8.35	1.77	0.14	0.00	2
05120208010010	East Fork White R-Grassy Creek	20.00	1.69	0.00	0.00	2
05120208010020	Buffalo Creek	8.70	0.21	0.07	0.00	2
05120208010030	East Fork White R-Daufton Hollow	4.37	5.90	0.18	0.00	2
05120208010040	Twin Creek-Headwaters	12.60	0.67	0.02	2.07	2
05120208010050	Rinkers Creek	27.44	1.18	0.03	0.00	2
05120208010060	Rush Creek	8.64	0.49	0.10	1.15	2
05120208010070	Twin Creek-Lower	4.94	0.52	0.00	0.00	2
05120208020010	Clifty Creek	13.36	0.12	0.75	0.43	2
05120208020020	East Fork White R-Tunnelton	17.06	4.93	0.16	0.00	2
05120208020030	Sugar Creek	18.42	0.16	0.01	1.13	2
05120208020040	East Fork White R-Fishing Creek	11.18	1.26	0.14	5.49	2
05120208020050	Mill Creek-Mosquito Creek	25.29	0.38	0.20	8.04	2
05120208020060	East Fork White R-Rock Lick Creek	15.43	1.82	9.89	8.37	2
05120208030010	Guthrie Creek-Dry Creek	32.56	0.37	0.12	0.00	2
05120208030020	Back Creek-Dry Creek	34.88	0.15	0.08	0.00	2
05120208030030	Guthrie Creek-Crawford Creek	9.88	1.46	0.12	0.00	2
05120208030040	Guthrie Creek-DeWitt Creek	18.61	0.11	0.17	0.00	2
05120208040010	East Fork White R-Wesley Chapel Karst Area	5.93	0.46	5.25	6.90	2
05120208040020	East Fork White R-County Farm Tributary	9.16	2.86	2.33	0.30	2
05120208040030	Leatherwood Creek-Headwaters	26.48	0.07	0.76	0.00	2
05120208040040	South Fork Leatherwood Creek	8.33	0.11	0.71	0.00	2
05120208040050	East Fork White R-Leatherwood Creek	16.23	0.28	25.59	2.51	2
05120208050010	North Fork Salt Creek-Sweetwater Creek	6.84	8.39	1.44	0.00	2
05120208050020	North Fork Salt Creek-East Fork	3.34	6.70	0.22	0.00	2
05120208050030	Gnaw Bone Creek-Mt. Liberty Creek	2.95	1.97	1.38	0.00	2

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120208050040	North Fork Salt Creek-Clay Lick/Greasy Creeks	2.83	3.40	9.80	0.00	2
05120208050050	North Fork Salt Creek-Owl/Lick Creeks	3.79	3.38	3.74	0.00	2
05120208050060	North Fork Salt Creek-Jackson Creek	2.64	9.74	0.11	0.00	2
05120208050070	North Fork Salt Creek-Lower Schooner Creek	4.61	6.16	0.99	0.00	2
05120208050080	Brummett Creek	2.70	0.98	0.14	0.00	2
05120208050090	Stephens Creek	3.75	0.36	5.84	0.00	2
05120208060010	Little Salt Creek-Kiper Creek	15.08	1.37	0.91	0.00	2
05120208060020	South Fork Salt Creek-Bee Creek	4.64	1.01	0.22	0.00	2
05120208060030	South Fork Salt Creek-Tipton Creek	4.73	0.72	1.50	0.00	2
05120208060040	Little Salt Creek	7.82	1.14	0.01	0.00	2
05120208060050	South Fork Salt Creek-Negro Creek	2.46	17.41	0.00	0.00	2
05120208070010	Middle Fork Salt Creek-Headwaters	5.74	1.18	0.13	0.00	2
05120208070020	Middle Fork Salt Creek-Pleasant Valley Creek	3.02	1.83	0.12	0.00	2
05120208070030	Hamilton Creek	5.82	0.87	0.01	0.00	2
05120208070040	Middle Fork Salt Creek-Gravel/Little Blue Creeks	2.10	14.98	0.00	0.00	2
05120208080010	Lake Monroe-Crooked Creek	355.86	0.12	0.00	0.00	2
05120208080020	Lake Monroe-Saddle Cr.	1.45	0.91	0.50	0.00	2
05120208080030	Lake Monroe-Jacobs Creek	2.72	22.66	0.68	0.00	2
05120208080040	Lake Monroe-Moore Creek	18.63	88.56	0.65	0.00	2
05120208080050	Lake Monroe-Ramp Creek	2.02	0.43	13.02	0.00	2
05120208080060	Lake Monroe-Siscoe/Allen/Sugar Creeks	3.40	0.67	4.15	0.00	2
05120208090010	Clear Creek-Jackson Creek	25.67	0.30	46.97	1.02	2
05120208090020	Clear Creek-May Creek	34.18	0.34	5.22	6.38	2
05120208090030	Clear Creek-Little Clear Creek	17.63	0.38	4.71	0.91	2
05120208090040	Salt Creek-Wolf Creek	5.98	0.58	1.46	0.00	2
05120208090050	Little Salt Creek-Hunter Creek	2.68	0.40	2.30	0.00	2
05120208090060	Henderson Creek	3.46	0.28	1.14	0.00	2
05120208090070	Little Salt Creek-Brewer Branch	9.94	0.32	0.08	0.00	2
05120208090080	Little Salt Creek-Knob Creek	4.18	0.93	0.27	0.00	2
05120208090090	Salt Creek-Pleasant Run	14.05	0.73	3.11	0.00	2
05120208090100	Gulletts Creek	14.97	0.30	3.62	2.79	2
05120208090110	Salt Creek-Goose Creek	10.36	0.98	13.16	4.36	2
05120208090120	Salt Creek-Dark Hollow Karst Area	11.66	1.42	1.83	7.41	2
05120208090130	Salt Creek-Adamson Branch	9.90	0.23	1.45	4.06	2
05120208100010	East Fork White R-Bryantsville Karst Area	9.93	0.13	0.91	13.35	2
05120208100020	East Fork White R-Crooked Creek/Williams Dam	16.19	8.01	0.10	5.44	2
05120208100030	East Fork White R-Henshaw Bend	13.26	4.93	0.29	1.95	2
05120208110010	Indian Creek-Headwaters (Monroe)	19.53	0.18	1.45	3.58	2
05120208110020	Indian Creek-Little Indian Creek	33.08	0.06	0.12	0.86	2
05120208110030	Popcorn Creek	9.63	0.08	0.33	0.00	2

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120208110040	Indian Creek-Town Branch	11.99	0.21	0.30	0.00	2
05120208110050	Spring Creek (Lawrence)	13.88	0.08	0.60	1.52	2
05120208110060	Indian Creek-Silverton Branch	7.38	0.49	0.16	4.03	2
05120208110070	Indian Creek-Mt. Olive	6.00	0.54	0.00	0.00	2
05120208110080	Sulphur Creek-Headwaters	2.51	2.06	0.64	0.00	2
05120208110090	Sulphur Creek-Little Sulphur Creek	104.82	0.15	0.02	0.00	2
05120208110100	Indian Creek-Opossum Creek	5.14	0.56	0.07	0.00	2
05120208120010	East Fork White R-Shoals	8.28	5.56	2.21	0.00	2
05120208120020	Beaver Creek-Georgia Karst Area	11.27	0.60	0.55	21.41	2
05120208120030	Beaver Creek-South Fork	6.50	1.40	1.02	0.00	2
05120208120040	Beaver Creek-Lower	5.62	2.48	1.88	0.00	2
05120208120050	East Fork White R-Beech Creek	11.29	0.03	0.20	0.00	2
05120208130010	Boggs Creek-Headwaters	3.25	0.31	0.50	0.00	2
05120208130020	Turkey Creek	3.41	0.51	1.53	0.00	2
05120208130030	Boggs Creek-Goldsberry Hollow	4.58	9.28	0.45	0.00	2
05120208130040	Seed Tick Creek	7.21	2.15	0.49	0.00	2
05120208130050	Little Boggs Creek-West Boggs Lake	11.77	8.56	0.52	0.00	2
05120208130060	Little Boggs Creek-Lower	11.77	0.18	5.33	0.00	2
05120208130070	Boggs Creek-Buzzard Run	5.26	1.66	0.10	0.00	2
05120208140010	East Fork White R-Friends Creek	7.12	0.31	5.77	0.00	2
05120208140020	East Fork White R-Poplar/Willow Creeks	7.58	0.10	0.02	0.00	2
05120208140030	Haw Creek	22.42	0.51	0.03	0.00	2
05120208140040	East Fork White R-Plaster Creek/Barn Run	14.56	19.38	0.01	0.00	2
05120208150010	South Fork Lost River	14.76	0.99	0.25	1.62	2
05120208150020	North Fork Lost River	11.36	0.01	0.07	0.00	2
05120208150030	Lost River-Carters Creek	21.09	0.10	0.56	0.39	2
05120208150040	Wolf Creek (Orange)	12.09	0.01	0.09	3.06	2
05120208150050	Stampers Creek-Sink	20.49	0.25	0.02	18.42	2
05120208150060	Stampers Creek Karst Area	5.14	0.41	0.09	12.28	2
05120208150070	Lost River-Sink	23.39	0.06	0.01	3.76	2
05120208150080	Lost River-Underground	5.93	0.11	0.56	7.90	2
05120208150090	Lost River-Orleans Karst Area	10.56	0.39	5.84	19.11	2
05120208150100	Mt. Horeb Drain	16.54	0.04	0.55	12.83	2
05120208150110	Lost River-Rise	6.11	0.11	0.02	3.38	2
05120208150120	Dry Branch (Orange)	4.47	0.04	0.16	0.67	2
05120208160010	Lost River-Shirley Creek	5.35	0.14	0.03	0.00	2
05120208160020	Lick Creek-Headwaters	11.77	0.06	0.41	1.26	2
05120208160030	Lick Creek-Willow Creek	11.12	0.11	9.99	0.00	2
05120208160040	Lick Creek-Log Creek	39.30	0.00	0.08	0.00	2
05120208160050	Lick Creek-Scott Hollow	18.95	0.04	0.04	0.00	2

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120208160060	Upper Sulpur Creek	4.05	0.29	0.02	0.00	2
05120208160070	French Lick Creek	17.64	1.59	3.32	0.00	2
05120208160080	Lost River-West Baden	3.38	0.23	1.77	0.00	2
05120208160090	Sulphur Creek (lower)	1.22	0.60	0.00	0.00	2
05120208160100	Lost River-Sams Creek	2.90	0.65	0.02	0.00	2
05120208160110	Cane Creek	1.88	1.07	0.11	0.00	2
05120208160120	Lost River-Buck Creek	5.63	1.72	0.02	0.00	2
05120208160130	Big Creek (Lost River)	150.06	0.00	0.00	0.00	2
05120208160140	Lost River-Grassy Creek	8.30	0.31	0.01	0.00	2
05120208160150	Lost River-Blue/Simmons Creek	9.62	0.06	0.00	0.00	2
05120208170010	East Fork White R-Crooked Creek	21.21	0.12	0.00	0.00	2
05120208170020	Mill Creek (Dubois)	17.17	0.92	4.88	0.00	2
05120208170030	East Fork White R-Slate Creek	20.83	0.32	0.14	0.00	2
05120208170040	East Fork White R-Sugar Creek	22.13	1.05	0.10	0.00	2
05120208170050	East Fork White R-Birch Creek	24.59	0.30	0.02	0.00	2
05120208170060	Mud Creek (Daviess)	18.13	11.64	0.15	0.00	2
05120208170070	East Fork White R-Beech/Bear Creeks	31.10	0.49	0.05	0.00	2
05120208170080	Aikman Creek	33.44	0.31	0.06	0.00	2
05120208170090	East Fork White R-Mud Creek (Pike)	16.35	1.89	0.19	0.00	2
05120209010010	Patoka River-Fudge Creek	12.60	0.08	0.07	0.00	3
05120209010020	Patoka River-Baron Creek	15.46	0.11	0.12	0.00	3
05120209010030	Patoka River-Hogs Defeat Creek	11.46	0.03	0.07	0.00	2
05120209010040	Patoka River-Dillard Creek	13.56	1.54	0.02	0.00	2
05120209010050	Youngs Creek	11.40	0.60	0.01	0.00	2
05120209010060	Patoka River-Dumplin Branch	18.33	12.43	0.02	0.00	2
05120209010070	Little Patoka River	20.60	4.74	0.14	0.00	2
05120209010080	Patoka River-Fleming Creek	15.15	22.37	0.22	0.00	2
05120209010090	Potaka River-Painter Creek	19.82	19.94	0.07	0.00	2
05120209010100	Lick Creek-Ritter Creek	16.32	2.81	0.27	0.00	2
05120209010110	Patoka Lake Dam-Lick Creek	12.55	17.34	0.13	0.00	2
05120209020010	Patoka River-Lost Ridge (gage)	6.91	0.39	0.12	0.00	2
05120209020020	Dillon Creek-Cane Creek	20.95	0.16	0.01	0.00	2
05120209020030	Davis Creek	14.15	0.10	0.05	0.00	2
05120209020040	Patoka River-Dubois	13.07	0.32	0.35	0.00	2
05120209020050	Poison Creek-Bauer Creek	13.98	0.08	1.36	0.00	2
05120209020060	Patoka River-Lond Ditch	13.49	1.36	0.04	0.00	2
05120209020070	Beaver Creek (Dubois)	10.26	2.46	0.57	0.00	2
05120209020080	Patoka River-Calumet Run	18.50	3.68	12.27	0.00	2
05120209030010	Hall Creek-Headwaters	22.42	0.33	0.21	0.00	2

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05120209030020	Grassy Fork	7.61	0.26	0.08	0.00	2
05120209030030	Hall Creek-Lower	6.61	1.03	0.19	0.00	2
05120209030040	Flat Creek-Richland Creek	14.99	0.18	0.14	0.00	2
05120209030050	Flat Creek-Lower	10.50	0.44	0.39	0.00	2
05120209030060	Straight River	5.43	1.02	8.58	0.00	2
05120209040010	Hunley Creek-Headwaters	13.19	0.63	0.11	0.00	2
05120209040020	Hunley Creek-Halo Run/Green Creek	14.51	0.37	3.45	0.00	2
05120209040030	Hunley Creek-Indian Creek	16.84	0.49	0.26	0.00	2
05120209040040	Short Creek	12.10	0.35	0.05	0.00	2
05120209040050	Bruner Creek	15.59	1.21	6.27	0.00	2
05120209040060	Patoka River-Lower Hunley Creek	13.27	6.63	1.23	0.00	2
05120209040070	Patoka River-Ell Creek	20.64	3.65	1.14	0.00	2
05120209040080	Patoka River-Crooked/Altar Creeks	19.13	0.82	1.80	0.00	2
05120209050010	Flat Creek-Headwaters	21.28	2.58	0.29	0.00	2
05120209050020	Flat Creek-Buck Creek	17.25	0.86	0.20	0.00	2
05120209050030	Flat Creek-Little Flat Creek	20.22	2.91	0.25	0.00	2
05120209060010	Patoka River-Millersport	12.95	1.39	0.05	0.00	2
05120209060020	Patoka River-Rock Creek	11.11	2.13	0.20	0.00	2
05120209060030	Cup Creek	17.72	1.87	0.12	0.00	2
05120209060040	Patoka River-Hog Branch	13.36	5.46	0.35	0.00	2
05120209060050	Patoka River-LIck/Mill Creeks	16.13	4.33	1.20	0.00	2
05120209060060	Patoka River-Stone Coe Creek	11.70	4.96	2.33	0.00	2
05120209060070	Barren Ditch	9.70	5.58	0.97	0.00	2
05120209060080	Patoka River-Sugar Creek	10.05	19.89	0.53	0.00	2
05120209060090	Patoka River-Flat Creek	15.73	3.66	1.14	0.00	2
05120209070010	South Fork Patoka R-Headwaters	14.60	2.12	0.50	0.00	2
05120209070020	South Fork Patoka R-Houchin Ditch	15.09	2.44	0.43	0.00	2
05120209070030	South Fork Patoka R-Spurgeon	13.26	4.80	0.69	0.00	2
05120209070040	Honey Creek (South Fork Patoka)	9.11	3.32	0.71	0.00	2
05120209070050	South Fork Patoka R-Wheeler/Lick Creeks	24.16	12.76	2.53	0.00	2
05120209080010	Patoka River-Robinson/Big Creeks	20.68	9.57	1.28	0.00	2
05120209080020	East Fork Keg Creek	11.66	0.83	1.50	0.00	2
05120209080030	Keg Creek-West Fork Keg Creek	10.74	2.96	0.07	0.00	2
05120209080040	Lost Creek	16.60	0.59	1.32	0.00	2
05120209080050	Patoka River-Yellow/Goose Creeks	19.88	6.14	0.42	0.00	2
05120209080060	Patoka River-Houchins Cutoff/Indian Creek	16.41	4.29	1.03	0.00	2
05120209080070	Patoka River-Trippet Ditch	15.83	1.64	0.88	0.00	2
05120209080080	Patoka River-Patoka to Wabash R	23.47	13.46	1.20	0.00	1
05140101020020	Ohio River-Green Valley Creek/North Lick	3.64	0.61	0.90	0.00	3

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05140101030010	Indian Kentuck Creek-Vestal Branch	17.09	0.32	0.09	0.00	3
05140101030020	Indian Kentuck Creek-Hanibal Branch	10.62	0.10	0.07	0.00	3
05140101030030	Wilson Fork	18.31	0.50	0.18	0.00	3
05140101030040	Indian Kentuck Creek-Seals Fork	14.23	0.04	0.06	0.00	3
05140101030050	Brushy Fork	15.25	0.09	0.02	0.00	3
05140101030060	West Fork Indian Kentuck-Headwaters	17.87	0.55	0.13	0.00	3
05140101030070	West Fork Indian Kentuck-Toddys Br./Razor Fk.	12.97	0.14	0.16	0.00	3
05140101030080	West Fork Indian Kentuck-Dry Fork	15.44	0.09	0.16	0.00	3
05140101030090	Indian Kentuck Creek-Doe Run	23.62	0.11	0.14	0.00	3
05140101030100	Indian Kentuck-Lost Fork Creek	7.26	0.07	0.08	0.00	3
05140101040010	Ohio R-Bee Camp/Eagle Hollow	9.11	0.09	1.39	0.00	3
05140101040030	Ohio River-Tiber Creek/Madison	0.90	0.39	58.45	0.00	3
05140101040040	Crooked Creek (Jefferson)	10.28	0.89	17.58	0.00	3
05140101040050	Big Clifty Creek	11.72	0.63	15.50	0.00	3
05140101040060	Ohio River-Gilmore Creek	6.82	4.90	12.64	0.00	3
05140101040070	Ohio River-Spring Creek/Lee Creek	5.30	0.21	0.23	0.00	3
05140101040080	Ohio River-Big Saluda Creek	12.71	0.60	0.40	0.00	3
05140101060040	Ohio River-Little Knob Creek	7.39	0.20	0.54	0.00	3
05140101060050	Camp Creek	19.62	0.67	0.10	0.00	3
05140101060060	Ohio River-Sunset Village	1.00	0.02	0.00	0.00	3
05140101060080	Ohio River-Eighteenmile Island	1.15	0.33	0.49	0.00	3
05140101060090	Bull Creek	9.62	0.42	0.27	0.00	3
05140101060100	Ohio River-Owen Creek	5.00	0.40	0.42	0.00	3
05140101070010	East Fork Fourteen Mile Creek	17.07	1.27	0.16	0.00	3
05140101070020	West Fork Fourteen Mile Creek	18.25	0.42	0.35	0.00	3
05140101070030	Fourteen Mile Creek-New Washington	8.09	0.79	1.41	0.00	3
05140101070040	Fourteen Mile Creek-Flag Creek	8.88	0.81	0.69	0.00	3
05140101070050	Rogers Run	7.10	0.57	0.25	0.00	3
05140101070060	Fourteen Mile Creek-Polk Run	4.61	1.41	0.30	0.00	3
05140101070070	Fourteen Mile Creek-New Market	3.16	1.52	0.24	0.00	3
05140101070080	Henthorn Branch	5.08	0.42	0.07	0.00	3
05140101070090	Fourteen Mile Creek-Dry Branch	11.64	1.09	1.39	0.00	3
05140101070100	Yankee Creek	7.58	0.11	1.22	0.00	3
05140101070110	Fourteen Mile Creek-Lick Creek	9.46	0.84	6.68	0.00	3
05140101080010	Ohio River-Jenny Lind Creek	4.56	0.52	4.38	0.00	3
05140101080040	Ohio River-Battle Creek	3.96	0.78	1.89	0.00	3
05140101100010	Ohio River-Lentizier Creek	8.41	1.64	6.29	0.00	3
05140101100040	Lancassange Creek	6.71	1.27	24.17	0.00	3
05140101100050	Ohio River-Sixmile Island	1.84	0.49	46.24	0.00	3
05140101120010	Ohio River-Jeffersonville	2.86	3.18	81.17	0.00	3

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05140101120020	Ohio River-Mill Creek	7.74	3.50	64.42	0.00	3
05140101130010	Muddy Fork-Souders Branch	10.98	0.72	1.42	0.00	3
05140101130020	Muddy Fork-Fordyce Branch	6.86	0.67	1.38	0.00	3
05140101130030	Dry Fork	5.07	0.00	0.49	0.00	3
05140101130040	Muddy Fork-Persimmon Run	15.84	0.58	0.36	0.00	3
05140101130050	Big Run (Clark)	4.32	7.27	1.12	0.00	3
05140101130060	Muddy Fork-Elk Run	23.26	1.47	3.53	0.00	3
05140101140010	Silver Creek-Headwaters	11.34	0.43	1.77	0.00	3
05140101140020	Clegg Creek	7.65	0.25	0.30	0.00	3
05140101140030	Silver Creek-Bright Run	5.74	1.09	0.56	0.00	3
05140101140040	Miller Fork-Caney Fork	18.67	0.81	3.44	0.00	3
05140101140050	Blue Lick Creek-Bartle Knob Run	15.89	0.51	0.92	0.00	3
05140101140060	Silver Creek-Memphis	9.31	2.69	5.38	0.00	3
05140101140070	Sinking Fork-Headwaters	11.79	0.47	0.55	0.00	3
05140101140080	Sugar Run	8.16	1.01	1.05	0.00	3
05140101140090	Sinking Fork-Lower	8.15	0.59	3.40	0.00	3
05140101140100	Silver Creek-Quarry	1.69	2.74	0.69	0.00	3
05140101140110	Silver Creek-Camp Run	10.57	1.53	14.80	0.00	3
05140101140120	Pleasant Run	13.22	0.10	11.69	0.00	3
05140101140130	Silver Creek-Gaging Station	2.20	0.85	8.95	0.00	3
05140101140140	Lick Run	7.39	1.26	29.17	0.00	3
05140101140150	Silver Creek-Plum Run	6.95	1.60	24.33	0.00	3
05140101140160	Jacobs Creek	5.72	0.14	21.56	0.00	3
05140101140170	Silver Creek-Slate Run	7.67	3.36	50.76	0.00	3
05140101150010	Ohio River-New Albany	1.22	1.26	82.39	0.00	3
05140101150020	Falling Run	10.32	1.21	51.59	0.00	3
05140101150030	Ohio River-Louisville	0.31	4.60	20.50	0.00	3
05140101150040	Middle Creek (Floyd)	11.51	2.26	7.90	0.00	3
05140101150050	Ohio River-Dreamland Lake	0.38	1.26	1.51	0.00	3
05140101150070	Knob Creek	19.49	0.49	0.28	0.00	3
05140101150080	Ohio River-Eversole Creek	10.76	0.77	0.08	0.00	3
05140101150100	Ohio River-Fourmile Creek	7.27	0.86	0.09	0.00	3
05140104010010	Mosquito Creek-Headwaters	10.32	0.19	0.01	2.55	2
05140104010020	West Branch Mosquito Creek	12.22	0.21	0.00	5.72	2
05140104010030	Mosquito Creek-Little Mosquito Creek	4.84	0.70	0.00	0.00	2
05140104010040	Ohio River-Tioga Creek	3.79	3.48	0.18	0.00	2
05140104040010	Ohio River-Big Run	8.92	16.91	0.13	0.00	2
05140104040030	Ohio River-Flipping Creek	1.46	5.31	0.50	0.00	2
05140104050010	Buck Creek-Headwaters (Harrison)	15.43	0.11	0.03	5.93	2

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05140104050020	Middle Fork Buck Creek	12.31	1.54	0.08	3.02	2
05140104050030	Buck Creek-New Middletown Karst Area	13.28	0.18	0.27	11.51	2
05140104050040	South Fork Buck Creek	23.65	0.15	0.23	7.59	2
05140104050050	Buck Creek-West Karst Area	17.59	0.13	0.16	17.59	2
05140104050060	Buck Creek-East Karst Area (Laconia)	24.27	0.42	0.01	24.28	2
05140104050070	Buck Creek-Main Stem	7.30	3.41	0.06	0.00	2
05140104070010	Ohio River-Lick Run/Big Gully	6.31	1.05	0.86	0.00	2
05140104070020	Ohio River-French Creek/New Amsterdam	9.44	1.05	0.45	0.00	2
05140104080010	Indian Creek-Headwaters (Floyd)	5.13	0.23	1.80	0.00	2
05140104080020	Little Indian Creek (north)	4.68	0.07	0.42	0.00	3
05140104080030	Indian Creek-Galena	7.25	0.19	3.43	0.00	2
05140104080040	Indian Creek-Middle Fork	8.19	0.61	1.36	0.00	3
05140104080050	Indian Creek-Jersey Park Creek	11.23	0.34	1.46	0.00	3
05140104080060	Little Indian Creek-Headwaters	16.08	0.52	8.08	0.00	2
05140104080070	Little Indian Creek-Lower	10.15	0.55	7.84	0.00	2
05140104080080	Indian Creek-above Georgetown Creek	4.62	0.22	1.79	0.00	2
05140104080090	Georgetown Creek	11.33	0.25	12.07	0.00	2
05140104080100	Indian Creek-Richland Creek	8.90	0.18	1.83	0.00	3
05140104090010	Indian Creek-south trib (Sec 36)	4.91	0.10	0.13	0.00	3
05140104090020	Corn Creek	14.06	0.09	0.25	1.86	3
05140104090030	Indian Creek-Corydon Junction Karst Area	8.71	0.18	1.16	8.71	3
05140104090040	Indian Creek-Crandall Branch	13.77	0.05	1.68	0.00	3
05140104090050	Indian Creek- Raccoon Branch	10.96	0.12	0.72	2.77	3
05140104090060	Indian Creek-Brush Heap Creek	12.25	0.43	4.89	6.36	3
05140104090070	Little Indian Creek-North Karst Area	4.63	0.16	1.23	4.63	3
05140104090080	Little Indian Creek-South Karst Area	10.94	0.08	1.00	9.87	2
05140104090090	Little Indian Creek (Lanesville)	22.50	0.19	3.38	0.31	2
05140104100010	Indian Creek-North Karst Area	8.79	0.36	4.47	6.48	3
05140104100020	Indian Creek-East Karst Area	30.63	0.08	0.43	30.64	2
05140104100030	Indian Creek-Devils Backbone	17.97	0.63	0.00	0.00	2
05140104100040	Indian Creek-Blue Spring	8.66	1.72	0.00	0.00	2
05140104110010	Ohio River-Cold Friday Hollow	4.81	0.62	0.04	0.00	2
05140104110020	Ohio River-Potato Run	6.21	0.09	0.02	0.00	2
05140104120010	West Fork Blue River-Headwaters	19.55	0.07	4.08	0.00	2
05140104120020	West Fork Blue River-Brock Creek	8.63	0.17	7.79	0.00	2
05140104120030	Highland Creek	9.71	0.04	3.39	0.37	2
05140104120040	West Fork Blue River-Hoggatt Branch	11.44	1.28	1.97	0.00	2
05140104120050	Middle Fork Blue River-Lockwood Branch	12.80	0.16	0.09	0.00	3
05140104120060	Middle Fork Blue River-South Boston	18.23	0.06	0.18	0.00	3
05140104120070	Middle Fork Blue River-Lower	9.15	0.03	0.24	0.44	3

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05140104120080	Blue River-North Karst Area	10.28	0.24	0.27	8.63	2
05140104120090	Mill Creek (Washington)	20.35	0.22	0.04	3.24	2
05140104120100	Blue River-Rosebud Karst Area	25.48	0.18	0.05	25.44	2
05140104120110	Blue River-Main Stem	10.68	0.25	0.00	3.36	2
05140104130010	Poplar Branch-Springle Creek	12.14	0.31	0.37	0.00	3
05140104130020	South Fork Blue R-Whiskey Run	11.56	0.22	0.02	0.00	3
05140104130030	South Fork Blue R-Jeff Branch	8.97	0.48	0.21	0.00	3
05140104130040	South Fork Blue R-New Pekin	18.35	0.83	2.43	0.00	3
05140104130050	South Fork Blue R-Dutch Creek	19.41	0.16	0.21	0.00	3
05140104130060	Bear Creek (Harrison)	13.73	0.08	0.20	0.00	3
05140104130070	South Fork Blue R-Palmyra Karst Area	23.19	0.38	1.10	23.20	3
05140104130080	South Fork Blue R-Licking Creek	18.35	0.17	0.01	5.59	3
05140104140010	Blue River-Fredericksburg	14.99	0.44	0.29	9.07	2
05140104140020	Sinking Creek	22.26	0.03	0.27	22.28	2
05140104140030	Honey Creek	16.12	0.01	0.01	4.33	2
05140104140040	Boiling Creek-Karst Area	12.75	0.04	0.01	12.76	3
05140104140050	Blue River-Horseshoe Bend	9.78	1.57	0.00	2.96	3
05140104140060	Whiskey Run-Brandywine Fork	12.48	0.00	2.97	0.21	3
05140104140070	Cider Fork	19.52	0.02	0.01	11.33	3
05140104140080	Whiskey Run-Hogtown	7.76	0.00	0.26	3.15	3
05140104150010	Blue River-Milltown	13.80	0.29	2.28	8.90	3
05140104150020	Blue River-Slick Run	8.41	0.62	0.13	0.14	3
05140104150030	Blue River-Buzzard Roost/Duke Hills	18.44	0.92	0.11	4.62	3
05140104150040	Spring Creek-Ramsey Karst Area	36.56	0.08	0.45	34.97	3
05140104150050	Blue River-Hickman Branch	9.67	0.25	1.00	2.84	3
05140104150060	Blue River-Greenbrier Knob	15.71	0.91	0.33	0.00	2
05140104150070	Blue River-Dry Run	23.01	0.28	0.54	0.00	2
05140104170010	Ohio River-Big Bend	2.91	1.18	1.59	0.00	2
05140104170020	Ohio River-Oxbow Bend	4.83	0.46	0.11	0.00	2
05140104180010	Bird Hollow Creek-Dog Creek	9.93	0.06	0.14	0.00	2
05140104180020	Brownstown Creek	6.96	0.01	0.32	0.00	2
05140104180030	Camp Fork Creek	9.84	0.15	1.22	0.00	2
05140104180040	Otter Creek	18.88	0.02	0.01	0.00	2
05140104180050	Little Blue River-Grantsburg	8.84	0.11	0.35	0.00	2
05140104180060	Bogard Creek-Headwaters	14.00	0.01	0.15	0.00	2
05140104180070	Bogard Creek-Brushy Fork	8.05	0.37	0.10	0.00	2
05140104180080	Little Blue River-Sulphur	19.58	0.04	0.41	0.00	2
05140104180090	Sinking Fork-Potts Creek	12.79	0.03	0.64	0.00	2
05140104180100	Sinking Fork-Happy Hollow	14.42	0.10	0.02	0.00	2
05140104180110	Little Blue River-Deuchars	5.84	0.06	0.00	0.00	2

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05140104180120	Turkey Fork	25.95	0.10	0.48	0.00	2
05140104180130	Mill Creek (Crawford)	10.72	0.39	0.00	0.00	2
05140104180140	Little Blue River-Alton	5.92	4.06	0.07	0.00	2
05140104190010	Ohio River-Little Bend	2.31	0.82	1.47	0.00	2
05140104190020	Ohio River-Watson Run	0.47	0.18	0.07	0.00	3
05140104190040	Ohio River-Mill Creek/Flint Island	2.63	1.19	0.02	0.00	2
05140104200010	Oil Creek-Headwaters	6.00	0.03	0.09	0.00	2
05140104200020	Sprinkle Creek	6.43	0.01	0.00	0.00	2
05140104200030	Oil Creek-Dry Run	12.05	0.07	0.20	0.00	2
05140104200040	Chestnut Fork	5.93	0.06	0.00	0.00	2
05140104200050	Oil Creek-Bald Knob Creek	9.12	0.12	0.06	0.00	2
05140104200060	Indian Fork	8.93	0.77	0.34	0.00	2
05140104200070	Oil Creek-Webb Branch	3.79	7.57	0.01	0.00	2
05140104200080	Little Oil Creek	16.41	1.75	0.00	0.00	2
05140104200090	Oil Creek-Clover Lick	3.30	5.36	0.18	0.00	2
05140104210020	Ohio River - Little Poison Creek	5.98	1.32	0.21	0.00	2
05140104210030	Big Poison Creek	22.56	0.84	0.32	0.00	2
05140104210050	Ohio River-Rome	3.49	0.73	0.09	0.00	2
05140201010010	Ohio River - Bear Creek	5.93	2.56	0.01	0.00	2
05140201010020	Ohio River-Fanny Creek/Adams Run	6.14	1.39	0.01	0.00	2
05140201010050	Ohio River-Goehagan Creek/Stick Creek	1.68	0.13	0.00	0.00	2
05140201030010	Millstone Creek	7.25	2.02	0.00	0.00	2
05140201030020	Ohio River-Pond Run	5.03	1.51	0.29	0.00	2
05140201040010	Deer Creek-Headwaters (Perry)	8.72	0.04	0.59	0.00	2
05140201040020	Middle Deer Creek	10.26	0.72	0.24	0.00	2
05140201040030	East Deer Creek	7.58	0.23	0.03	0.00	2
05140201040040	Deer Creek-Main Stem	4.78	4.64	0.01	0.00	2
05140201040050	Little Deer Creek-Headwaters	7.52	0.06	0.02	0.00	2
05140201040060	Neglie Creek	5.78	0.19	0.26	0.00	2
05140201040070	Little Deer Creek-Caney Creek	5.79	4.58	0.32	0.00	2
05140201050020	Ohio River-Casselbury Creek	4.17	0.42	9.21	0.00	2
05140201050040	Ohio River-Windy Creek	12.17	0.44	20.84	0.00	2
05140201060010	Middle Fork Anderson R-Headwaters	8.16	0.04	0.40	0.00	2
05140201060020	Tige Creek	5.71	0.04	1.35	0.00	2
05140201060030	Middle Fork Anderson R-Cornstock Cemetery	7.46	2.90	0.01	0.00	2
05140201060040	Winding Branch	8.16	2.88	0.44	0.00	2
05140201060050	Middle Fork Anderson R-Mighty Branch	10.15	0.61	0.10	0.00	2
05140201060060	Middle Fork Anderson R-ds Bristow	8.71	0.08	0.04	0.00	2
05140201060070	Sulphur Fork Creek-Headwaters	14.36	1.62	0.62	0.00	2

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05140201060080	Little Sulphur Fork Creek	8.83	0.75	0.39	0.00	2
05140201060090	Sulphur Fork Creek-Sandy Branch	5.87	0.02	0.00	0.00	2
05140201060100	Middle Fork Anderson R-Theis Creek	14.84	0.52	0.07	0.00	2
05140201060110	Middle Fork Anderson R-Kraus Creek	13.04	0.12	0.10	0.00	2
05140201070010	Anderson River-Mitchel Creek	13.72	0.03	0.01	0.00	2
05140201070020	Anderson River-Waddle Branch	18.60	0.23	0.61	0.00	2
05140201070030	Sigler Creek	11.83	0.05	0.29	0.00	2
05140201070040	Anderson River-Rockhouse Branch	17.94	0.15	0.29	0.00	2
05140201070050	Hurricane Creek-Headwaters	16.44	0.52	0.05	0.00	2
05140201070060	Hurricane Creek-Ferdinand Run	6.56	0.43	0.10	0.00	2
05140201070070	Anderson River-Blackhawk Creek	9.56	0.11	0.74	0.00	2
05140201070080	Anderson River-Swinging Creek	11.10	0.47	0.52	0.00	2
05140201070090	Anderson River-Lanman Run	10.32	0.12	0.01	0.00	2
05140201070100	Anderson River-New Boston	18.94	0.26	0.02	0.00	2
05140201070110	Anderson River-Brushy Fork	11.11	0.88	0.12	0.00	2
05140201070120	Anderson River-Troy	5.58	2.28	0.77	0.00	2
05140201080010	Crooked Creek-Headwaters (Spencer)	15.99	2.54	1.37	0.00	2
05140201080020	Crooked Creek-West Tributary	15.34	0.63	0.15	0.00	2
05140201080030	Crooked Creek- Liberal	13.86	0.93	0.10	0.00	2
05140201080040	East Fork Crooked Creek-Middle Fork	19.37	0.14	0.13	0.00	2
05140201080050	Crooked Creek-Cedar Crest Lake	8.18	0.74	0.05	0.00	2
05140201090020	Ohio River-Corn Island	2.16	2.20	0.38	0.00	2
05140201090040	Ohio River-Slough Creek	4.82	1.85	0.35	0.00	2
05140201090050	Ohio River-Little Sandy Creek	12.12	1.32	0.15	0.00	2
05140201090060	Sandy Creek	27.21	0.93	0.31	0.00	2
05140201110010	Ohio River-Honey Creek	19.94	0.63	0.92	0.00	2
05140201110020	Ohio River-Huffman Ditch	20.64	0.98	2.11	0.00	2
05140201110030	Ohio River-Rockport	1.81	1.90	21.91	0.00	2
05140201130020	Ohio River-Caney Creek	7.91	2.83	0.68	0.00	2
05140201130030	Ohio River-Garrett Creek	10.97	1.96	0.65	0.00	2
05140201130040	Isaac Wright Drain-Hurricane Creek	10.18	0.63	0.76	0.00	2
05140201130050	Ohio River-Jackson Creek	6.03	0.51	0.29	0.00	2
05140201130060	Ohio River-Cowhide Slough/French Islands	1.79	5.06	1.71	0.00	2
05140201140010	Little Pigeon Creek-Headwaters	20.61	0.79	1.41	0.00	2
05140201140020	North Fork Little Pigeon Creek	22.32	0.36	1.03	0.00	2
05140201140030	Little Pigeon Creek-Buckhorn Creek	22.45	4.54	0.46	0.00	2
05140201140040	Pokeberry Creek-Sugar Creek	18.42	0.67	0.48	0.00	2
05140201140050	Pokeberry Creek-Robinson Creek	19.47	1.42	0.45	0.00	2
05140201140060	Little Pigeon Creek-Wires Ditch	11.44	7.90	0.06	0.00	2
05140201140070	Coles Creek-Headwaters	12.36	1.25	0.33	0.00	2

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05140201140080	Coles Creek-Lower	26.69	2.07	0.33	0.00	2
05140201140090	Little Pigeon Creek-East Fork	25.13	3.76	0.72	0.00	2
05140201140100	Little Pigeon Creek-South Trib(Fisher Knobs)	11.02	0.66	0.37	0.00	2
05140201140110	Barren Fork-Ellison West Ditch	20.83	8.31	0.46	0.00	2
05140201140120	Barren Fork-Hoskinson Cutoff	11.21	0.45	0.05	0.00	2
05140201150010	Otter Creek-Headwaters	22.18	2.88	0.22	0.00	2
05140201150020	Little Pigeon Creek-Otter Creek (Lower)	24.79	1.05	0.67	0.00	2
05140201150030	Little Pigeon Creek-Sweezer Ditch	13.44	0.06	0.08	0.00	2
05140201150040	Caney Creek (Warrick)	9.50	0.82	0.74	0.00	2
05140201150050	Little Pigeon Creek-Muddy Cr/Hooppole Dt	16.31	0.45	0.34	0.00	2
05140201150060	Little Pigeon Creek-Red Bush	6.81	3.00	1.09	0.00	2
05140201150070	Baker Creek-Richard Drain	32.26	0.42	0.90	0.00	2
05140201150080	Little Pigeon Creek-Clear Creek	12.21	4.16	0.69	0.00	2
05140201160010	Cypress Creek-Headwaters	29.16	2.48	6.60	0.00	2
05140201160020	Cypress Creek-Hines Ditch	22.80	2.97	1.44	0.00	2
05140201160030	Cypress Creek-Summer Pecka Ditch	15.69	4.52	12.83	0.00	2
05140201160040	Ohio River-Kolb Ditch	8.67	0.50	44.40	0.00	2
05140202010010	Ohio River-Green River Island (Kentucky)	0.02	75.23	2.72	0.00	2
05140202010020	Eagle Creek (Evansville)	13.49	4.68	25.90	0.00	2
05140202010030	Ohio River-Evansville	6.65	0.51	92.50	0.00	2
05140202020010	Sand Creek-Muddy Fork Ditch	17.47	0.31	0.12	0.00	2
05140202020020	Pigeon Creek-Clear Fork Ditch	17.72	0.74	3.47	0.00	2
05140202020030	Hurricane Creek Ditch	16.25	0.72	1.90	0.00	2
05140202020040	West Fork Creek	29.74	0.39	2.14	0.00	2
05140202020050	Pigeon Creek-Snake Run	22.56	0.22	0.07	0.00	2
05140202020060	Smith Fork-Headwaters	22.73	0.84	0.41	0.00	2
05140202020070	Smith Fork-Halfmoon Creek	16.66	4.92	0.29	0.00	2
05140202030010	Big Creek-Headwaters (Warrick)	18.09	6.37	2.48	0.00	2
05140202030020	Big Creek-Little Creek/Plum Branch	16.43	6.99	1.41	0.00	2
05140202030030	Big Creek-Wye In RR (Pigeon Creek)	11.11	4.57	0.30	0.00	2
05140202030040	Pigeon Creek-Clear Branch	22.77	11.32	1.23	0.00	2
05140202030050	Squaw Creek	13.33	6.03	0.57	0.00	2
05140202030060	Weinsheimer Ditch	14.19	0.48	12.71	0.00	2
05140202030070	Pigeon Creek-Barnes Ditch	20.63	7.36	4.74	0.00	2
05140202040010	Pigeon Creek-Crawford Brandeis Ditch	9.21	1.09	16.66	0.00	2
05140202040020	Bluegrass Creek-Headwaters	9.67	0.78	2.46	0.00	2
05140202040030	Unnamed Tributary (Blue Grass Creek)	8.19	1.96	0.23	0.00	2
05140202040040	Bluegrass Creek-Stubbs Fruedenberg Ditch	6.11	1.47	0.19	0.00	2
05140202040050	Schlensker Ditch	7.23	0.79	1.07	0.00	2

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
05140202040060	Bluegrass Creek-Dennis Wagner Ditch	6.61	2.10	0.42	0.00	2
05140202040070	Bluegrass Creek-Firlick Creek	6.49	0.60	5.64	0.00	2
05140202040080	Pigeon Creek-Harper Ditch	10.21	0.92	51.32	0.00	2
05140202040090	Little Pigeon Creek	17.50	0.89	18.20	0.00	2
05140202040100	Pigeon Creek-Kleymeyer Park	6.52	1.36	72.83	0.00	2
05140202040110	Locust Creek-Headwaters	10.13	2.69	5.16	0.00	2
05140202040120	Pigeon Creek-Locust Creek (lower)	9.52	3.83	27.44	0.00	2
05140202050010	Carpentier Creek	7.70	3.55	40.01	0.00	2
05140202050020	Ohio River-Mound Slough	4.93	8.36	15.61	0.00	2
05140202070010	Ohio River-Logsdon Stroud Branch	18.83	1.75	0.19	0.00	2
05140202070020	Bayou Creek	21.10	4.41	8.18	0.00	2
05140202070030	Ohio River-Diamond Island	6.55	12.43	0.85	0.00	2
05140202070040	Cypress Slough-Dixon Lewis Ditch	25.99	7.17	1.51	0.00	2
05140202070050	McFadden Creek	20.49	0.89	2.91	0.00	2
05140202070060	Ohio River-Smith/Beaverdam Creeks	13.43	3.34	13.00	0.00	2
05140202070080	Ohio River-Bayou Drain-Hovey Lake	8.68	38.84	0.00	0.00	2
05140202100040	Ohio River-Little Pitcher Lake	8.64	32.00	0.03	0.00	2
Huc14	**Hu_name**	**DA**	**W%**	**U%**	**NonContrib**	**Region**
07120001010010	Dixon West Place Ditch	20.70	1.59	10.23	2.46	6
07120001010020	Aldrich Ditch-Schang Ditch	16.42	3.70	0.74	4.64	6
07120001010030	Geyer Ditch-Headwaters	11.21	1.28	0.64	1.88	6
07120001010040	Hudson Lake Outlet	15.71	10.41	3.70	1.47	6
07120001010050	Geyer Ditch-Chain Lakes	21.15	6.25	2.47	8.32	6
07120001010060	Geyer Ditch-Gordon Airport/Crumstown	16.41	3.60	3.29	1.72	6
07120001010070	Laskowski/Niespodziany Ditches	18.95	3.51	2.36	0.00	6
07120001010080	Clear Lake Basin	22.79	6.28	1.38	22.81	6
07120001010090	County Line Ditch	11.23	2.12	0.08	0.00	6
07120001010100	Kankakee River-Sousley Lake-Tascher Ditch	11.50	4.36	0.03	3.99	6
07120001010110	Little Kankakee River-Collins Ditch	9.18	4.31	0.85	0.45	6
07120001010120	Little Kankakee River-Byron	31.07	4.20	0.64	11.01	6
07120001010130	Little Kankakee River-Mill Creek-Fish Lakes	19.75	11.18	1.85	1.47	6
07120001020010	Peter Sarber Ditch-Sherman Emmons Ditch	20.21	2.62	0.35	4.17	6
07120001020020	Pine Creek-Peter Sarber Ditch	21.74	3.16	2.84	3.14	6
07120001020030	Yellow Bank Creek-Jordan Creek	22.44	1.84	0.22	1.99	6
07120001020040	Potato Creek-Headwaters	17.14	6.22	0.37	0.00	6
07120001020050	Potato Creek-Kartoffel Creek	17.52	2.99	2.49	1.76	6
07120001020060	Pine Creek-Horace Miller Ditch	15.65	2.35	0.21	0.00	6
07120001030010	Kankakee River-DeWaele Ditch	5.92	4.48	0.01	0.00	6
07120001030020	Breckenridge Ditch-Ridge Run	21.95	6.04	1.13	0.97	6

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
07120001030030	Kankakee River-Johnani/Winchell Ditches	14.02	4.96	3.15	1.84	6
07120001030040	Kankakee River-Jensen/Place Ditches	17.56	2.64	0.03	0.00	6
07120001030050	Pine Lake-Stone Lake	11.36	21.74	12.61	8.50	5
07120001030060	Travis Ditch	27.30	6.87	14.07	16.27	6
07120001030070	Kingsberry Creek	15.24	3.74	8.40	10.53	6
07120001030080	Kankakee River-Long Ditch	10.42	2.61	1.99	0.40	6
07120001030090	Salisbury Ditch	19.74	0.99	2.09	0.00	6
07120001030100	Mill Creek-Headwaters (LaPorte)	23.79	4.64	0.27	12.44	5
07120001030110	Mill Creek-Hickleson Ditch	16.91	2.77	1.27	1.78	6
07120001030120	Kankakee River-Waltham/Marquardt Ditches	18.58	5.66	0.48	0.44	6
07120001040010	Robbins Ditch-Koontz Lake	12.38	8.69	1.02	1.42	6
07120001040020	Robbins Ditch-Amy Kelly Ditch	18.05	1.90	0.36	0.00	6
07120001040030	Jain Ditch	28.89	1.53	1.06	0.00	6
07120001040040	Robbins Ditch-Danielson Ditch	16.26	1.72	1.58	0.00	6
07120001040050	Robbins Ditch-Shearin Ditch	9.62	6.02	0.11	0.00	6
07120001040060	Kankakee River-Bailey Ditch	19.56	1.37	0.39	0.00	5
07120001040070	Kankakee River-Laramore Ditch	13.38	21.80	0.05	0.00	5
07120001050010	Lateral #5 Ditch-Lateral #15 Ditch	16.75	1.02	0.02	0.00	6
07120001050020	Yellow River-Newcomer/Herschberger Ditches	22.01	1.13	0.13	0.00	6
07120001050030	Kline Rouch Ditch	15.25	1.31	0.12	0.00	6
07120001050040	Armey Ditch-Headwaters	19.97	1.24	3.96	0.00	6
07120001050050	Yellow River-Armey Ditch-Albert Zeiger Ditch	10.29	2.46	9.49	0.00	6
07120001050060	Stock Ditch-Headwaters	22.66	5.27	2.00	4.35	6
07120001050070	Stock Ditch-Bunch Branches	26.11	3.31	0.23	0.00	6
07120001050080	Yellow River-Riverside Church	15.17	2.62	0.11	0.00	6
07120001050090	Yellow River-Isaac Sells Ditch-Lake of Woods	15.56	7.10	1.48	1.25	6
07120001050100	Dausman Ditch-Fleugel Ditch	17.82	1.82	0.06	4.79	6
07120001050110	Dausman Ditch-Lemler Ditch	27.01	1.18	0.02	0.00	6
07120001050120	Dausman Ditch-Whishler Ditch	8.41	1.72	0.00	0.87	6
07120001050130	Dausman Ditch-Brock/Border Ditches	17.54	1.25	0.00	0.00	6
07120001050140	Yellow River-Stone/Crews Ditches	22.22	2.12	0.37	2.47	5
07120001050150	Yellow River-Milner Seltenright Ditch	17.23	5.23	1.26	3.36	5
07120001050160	Yellow River-Elmer Seltenright Ditch	19.37	3.19	9.07	4.94	5
07120001060010	Yellow River-Dixon Lake Outlet	13.68	6.06	10.99	9.73	5
07120001060020	Yellow River-Breeding Ditch	11.47	5.85	0.17	4.22	5
07120001060030	Argos Basin (Non-Contributing)	7.96	1.58	5.37	7.98	5
07120001060040	Wolf Creek (Marshall)	25.93	2.61	0.06	1.76	5
07120001060050	Yellow River-Listenberger/Cliffton Ditches	18.81	7.16	0.13	2.74	5
07120001060060	Yellow River-Ober	21.23	8.07	0.10	0.00	5
07120001060070	Gunard Anderson-Carl Gjemre Ditches	14.14	7.14	0.21	0.00	5

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
07120001060080	Eagle Lake-Harry Cool Creek	11.31	11.86	1.26	1.93	5
07120001060090	Eagle Creek (Starke)	12.44	2.56	0.00	0.00	5
07120001060100	Yellow River-Knox	7.82	17.07	13.01	0.00	5
07120001070010	Craigmile Ditch-Cedar Lake Ditch-Bass Lake	19.88	14.37	1.51	0.00	5
07120001070020	Craigmile Ditch-Williams Ditch	19.46	2.47	1.53	0.00	5
07120001070030	Kline Arm-Craigmile Ditch	13.47	4.42	0.01	0.00	5
07120001070040	Bogus Run-Hook Ditch	26.66	2.87	0.12	0.00	5
07120001070050	Kline Arm-Lucas Ditch-Pine Creek	20.35	2.72	3.84	0.00	5
07120001080010	Sheldon Arm Hunsley Ditch-Rice Ditch	19.63	1.49	0.55	2.56	6
07120001080020	Tuesburg Ditch Hanna Arm-Williams Arm	20.07	4.81	0.15	0.00	6
07120001080030	Kankakee River-Origer Ditch	14.46	6.55	0.34	0.00	6
07120001080040	Pitner Ditch-Richman Ditch	21.97	0.52	0.85	0.00	6
07120001080050	Kuehn Ditch-Eckert Ditch	21.17	0.33	1.01	0.00	6
07120001080060	Pitner Ditch-Bessler Ditch	16.82	0.51	0.39	0.00	6
07120001080070	Kankakee River-Payne/Rassmussen Ditches	29.24	5.82	0.30	0.00	6
07120001080080	Cook Ditch	26.12	1.06	0.70	0.00	6
07120001080090	Kankakee River-Lawton/Davis Ditches	24.07	9.85	1.36	1.71	6
07120001090010	Topper Ditch	13.90	0.92	0.18	1.39	5
07120001090020	Slocum Ditch	11.78	0.56	1.80	0.00	5
07120001090030	Greiger Ditch	13.12	0.63	0.10	0.00	5
07120001090040	Reeves Ditch	15.63	0.38	0.00	0.00	6
07120001090050	Crooked Creek-Headwaters (Porter)	21.98	2.56	4.05	1.38	5
07120001090060	West Branch Crooked Creek-Flint Lake	15.26	6.51	8.37	0.00	5
07120001090070	Crooked Creek-Snake Island School	12.68	1.61	1.39	0.00	5
07120001090080	Koselki Ditch	12.60	1.67	7.85	0.00	5
07120001090090	Crooked Creek-Hannon Ditch	16.18	0.91	0.09	0.00	6
07120001090100	Cobb Ditch-Sievers Creek	14.52	1.57	1.23	0.00	5
07120001090110	Cobb Ditch-Wolf Creek	17.23	3.40	2.45	0.00	5
07120001090120	Ahlgrim Ditch	17.81	0.62	0.62	0.00	5
07120001090130	Sandy Hook Ditch/Benkie Ditch-Kouts	15.87	4.20	3.47	0.00	5
07120001090140	Phillips Ditch-Cornell Ditch	19.67	1.75	1.08	0.00	5
07120001090150	Cobb Creek-Breyfogel Ditch	24.84	6.19	3.75	0.00	5
07120001100010	Wolf Creek-Headwaters (Jasper)	17.76	2.20	0.62	0.00	6
07120001100020	Wolf Creek-Hickam Lateral	19.94	0.73	0.56	0.00	6
07120001100030	Hodge Ditch-Delehanty/Schatley Ditches	19.74	1.40	0.46	0.00	6
07120001100040	Hodge Ditch-Cook Ditch	26.68	1.89	0.84	0.00	6
07120001110010	Dehaan Ditch	36.58	3.35	3.58	0.00	6
07120001110020	Kankakee River-Brown Levee Ditch	11.99	25.73	1.25	0.00	6
07120001110030	Kankakee River-Roselawn	15.21	10.94	1.27	0.00	6
07120001110040	Moffitt Ditch	31.12	0.65	0.31	0.00	6

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
07120001110050	Knight Ditch	13.88	2.22	0.22	0.00	6
07120001120010	Mud Lake Ditch-Gregory Ditch	17.12	0.90	0.05	0.00	6
07120001120020	Beaver Lake Ditch-Mud Lake Ditch	15.73	0.75	0.37	0.00	5
07120001120030	Beaver Lake Ditch-Lawler Ditch	24.79	1.20	0.14	0.00	5
07120001120040	Kankakee River-Beaver(lower)/Best Ditches	22.15	21.73	1.23	0.00	5
07120001120050	Dike Ditch (Williams Ditch-ILL)	15.64	3.34	1.87	0.00	5
07120001130010	East Branch Stony Run	15.78	5.03	9.40	0.00	5
07120001130020	Eagle Creek-Stony Run	18.27	1.72	0.27	0.00	5
07120001130030	Singleton Ditch-Bryant Ditch	23.47	0.99	0.47	0.00	5
07120001130040	Spring Run	12.73	2.99	2.73	0.00	5
07120001130050	Greisel Ditch	16.58	0.90	0.29	0.00	5
07120001130060	Lake Dalecarlia-Cedar Lake	20.12	11.35	12.78	0.00	5
07120001130070	Singleton Ditch-Cedar Creek Ditch	15.84	2.26	8.19	0.00	5
07120001130080	Singleton Ditch-Bruce/Bailey Ditches	19.27	0.40	1.71	0.00	5
07120001130090	Brown Ditch (Lake)	21.33	1.30	0.04	0.00	5
07120001140010	West Creek-Bull Run	20.56	2.79	9.42	0.00	5
07120001140020	West Creek-Klaasville	14.22	2.21	2.95	0.00	5
07120001140030	West Creek-Singleton Ditch	13.94	1.06	0.30	0.00	5
07120001150020	Singleton Ditch-Bull Creek-Hayden Ditch	4.40	0.47	0.00	0.00	5
07120001170010	Kankakee River-Tallmadge (ILL)	0.06	0.00	0.00	0.00	5
07120002010010	Oliver Ditch-Ringneck Lake	26.45	11.82	0.14	0.00	5
07120002010020	Oliver Ditch-Lateral # 77 Ditch	25.45	1.18	0.02	0.00	5
07120002010030	Oliver Ditch-Griggs/Callahan/Folger Ditches	30.26	1.08	0.01	0.00	5
07120002020010	Iroquois River-Headwaters	25.84	1.37	0.62	0.00	5
07120002020020	Iroquois River-Dexter Ditch	12.16	1.13	0.04	0.00	5
07120002020030	Iroquois River-Bruner Ditch	14.87	3.29	0.02	0.00	5
07120002020040	Ryan Ditch Cutoff	25.64	0.47	0.18	0.00	5
07120002020050	Ryan Ditch-Smallfelt Ditch	28.17	0.47	0.13	0.00	5
07120002020060	Iroquois River-North Marion	28.77	2.91	5.28	0.00	5
07120002030010	Slough Creek-Spurgeon Ditch	14.69	2.02	0.06	0.00	5
07120002030020	Slough Creek-Jordan Ditch	17.93	1.39	0.01	0.00	5
07120002030030	Keefe Ditch	16.96	1.43	0.01	0.00	5
07120002030040	Bice Ditch-Nesius Ditch	21.80	2.00	0.49	0.00	5
07120002030050	Slough Creek-Bice Ditch (lower)	19.40	2.85	0.44	0.00	5
07120002030060	Carpenter Creek-Headwaters	23.42	0.69	1.96	0.00	5
07120002030070	Carpenter Creek-Claude May Ditch/Egypt	21.31	2.36	0.08	0.00	5
07120002030080	Slough Creek-Carpenter Creek (lower)	9.43	2.14	0.05	0.00	5
07120002040010	Curtis Creek-Headwaters	12.40	0.46	0.64	0.00	5
07120002040020	Curtis Creek-Long Ditch (Mount Ayr)	19.49	2.17	0.39	0.00	5

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
07120002040030	Iroquois River-Curtis Creek-Yeoman Ditch	13.00	4.43	0.63	0.00	5
07120002040040	Iroquois River-Turner Ditch	15.65	1.87	0.03	0.00	5
07120002040050	Gushwa Ditch-Hunter Ditch	13.80	0.12	0.01	0.00	5
07120002040060	Mosquito Creek-Simonin Ditch	11.20	0.70	0.11	0.00	5
07120002040070	Iroquois River-Hickory Branch	15.14	1.05	0.00	0.00	5
07120002040080	Iroquois River-Barten Ditch	14.98	5.34	1.96	0.00	5
07120002040090	Hunter Ditch	28.84	0.21	1.22	0.00	5
07120002040100	Darroch Ditch-Bower Ditch	17.10	0.46	0.14	0.00	5
07120002050010	Iroquois River-Strole Ditch	20.25	5.74	0.12	0.00	5
07120002050020	Thompson Ditch-Clark Ditch	17.54	0.91	0.01	0.00	5
07120002050030	Thompson Ditch-Hambridge Ditch	11.91	1.01	0.03	0.00	5
07120002050040	Thompson Ditch-Whaley Ditch	6.73	1.29	0.11	0.00	5
07120002050050	Montgomery Ditch-Headwaters	17.66	0.07	0.03	0.00	5
07120002050060	Montgomery Ditch-Morrison #1/Kent Ditches	17.79	0.39	2.09	0.00	5
07120002050070	Montgomery Ditch-Morrison #2 Ditch	13.69	0.28	2.14	0.00	5
07120002050080	Montgomery Ditch-Bonham Ditch	13.42	0.57	0.17	0.00	5
07120002050090	Montgomery Ditch-Sheldon #1 Ditch	6.44	3.19	0.01	0.00	5
07120002050100	Iroquois River-South Concord Branch (ILL)	0.82	8.62	0.00	0.00	5
07120002050110	Iroquois River-Blackstone Branch (ILL)	0.39	0.54	0.00	0.00	5
07120002070010	Sugar Creek-Upper Sugar Creek (Benton)	22.20	0.19	0.23	0.00	5
07120002070020	Sugar Creek-Earl Park	21.53	0.61	0.74	0.00	5
07120002070030	Mud Creek-Headwaters (Benton)	25.76	0.39	1.28	0.00	5
07120002070040	Mud Creek-Coon Creek/Gretchencord Ditch	12.73	0.30	0.40	0.00	5
07120002070050	Sugar Creek-Indiana/Illinois	3.12	0.70	0.00	0.00	5
07120002070060	Finigan Ditch-Kult Ditch	14.75	0.17	0.10	0.00	5
07120002070070	Mud Creek-Cole Creek-Salmon Ditch	9.49	0.05	0.12	0.00	5
07120002070080	Stockland (IL) Tributary	2.28	0.00	0.00	0.00	5
07120002090030	Coon Creek-Headwaters (ILL)	2.21	0.05	0.00	0.00	5
07120002090040	Possum Trot Ditch (ILL)	0.13	0.00	0.00	0.00	5
07120002150010	Beaver Creek-Bergen/Hanger Ditches	11.50	1.03	0.06	0.00	5
07120002150020	Narrows Ditch-Spitler Ditch	12.27	1.60	0.02	0.00	5
07120002150030	Beaver Creek-Deardurff Ditch	18.60	1.22	1.01	0.00	5
07120002150040	Beaver Creek-Salisbury Ditch	17.17	3.00	1.03	0.00	5
07120002150050	Beaver Creek-Indiana/Illinois	0.63	12.16	0.00	0.00	5
07120002150060	JC Murphy Lake-Riner Houseworth Ditch	12.90	29.00	0.01	0.00	5
07120002150070	Hooper Branch-Riner Houseworth Ditch	1.99	29.35	0.00	0.00	5
07120002150100	Little Beaver Creek-Headwaters	1.86	1.60	0.00	0.00	5
07120003030020	Plum Creek-Klemme Creek	2.90	0.58	22.63	0.00	5
07120003030030	Hart Ditch (Plum Creek)-Dyer Ditch	17.45	4.59	43.32	0.00	5

Table D.1: Basin Parameters for HUC 14 basins

Huc14	Hu_name	DA	W%	U%	NonContrib	Region
07120003030040	Cady Marsh Ditch	16.12	5.71	56.95	0.00	5
07120003030050	Little Calumet River (E-W Split)	15.09	13.67	52.26	0.00	5
07120003030060	Little Calumet River-Indiana/Illinois Line	4.71	1.10	86.29	0.00	5
07120003040040	Thorn Creek-North Creek	1.83	3.39	25.88	0.00	5
07120003050010	Grand Calumet River - West	7.17	3.89	71.01	0.00	5

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