Final Report

FHWA/IN/JTRP-2004/18

DEVELOPMENT OF A STRATEGY FOR PREPARING AN INDOT STORM WATER QUALITY MANAGEMENT PLAN

by

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Joint Transportation Research Program
Indiana SPR 2752
Project No. C-36-68S
File No. 4-7-19

Conducted in Cooperation with the
Indiana Department of Transportation
and the U.S. Department of Transportation
Federal Highway Administration

Purdue University
West Lafayette, Indiana
November 2004

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
FHWA/IN/JTRP-2004/18		

4. Title and Subtitle	5. Report Date
DEVELOPMENT OF A STRATEGY FOR PREPARING AN INDOT STORM WATER QUALITY MANAGEMENT PLAN	November 2004
	6. Performing Organization Code
7. Author(s)	8. Performing Organization Report No.
Lynn A. Corson	FHWA/IN/JTRP-2004/18
9. Performing Organization Name and Address	10. Work Unit No.
Joint Transportation Research Program 550 Stadium Mall Drive Purdue University West Lafayette, IN 47907	
	11. Contract or Grant No. SPR-2752
12. Sponsoring Agency Name and Address	13. Type of Report and Period Covered
Indiana Department of Transportation State Office Building 100 North Senate Avenue Indianapolis, IN 46204	Final Report
	14. Sponsoring Agency Code

15. Supplementary Notes

Prepared in cooperation with the Indiana Department of Transportation and Federal Highway Administration.

16. Abstract

The purpose of the study was to conduct research and prepare documents, data tables, reports and GIS maps to be included in the INDOT SWQMP that address each of the following Minimum Control Measures (MCMs) specified in the federal and state regulation: (1) public education and outreach; (2) public participation and involvement; (3) illicit discharge detection with elimination; (4) construction site runoff control; (5) post-construction runoff control and (6) pollution prevention and good housekeeping. The MCMs are minimum measures which, when implemented by INDOT, will ensure that storm water quality meets the minimum water quality standards.

The research focused on the major provisions of the storm water regulations for Municipal Separate Storm Sewer Systems (MS4s) that will need to be addressed in INDOT's storm water permit application. The study developed various databases, relying on GIS and other tools, to identify: (1) the INDOT maintenance facilities and highway segments within Indiana's 147 MS4 communities; (2) receiving waters to which storm water from facilities and highways migrates; (3) "sensitive" areas, such as public swimming areas, surface drinking water intakes, waters containing endangered species and state outstanding and exceptional use waters, which could be degraded by contaminated storm water; and (4) available water quality monitoring data of the receiving waters in all MS4 areas.

The study reviewed the department's current policies, practices and procedures implemented as Best Management Practices (BMPs) to protect water quality and concludes with recommendations for expanding its efforts to meet the requirements of the storm water regulation.

17. Key Words	18. Distribution Statement
GIS, environmental sensitivity, salt operations, POTW, storm water, BMPs, MS4s, storm water controls, water quality monitoring data, MCMs	No restrictions. This document is available to the public through the National Technical Information Service, Springfield, VA 22161

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	219	

Form DOT F 1700.7 (8-69)

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INTRODUCTION

U.S. EPA regulations (40 CFR Parts 9, 122, 123, and 1214) promulgated December 8, 1999 (FR 58721) require small, municipal, separate, storm sewer systems (MS4s) to obtain National Pollutant Discharge Elimination System (NPDES) permits for storm water discharges. State transportation agencies are regulated by the EPA rule as MS4s.

Indiana's authority for issuing storm water permits to MS4s is found at 327 IAC 5-2-9.

The original timeframe for this project -- January 9, 2002 to March 31, 2004 -- was extended to accommodate the eight month delay encountered in adopting the Indiana Storm Water rule. Also, the scope of the project was expanded November 25, 2002 by the JTRP Board to include water quality monitoring.

Midway through the rule adoption process, the Indiana Department of Environmental Management (IDEM) decided that it would issue INDOT's NPDES pursuant to the general storm water discharge permit rule, 327 IAC 5-4-6, rather than the specific MS4 "Rule 13," 327 IAC 15-13-1, but it noted a provision of the former rule [327 IAC 5-4-6(d)(1)(A)] that allows the department to consider which of the requirements of "Rule 13" should be contained in the permit issued under "5-4-6."

This change rendered the timetable included in the study's proposal (page 2) and the scheduled dates for completion of responses to the three "Parts" of the permit (pages 4 and 5) invalid. Furthermore, a decision by the department to await the conclusion of negotiations with the City of Indianapolis concerning its storm water permit, before beginning negotiations with INDOT about its permit, introduced uncertainty as to what the actual permit requirements would be: INDOT's permit application [Appendix A],

submitted to IDEM September 24, 2003, was not discussed until May 18, 2004, two weeks before the submittal of the draft of this final report.

The "Purpose of the Proposal," described in the study's proposal, was to "develop a strategy for preparing the SWQMP (Storm Water Quality Management Plan) [and] subsequently, the Plan, itself." However, because of the above-described delay and change, the focus of the research was on providing documentation and data that (1) could be submitted to IDEM as part of its permit application and (2) would substantiate the decisions of INDOT officials concerning the attributes of its Storm Water Quality Management Plan which, because of the size, statewide authority and complexities of the organization, are substantially different than those of a municipality.

PROBLEM STATEMENT

State transportation facilities -- highways, rest areas and maintenance facilities -- are or contain impermeable surfaces that collect precipitation and can become a non-point source of storm water or meltwater runoff to surface waters known as "waters of the state."

Allowing or directing runoff of storm water to surface water has been considered by federal and state regulation to be a "discharge," since the first storm water rules were promulgated in 1990, and subject to permit authority. Selected industrial facilities and large cities (such as Indianapolis) were required by the 1990 regulation to obtain permits or seek exemptions from permit authority. State transportation agencies were not included in this first "phase" (Phase I), but are specifically mentioned in the Phase II regulation.

The Indiana Department of Transportation, like other states' transportation agencies, has not previously implemented department-wide policies and procedures to prevent storm water migration from its property to surface water. The practice of state transportation agencies, in fact, is to intentionally clear the highways of accumulated precipitation as quickly as possible to ensure the safety of motorists. This concern for safety has prompted considerable innovation in highway design and construction to facilitate the collection of storm water and its discharge via a drainage system to the nearest ditch, creek, river or stream as efficiently as possible. It follows, then, that the design practices relevant to highways would be applied to rest areas along these highways and to the facilities where the highway maintenance "crews" are located.

Water quality is the focus of the federal Water Pollution Control Act of 1972, as amended, and the attendant U.S. Environmental Protection Agency and state regulations. The "quality" of storm water that contains chloride from road salt and petroleum and heavy metal constituents from automobiles and silt from runoff of neighboring properties into the highway drainage system is a chief concern. Also, the variety of activities performed at highway maintenance facilities, many of which require the use of chemical products and/or generate chemical pollutants, makes these potential sources of water quality problems among transportation facilities.

Previous research conducted by this study's Principal investigator have well-documented details of the "problem" and need not be elaborated here. These studies include:

- "Development of a Strategy for Compliance with EPA and OSHA Regulations Applicable to INDOT Facilities," Joint Highway Research Project, FHWA/IN/JHRP-92-22, June 15, 1994;
- "Follow-up Study to FHWA/IN/JHRP-92/22: Development of a Strategy for Compliance with EPA and OSHA Regulations Applicable to INDOT Facilities," Joint Highway Research Project, FHWA/IN/JTRP-2000/29, April 2001,
- "Development of a Database and System for Analyzing the Actual and Potential Impacts on the Environment of Existing and Planned INDOT Sites," Joint Highway Research Project, FHWA/IN/JTRP-2002/24, February 2003.

OBJECTIVES OR PURPOSE

The purpose of the study was to conduct research and prepare documents, data tables, reports and GIS maps to be included in the INDOT SWQMP that address each of the following Minimum Control Measures (MCMs) specified in the federal and state regulation:

1. public education and outreach
2. public participation and involvement
3. illicit discharge detection with elimination
4. construction site runoff control
5. post-construction runoff control
6. pollution prevention and good housekeeping

The MCMs are minimum measures which, when implemented by INDOT, will ensure that storm water quality meets the minimum water quality standards.

SCOPE OF WORK

The Phase II "Rule 13" format for an NPDES storm water permit application is set forth below. This was assumed to be the general format that will be required by IDEM and, therefore, constituted the scope of work for this research. The Plan is comprised of three major components:

- Part A - Initial Application
  - Listing of the MS4 entities [facilities and highways] within MS4 areas.
  - List of all known receiving waters or, if the discharge is to another MS4, the name of the MS4 entity and the initial receiving water; receiving waters include, at a minimum, waters listed on the United States Geological Survey National Hydrography Dataset.
- Part B - Baseline Characterization
  - The identification of known sensitive areas, such as public swimming areas, surface drinking water intakes, waters containing threatened or endangered species and their habitat, or state outstanding resource and exceptional use waters. The identified sensitive areas should be given the highest priority for the selection of BMPs and the prohibition of new or significantly increased MS4 discharges.
  - A review of known existing and available monitoring data of the MS4 area receiving waters.
  - The identification of areas having a reasonable potential for or actually causing storm water quality problems based on the available and relevant chemical, biological, physical, land use, and complaint data.

- An investigation of land usage and assessment of structural and nonstructural storm water BMP locations and conclusions, such as key observation or monitoring locations in the MS4 conveyances, derived from the land usage investigation.
- Assessment results of BMP locations and, as appropriate, the structural condition of the BMP related to the BMP's effectiveness in improving storm water quality. As appropriate, this assessment should include recommendations for placement and implementation of additional BMPs within the MS4 area.

- Part C - Program Implementation
  - An initial evaluation of the storm water program for the MS4 area. This evaluation should include information on all known structural and nonstructural storm water BMPs utilized.
  - A detailed program description for each minimum control measure (MCM);
  - A timetable for program implementation milestones, which includes milestones for each of the MCMs and applicable Part B: Baseline Characterization conclusions (BMP recommendations, additional protective measures for sensitive areas, and correcting identified water quality problems).
  - As appropriate, a schedule for ongoing characterization of the receiving waters either at, or in proximity to, outfall locations identified in Part B:

Baseline Characterization to evaluate BMP effectiveness and receiving water quality.

- A narrative and mapped description of the MS4 area boundaries that indicate responsible MS4 entity areas for each MCM.
- An estimate of the linear feet of MS4 conveyances within the MS4 area, segregated by MS4 type, for example, by open ditch or pipe.
- A summary of which structural BMP types will be allowed in new development and redevelopment for the MS4 area.
- A summary on [of] storm water structural BMP selection criteria, and, where appropriate, associated performance standards that must be met after installation to indicate BMP effectiveness.
- The identification of programmatic indicators, grouped by corresponding MCM:
    + Number and location of storm drains marked or cast, segregated by marking method.
    + Estimated or actual linear feet or percentage of MS4 conveyances mapped and indicated on an MS4 area map.
    + Number and location of MS4 area outfalls mapped.
    + Number and location of MS4 area outfalls screened for illicit discharges.
    + Number and location of illicit discharges detected.
    + Number and location of illicit discharges eliminated.

+ Number of and estimated or actual amount of material, segregated by type, collected from HHW [roadside trash] collections in the MS4 area.
+ Number and location of constituent drop-off centers [maintenance facilities] for [INDOT] automotive fluid recycling.
+ Number of construction sites obtaining an MS4 entity-issued storm water run-off permit in the MS4 area.
+ Number of construction sites inspected.
+ Number and type of enforcement actions taken against construction site operators.
+ Number, type, and location of structural BMPs installed.
+ Number, type, and location of structural BMPs maintained or improved to function properly.
+ Type and location of nonstructural BMPs utilized.
+ Number and location of new … institutional refueling areas, … that replaced existing tank systems that have installed storm water BMPs.
+ Number and location of MS4 entity facilities that have containment for accidental releases of stored polluting materials.
+ Estimated or actual acreage or square footage, amount, and location where pesticides and fertilizers are applied by a regulated MS4 entity to places where storm water can be exposed within the MS4 area.

+ Estimated or actual linear feet or percentage and location of unvegetated swales and ditches that have an appropriately-sized vegetated filter strip.
+ Estimated or actual linear feet or percentage and location of MS4 conveyances cleaned or repaired.
+ Estimated or actual linear feet or percentage and location of roadside shoulders and ditches stabilized, if applicable.
+ Number and location of storm water outfall areas remediated from scouring conditions, if applicable.
+ Number and location of deicing salt and sand storage areas covered or otherwise improved to minimize storm water exposure.
+ Estimated or actual amount, in tons, of salt and sand used for snow and ice control.
+ Estimated or actual amount of material by weight collected from catch basin, trash rack, or other structural BMP cleaning.
+ Estimated or actual amount of material by weight collected from street sweeping, if utilized.
+ If applicable, number or percentage and location of canine parks sited at least one hundred fifty (150) feet away from a surface waterbody.

ANALYSIS OF THE DATA
CONCLUSIONS AND RECOMMENDATIONS, INCLUDING STRATEGIES FOR IMPLEMENTATION

This section of the report is organized by research topic relevant to selected sections required of the Storm Water Quality Management Plan stated in the Scope of Work.

I. Identification of the entities [maintenance facilities and highways] included in the MS4 areas.

The MS4 areas designated by the Indiana Department of Environmental Management (IDEM) can be found at http://www.in.gov/idem/water/npdes/permits/wetwthr/storm/rule13criteria.html, and are included here as Appendix B. The researchers created a GIS layer incorporating the boundaries of these areas and overlaid other layers of data representing geographic locations of maintenance facilities and segments of state-maintained highways. The latitude/longitude coordinates were provided by INDOT based on the use of a commercially available ($50) Street Atlas software program. Though attempts were made by INDOT staff to ensure accuracy of the coordinates, using aerial and ground photos, errors persist. INDOT should no longer rely on street address identification of their facilities. GPS readings should be recorded for all facilities and appurtenances. [See Appendix C for the corrected file of facility coordinates].

A. Maintenance Facilities

There are approximately 160 INDOT maintenance facilities operated at 142 geographic locations throughout the state. Fifty-nine (59) of these facility locations are located within MS4 areas (42%) and 83 (58%) are located outside of MS4 areas. The totals for each INDOT District are enumerated on Table 1.

Table 1

District	Number of Facility Locations Within MS4s	Outside MS4s	Total
Crawfordsville	8	10	18
Fort Wayne	8	14	22
Greenfield	14	12	26
LaPorte	12	12	24
Seymour	7	16	23
Vincennes	6	16	22
Toll Road	4	3	7
Total	59	83	142

The list of facilities, by District, within and outside MS4 areas is included here as Appendix D.

B. Highways

There are 11,216 centerline miles (28,500 lane miles) of state, U.S. and Interstate highways in Indiana. There are 1,812 centerline miles of highway within MS4 areas maintained by INDOT and an additional 100 or so miles of state highways that, over the years, have reverted to local control and, for the purposes of the storm water permit, are within the "operator" jurisdiction of the municipal MS4. Table 2 on the next page reveals the total MS4 mileage by district and by the "Sensitivity Levels" defined and applied by the researchers. The individual highway segments are identified in the CD-ROM included as Appendix E.

Table 2
MS4 Miles by District and Sensitivity Level

	Sensitivity Level											
	1	2	3	4	1K	2K	3K	4K	K only	Subtotal	None	Total
District												
Ft. Wayne	2.5	0.1		138.8						141.4	97.4	238.8
Greenfield	1.7		55.1	189.0						245.8	223.5	469.3
LaPorte	74.1	36.9		205.6						316.6	135.5	452.1
Seymour			30.8	88.3				42.6	35.5	197.2	64.4	261.6
Vincennes		5.9		54.1			2.8	9.1	3.2	75.1	39.9	115.0
Crawfordsville	8.3			103.2				0.6	5.0	117.1	93.7	210.8
Toll Road	1.5	0.4		34.5						36.4	28.5	64.9
Total	88.1	43.3	85.9	813.5	0.0	0.0	2.8	52.3	43.7	1,129.6	682.9	1,812.5

Note: Sensitivity levels 1 through 4 are combined with Karst (K) geology in levels 1K through 4K; "K only" is for sensitivity based only on that feature. Miles to which sensitivity criteria did not apply are designated "None." State maintained highways that have reverted to local control are excluded from the above totals, as are those in "Conditionally Exempt Areas Based on Low Population" and areas adjoining Urbanized Areas, but declared "exempt" by IDEM.

Source: Appendix E: State_Roads_Rule13_listing_2004.els (June 6, 2004)

INDOT officials decided in 2003 to focus activity on Sensitivity Level 1 and 2 highway segments in each of the districts for the first five-year term of its permit. Those highway segments are identified in Tables 3 and 4 on the following pages for MS4 operators within each district.[1] This table also identifies the receiving waters for each MS4 operator's combined sewer system, which will be discussed in Section II of this report.[2]

[1]from Appendix E of this report
[2]from http://www.in.gov/water/compbr/inspections/index.html

Table 3

Level 1 "Sensitive" Highway Segments in MS4s

District	MS4	MS4 Operator[1]	Hwy	Alt Name	MS4 Mileage	Receiving Waters[2]
Crawfordsville	Crawfordsville	Crawfordsville	I-74		0.242	Sugar Creek to Wabash River
	Crawfordsville	"	I-74 Ramp		0.393	"
	Crawfordsville	"	SR 32	SR 47	0.437	"
	Crawfordsville	"	US 136	SR 32	2.467	"
	Crawfordsville	"	US 231	SR 32	2.157	"
	Crawfordsville	"	US 231	SR 43	0.583	"
	Crawfordsville	"	US 231	US 231 N	0.523	"
					6.802	
		Tippecanoe Co.	I-65 Ramp		0.242	
		"	SR 38	SR 38 E	1.016	
					1.258	
Fort Wayne	Leo-Cedarville	Allen Co.	SR 1	Leo Rd	1.815	
					1.815	
Dayton						
Greenfield	Kokomo	Kokomo	SR 22	7th St	0.040	Wildcat Creek to Wabash River
					0.040	
LaPorte	Chesterton	Chesterton	SR 49	N. S. Hwy 49	0.153	Little Calumet River to Lake Mich.
		"	US 20	E US Hwy 20	0.348	"
	E. Chicago	E. Chicago	Ramp		1.244	Grand Calumet River to Lake Mich.
	E. Chicago	"	SR 912		1.981	"
	E. Chicago	"	US 12	Dunes Hwy	0.199	"
Chesterton	E. Chicago	"	US 12	US 20	0.590	"

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Level 1 "Sensitive" Highway Segments in MS4s continued

District	MS4	MS4 Operator[1]	Hwy	Alt Name	MS4 Mileage	Receiving Waters[2]
LaPorte Cont'd	Gary	Gary	Ramp		0.876	Grand Cal R. & Little Cal R.
	Gary	"	SR 312	Chicago Ave	0.471	"
		"	SR 912		0.611	"
	Gary	"	US 12	Dunes Hwy	0.149	"
	Gary	"	US 12	E. Dunes Hwy	1.552	"
	Gary	"	US 12	US 20	0.977	"
Gary	Hammond	Hammond	US 12	Dunes Hwy	2.180	Grand Cal River to Lake Michigan
	Hammond	Hammond	US 41	Calumet Ave	0.802	"
	Michigan City	LaPorte	SR 212		0.252	Trail Creek to Lake Michigan
	Michigan City	"	US 12	Dunes Hwy	4.163	"
	Michigan City	"	US 12	W. US 12	0.824	"
	Michigan City	"	US 12	W. Mich. Ave	3.811	"
	Michigan City	"	US 35	E. Mich. Ave	0.833	"
	Michigan City	"	US 421	Franklin St	0.892	"
					10.775	
	Ogden Dunes	Ogden Dunes	US 12	Dunes Hwy	1.021	
	Ogden Dunes	"	US 12	E. Dunes Hwy	0.001	
	Ogden Dunes	"	US 12		0.001	
	Ogden Dunes	"	US 12	US 20	0.001	
	Portage	Portage	I-94		2.818	Burns Ditch to Lake Michigan
		"	I-94 Ramp			"
		"	SR 249			"

4.636

2.982

1.024

2.972

4.023

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Portage
Portage

Level 1 "Sensitive" Highway Segments in MS4s Continued

	MS4	MS4 Operator[1]	Hwy	Alt Name	MS4 Mileage	Receiving Waters[2]
District LaPorte Cont'd	Portage	Portage	US 12	Dunes Hwy	5.511	Burns Ditch to Lake Michigan
	Portage	"	US 12	E. Dunes Hwy	1.573	"
		"	US 12			"
	Portage	"	US 12	US 20	1.573	"
	Portage	"	US 12	W. Mich. Blvd	0.066	"
	Portage	"	US 12	Melton Rd	2.067	"
					22.915	
Portage	Porter	Porter	I-94	2.312	4.405	E. Branch Little Calumet River
		"	I-94 Ramp			"
	Porter	"	SR 49	N. SR 49	2.083	"
	Porter	"	US 12	Dunes Hwy	0.643	"
	Porter	"	US 12	E. US 12	1.366	"
		"	US 12			"
	Porter	"	US 12	W. Dunes Hwy	1.047	"
Porter	Porter	"	US 20	3.505 E. US 20	0.915	"
	Porter	"	US 20	Melton Rd	2.402	"
		"	US 20		1.811	"
	Porter	"	US 20	W. US 20	2.097	"
Porter				4.500	24.774	
Porter	Whiting		US 12	Dunes Hwy	1.050	
	Whiting	"	US 12	US 20	0.248	
Toll Road	Hammond Whiting	Hammond	I-90		1.204	Grand Cal River to Lake Michigan
	Hammond	"	I-90 Ramp			
				1.298		
				0.285		"
				1.489		

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Level 1 "Sensitive" Highway Segments in MS4s continued

Sensitivity Level 1 Mileage in MS4s	88.1
Total State Level 1 Mileage	365.2
Percent Level 1 Mileage in MS4s	24.1%
Level 1 Mileage Outside MS4s	277.1

[1]Rule 13-MS4 Operator Listing (updated 3/18/04) at http://www.in.gov/idem/water/npdes/permits/wetwethr/storm/ms4oper.html
[2]Receiving waters for POTW and Combined Sewer discharge (updated 1/04) identified at http://www.in.gov/water/compbr/inspections/index.html. Separate storm sewer discharge assumed to be to the same receiving water. No designation of "receiving waters" means the MS4 collection system discharges to a neighboring community.

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Table 4

Level 2 "Sensitive" Highway Segments in MS4s

District	MS4	MS4 Operator[1]	Hwy	Alt Name	MS4 Mileage	Receiving Waters[2]
Fort Wayne	Peru	Peru	US 24	US 24 Bus. Rt.	0.114	Wabash River
LaPorte	Crown Point	Crown Point	I-65	Deep River Br.	1.747	Beaver Dam Ditch to Deep River
	Crown Point	"	SR 53	Broadway	0.939	"
	Gary	Gary	I-65	Deep River Br.	0.386	Grand Cal R. & Little Cal R.
		"	I-65	0.114	1.304	"
		"	I-94		1.102	"
		"	Ramp		2.249	"
				2.686		
	Hobart	Hobart	SR 130	W. Hwy 130	0.398	
Gary	Hobart	"	SR 51	E. 3rd St	2.384	
Gary	Hobart	"	SR 51	Grand Blvd	0.303	
Gary	Hobart	"	SR 51	Lake Park Ave	0.251	
	Hobart	"	SR 51	Ripley St	2.698	
	Hobart	"	US 30	5.041 W. US 30	0.884	
	Hobart	"	US 6	E. 37th Ave	0.798	
	Hobart	"	US 6	SR 51	0.481	
	Lake Station	Lake Station	I-65		0.397	
	Lake Station	"	I-94 Ramp		5.615	
	Lake Station	"	SR 51	E. 3rd St	0.177	
	Lake Station	"	US 51	Ripley St	0.118	
	Lake Station	"	US 6	SR 51	1.766	
				8.197		

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Level 2 "Sensitive" Highway Segments in MS4s Continued

	MS4	MS4 Operator[1]	Hwy	Alt Name	MS4 Mileage	Receiving Waters[2]
District						
LaPorte Cont'd	Merrillville	Merrillville	I-65	Deep River Br.	3.025	Turkey Creek
		"	I-65		1.330	"
		"	I-65 Ramp		2.172	"
		"	SR 53	Broadway	2.268	"
	Merrillville	"	US 30	E. Lincoln Hwy	1.066	"
	Merrillville	"	US 30	W. US 30	2.260	"
					12.121	
Merrillville Toll Road	Gary	Gary	I-80/94	Access Rd	0.444	Grand Cal R. & Little Cal R.
	Lake Station	Lake Station	I-80	I-94	0.809	
	Lake Station	"	I-80/94	Access Rd	0.000	
Vincennes	Jasper	Jasper	SR 162	3rd St E.	1.516	Patoka River
	Jasper	"	SR 164	E. 3rd St	1.528	"
	Jasper	"	SR 164	E. SR 164	0.167	"
	Jasper	"	SR 56	W. 6th St	0.751	"
		"	US 231		0.354	"
	Jasper	"	US 231	SR 56	1.577	"
Jasper					5.893	

Sensitivity Level 2 Mileage in MS4s	43.3
Total State Level 2 Mileage	174.5
Percent Level 2 Mileage in MS4s	24.8%
Level 2 Mileage Outside MS4s	131.2

[1]Rule 13-MS4 Operator Listing (updated 3/18/04) at http://www.in.gov/idem/water/npdes/permits/wetwethr/storm/ms4oper.html
[2]Receiving waters for POTW and Combined Sewer discharge (updated 1/04) identified at http://www.in.gov/water/compbr/inspections/index.html. Separate storm sewer discharge assumed to be to the same receiving water. No designation of "receiving waters" means the MS4 collection system discharges to a neighboring community.

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LaPorte District, with 84 percent of the Level 1 sensitive highway segments and 85 percent of the Level 2 sensitive highway segments, should be the district receiving priority attention. Within LaPorte District, priority should be given to MS4s with the greatest "sensitive" highway segment mileage: Porter (24.8), Portage (22.9) and Michigan City (10.8), for Level 1, and Merrillville (12.1), Hobart (8.2) and Lake Station (8.1), for Level 2. Priority attention by INDOT to sensitive highway segments in these six MS4s will address 86.9 (66%) of the 131.4 miles of the combined Level 1 and 2 sensitive highway segments in the state.

II. List of all known receiving waters or, if the discharge is to another MS4, the name of the MS4 entity and the initial receiving water.

A. Maintenance Facilities

Historically, most contaminant loading of storm water runoff has been from three facility sources: (1) shop floor drain effluent of vehicle liquids accidentally spilled during vehicle repair; (2) truck washbay effluent, especially the washing of trucks that apply road salt during winter to prevent corrosion; and (3) from the active surface of the facility where salt/sand mixing, herbicide mixing-loading, asphalt (tar) kettle clean-out, highway paint mixing-loading and other activities preparatory to highway maintenance occur.

Today, vehicle maintenance, even fluid changes, is performed primarily at facilities that are connected to a POTW and/or have installed an oil/water separator. Truck washing is performed primarily at facilities that are connected to a POTW. And very few facilities perform highway maintenance preparatory activities on the active surface without implementing measures intended to prevent contaminant loading of storm water.

There are 59 maintenance facility locations in MS4 areas and 36 (61%) of them are connected to a municipal Publicly-Owned Treatment Works (POTW) for the discharge of sanitary waste and shop floor drain and truck washbay wastewater effluent.

The ten criteria, listed below, evolved from the Rule 13 requirements and were used to identify the maintenance facilities in MS4s that require priority attention. The accompanying Table 5 identifies these facilities by District.

Criteria 1: maintenance facility locations within Rule 13 designated MS4 areas.

Criteria 2: maintenance facility locations NOT connected to a POTW for discharge of shop floor drain and washbay effluent.

Criteria 3: maintenance facility locations within Karst areas.

Criteria 4: maintenance facility locations within 3,000 feet of a community public well.

Criteria 5: maintenance facility locations within (1,000 feet) (3,000 feet) (5,280 feet) of a public surface water intake.

Criteria 6: maintenance facility locations within one mile of high quality and exceptional use waters.

Criteria 7: maintenance facility locations within one mile of federal, state, county, municipal or township recreation facility having a lake, pond, river or stream.

Criteria 8: maintenance facility locations within 3,000 feet of groundwater that is highly vulnerable and very highly vulnerable to contamination by nitrates (as surrogate for chloride).

Criteria 9: maintenance facilities within 3,000 feet of a natural area containing Endangered, Threatened or Rare (ETR) species.

Criteria 10: maintenance facilities within one mile of the "best remaining examples of natural wetland communities," as determined by IDNR.

Table 5
Facilities in MS4 Areas Characterized by Selected Environmental Sensitivity Criteria

	Criteria									
District and Facility	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Crawfordsville										
Crawfordsville District	X									
Crawfordsville Sub & Unit	X									
Terre Haute Sub & Unit	X									
Frankfort Sub & Unit	X									
Plainfield Unit	X									
Ft. Harrison Unit	*X*	*X*						*X*		
Lafayette Unit	X	X					X	X	X	
Lebanon Unit	X	X								
Fort Wayne										
Fort Wayne District	X			X			X	X	X	
Fort Wayne Sub & Unit	X			X			X	X	X	
Goshen Sub	X									
Elkhart Sub & Unit	X							X		
Wabash Sub & Unit	X									
Angola Sub	X									
New Haven Unit	X									
U.S. 27 South Unit	X	X		X				X		
Greenfield										
Greenfield District	X									
Greenfield Sub	X									
Unit 2 (Tibbs)	X									
Unit 4 (65th St.)	X									
Unit 5 (Madison)	X									
Anderson Unit	X									
Shelbyville Unit	X									
Richmond Unit	X									
Alexandria Unit	X									
Muncie Unit	X									
Indianapolis Sub & 2 Units	X[1]	X		X						
Unit 3 (71st St.)	X[1]	X						X		
Kokomo Unit	X[1]	X								
Westfield Unit	X[1]	X								

[Italics]: currently connected for discharge of sanitary only.
[1]granted approval by POTW to discharge shop floor drain and washbay effluent

	Criteria									
District and Facility	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
LaPorte										
LaPorte District	X							X		
LaPorte Sub & Unit	X							X		
New Gary Sub	X	X								
Valparaiso Unit (closed)	*X*	*X*		*X*						
Chesterton	X	X		X		X				
Logansport Unit	X	X								
South Bend Unit	X	X							X	
Mishawaka Unit	X	X		X			X			
Old Gary Sub (inactive)	X	X							X	X
Crown Point Unit	X	X							X	
Miller Unit	X	X						X		
Michigan City Unit	X	X						X		X
Seymour										
Seymour District	X									
Bloomington Sub & Unit	X									
Columbus Sub & Unit	X									
Sellersburg Sub & Unit	X									
New Albany Unit	X									
Greensburg Unit	X	X								
Madison Sub	X	X					X			
Vincennes										
Jasper Unit	X									
Evansville Sub & Unit 2	X									
Evansville Unit 1	X									
Chandler Unit	X									
Washington Unit	X									
Bedford Unit	X		X					X	X	
Toll Road										
Lake Maintenance	X									
Porter Maintenance	*X*	*X*						*X*	*X*	
Elkhart Maintenance	X	X		X				X	X	
Toll Road District	X	X		X				X	X	

[Italics]: currently connected for discharge of sanitary only

Summary: MS4 Facility Criteria Totals, by District

District	Criteria 1	2	3	4	5	6	7	8	9	10	Sum	Priority Order Rank-District
Crawfordsville	8	3	0	0	0	0	1	2	1	0	15	3
Fort Wayne	8	1	0	3	0	0	2	4	2	0	20	2
Greenfield	14	4	0	1	0	0	0	1	0	0	20	2
LaPorte	12	9	0	2	0	1	1	4	3	2	34	1
Seymour	7	2	0	1	0	0	1	0	0	0	11	4
Vincennes	6	1	1	0	0	0	0	1	1	0	10	5
Toll Road	4	3	0	2	0	0	0	3	3	0	15	3
Totals	59	23	1	9	0	1	5	15	10	2	125	

INDOT Facilities in MS4 Areas to Which Priority Attention Should be Directed, by District

Crawfordsville

Lafayette Unit: not connected to POTW; 1 mile of recreation waters; 3,000' of vulnerable groundwater; 3,000' of an ETR natural area;

Fort Wayne

Fort Wayne District, Sub and Unit: 3,000' of community public well; 1 mile of recreation waters; 3,000' of vulnerable groundwater; 3,000' of an ETR natural area;

U.S. 27 South Unit: not connected to POTW; 3,000' of community public well; 3,000' of vulnerable groundwater;

Greenfield

Indianapolis Sub and 2 Units: not connected to a POTW; 3,000' of a community public well [replacement facilities being constructed in 2004]

Indianapolis Unit 3 (71st St): not connected to POTW; 3,000' of vulnerable groundwater;

LaPorte

Mishawaka Unit: not connected to POTW; 3,000' of community public well; 1 mile of recreation waters;

Chesterton Unit: not connected to POTW; 3,000' of community public well; 1 mile of high quality and exceptional use waters;

Seymour

Madison Sub: not connected to POTW; 1 mile of recreation water;

Vincennes

Bedford Unit: located in karst area; 3,000' of vulnerable groundwater; 3,000' of an ETR natural area;

Toll Road

Toll Road District: not connected to POTW; 3,000' of community public well; 3,000' of vulnerable groundwater; 3,000' of an ETR natural area;

Elkhart Maintenance: not connected to POTW; 3,000' of community public well; 3,000' of vulnerable groundwater; 3,000' of an ETR natural area;

Porter Maintenance: not connected to POTW; 3,000' of vulnerable groundwater; 3,000' of an ETR natural area.

B. Highways

Current INDOT policy regarding maintenance of highway drainage systems derives from statutes adopted in the 1930's. The most current policy issuance identified (revised 1/10/92) is based on IC 8-23-6, which states, in part:

Section 1.(c) As part of the construction work, the department shall construct within the limits of a street the curbs and gutters, manholes, catch basin, and the necessary drainage structures and facilities (underline added);

Section 2. If the construction of a street necessitates the construction of adequate connecting facilities outside the limits of the street to provide for drainage of the street, the necessary mains, laterals, and connections shall be provided for in the plans, included as part of the construction cost, and paid out of the department's appropriation (underline added);

Section 3. (d) Upon the completion of a street, the department shall maintain the roadway of the street, including the curbs and gutters, catch basins, and inlets within the limits of the street or highway that form integral parts of the street or highway. The city or town shall maintain the sidewalks, grass plats, and the connecting drainage facilities (underline added).

The 1992 policy clarifies the statute:

"The Indiana Department of Transportation will be responsible for maintaining the inlets, catch basins, manholes and the connecting pipes between them, including the pipe to the main sewer line. The city or town will maintain the main storm sewer line, its manholes and/or other related appurtenances to the main sewer line" (underline added).

This "sharing" of drainage systems will undoubtedly cause confusion in some MS4 communities. In response to an emailed question posed by the Principal Investigator on May 12, 2003, an IDEM storm water official replied:

> "To answer your question, if an outfall is located in one MS4 entity and a second MS4 entity has a conveyance which leads to this outfall, the second MS4 entity is only responsible to the point they have jurisdiction … If the other MS4 entity is regulated under Rule 13, they will be responsible for characterizing the receiving water that the outfall discharges into, but they can also attribute some part of the pollutant loading to the contributing MS4 entity."[3]

Storm water runoff from state-maintained highways is collected, typically, by two types of "systems:"

(1) Inlets → Catch Basins → Connecting Drains → Municipal Sewer Pipe →

Combined Sewer → Treatment Plant → Outfall

Separate Storm Sewer → Outfall

(2) Side Ditch
or
Constructed Drain

→ Resides in Ditch (Absorbed/Evaporates)
→ Reaches "waters of the state"
→ Constructed Wetland or Retention Pond

The first system is that to which the storm water from approximately 1,662 "urban" miles (15%) of the total 11,216 miles of state-maintained highways discharges; the storm water from the remaining 9,554 "rural" miles (85%) is collected by side ditches and is (1) conveyed by a system of side ditches but never reaches the "waters of the state -- being absorbed or retained until evaporated; (2) conveyed by side ditches and constructed drains to "waters" of the state;" and (3) conveyed to a constructed wetland or retention pond.

[3]Email communication, "MARK BALAZS" <MBALAZS@dem.state.in.us, 10:10AM 5/14/2003.

The study first investigated the storm water collection system that discharges to a municipal combined or separate storm sewer system. A directory of municipal POTW operators previously compiled by the Principal Investigator was used to identify MS4 communities with and without combined systems. The directory is found in Appendix F [www.ecn.purdue.edu/CMTI/INDOT].

The INDOT policy and the IDEM affirmation of the Rule 13 requirements prompted the Principal Investigator to prepare a questionnaire (next page) to be mailed to the 106 municipalities that operate combined sanitary/storm sewer systems. The replies identify highway segments in 31 communities that discharge to municipal combined sanitary/storm sewers. A total of 138 miles of state highway segments were identified by the 31 municipalities, 113 miles (82%) of this total mileage is in the 21 MS4 municipalities responding to the survey. [Appendix G]

Survey of Indiana Municipalities with Combined Sanitary and Storm Sewer Collection Systems

Survey Form Completed by: _____
(person's name)

Telephone Number: _____

Municipality: _____

Address: _____

_____

A. Please identify any state highway segments that discharge storm water to your combined sanitary/storm sewer collection system (use the common State Route - SR - number, like SR 39, and the local name or identification of this segment, like Pine Street):

	State Route No.	Local Name
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

B. For each of the above, please identify the end points of the segment (like from Oak Street to County Road 200 East) and the approximate length, in miles and/or tenths of miles:

	End Points	Approx. Length
1.	from: _____	
	to: _____	_____
2.	from: _____	
	to: _____	_____
3.	from: _____	
	to: _____	_____
4.	from: _____	
	to: _____	_____
5.	from: _____	
	to: _____	_____

C. And, for each of the above, please check (✔) whether the discharge is run-off (sheet flow) from the highway pavement surface, or is a direct discharge from the highway drainage system (including side ditches, culverts, drain pipes and catch basins):

	Run-Off	Side Ditch	Culvert	Drain Pipe	Catch Basin
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____

Thank you for your assistance with this survey. Please return to:

Lynn A. Corson, Ph.D.
2655 Yeager Road, Suite 103
West Lafayette, IN 47906

Receiving waters for the discharge of storm water collected by combined sewer systems from MS4 sources and Level 1 and 2 sensitive highway segments are identified in Tables 3 and 4 on pages 17 ("Level 1') and 21 ("Level 2"). Most of the identified receiving waters -- the initial or secondary water -- are "sensitive" waters, as identified in Section III of this report.

The storm water from highway segments not collected by MS4 combined or separate storm sewer system that reaches waters of the state does so through outfalls that are the termini of side ditches or constructed drains at the bridges that cross over these waters. The location of each state-maintained bridge, by highway mile marker and name of the waterway the bridge crosses over, is found in the CD-ROM included here as Appendix H.

` Also, INDOT's water quality monitoring program, discussed in Section IV, employs hand-held "sonde" instruments to monitor all waters crossed by bridges on Level 1 and Level 2 sensitive highway segments. At each monitoring point, the latitude/longitude is recorded, using a hand-held GPS unit accurate to within 5 meters.

INDOT is currently inventorying its "small culverts," under four feet in diameter, and "large culverts," over four feet, up to 20 feet in diameter. The location of some is identified by GPS, and others by mile marker and highway. The inventory does not include the name of the nearest waterway, so any drains that can be considered outfalls to waters of the state will need to be identified from these and other data.[4]

[4]Email correspondence with TMCCLELLAN@indot.state.in.us in April 2004.

III. Identification of Known Sensitive [Water] Areas

The Baseline Characterization analysis included in Rule 13 requires,

> "The identification of known sensitive [water] areas, such as public swimming areas, surface drinking water intakes, waters containing threatened or endangered species and their habitat, or state outstanding resource and exceptional use waters. The identified sensitive areas should be given the highest priority for the selection of BMPs [Best Management Practices] and the prohibition of new or significantly increased MS4 discharges."

INDOT, as an MS4 operator, is expected to identify these "sensitive [water] areas" and to implement minimum control measures "to ensure that existing … state … operations are performed in ways that will reduce contamination of storm water discharges." [327 IAC 15-13-17(b)].

Control measures for highways include reducing the amount of salt applied for deicing or applying brine for anti-icing; modifying highway design, construction and maintenance standards and procedures to reduce contaminated storm water discharge as highway drainage or pavement run-off to the "waters of the state" or reduce the contaminant loading of the storm water, itself; and installing or constructing structural best management practices (BMPs) to reduce contaminate loading.

Section 17(b)(2) of Rule 13 requires the implementation of, "controls for reducing or eliminating the discharge of pollutants from operational areas, including roads, parking lots, maintenance and storage yards, and waste transfer stations," such as:

(A) Covering, or otherwise reducing, the potential for polluted storm water run-off from deicing salt or sand storage piles.

(B) Establishing designated snow disposal areas that have minimal potential for pollutant run-off impact on MS4 receiving waters.

(C) Providing facilities for containment of any accidental losses of concentrated solutions, acids, alkalies, salts, oils, or other polluting materials.

(D) Standard operating procedures for spill prevention and clean up during fueling operations.

(E) BMPs for vehicular maintenance areas.

(F) Prohibition of equipment or vehicle wash waters and concrete or asphalt hydrodemolition wastewaters into storm water run-off, except under the allowance of an appropriate NPDES wastewater permit.

(G) Minimization of pesticide and fertilizer use. Pesticides shall be used, applied, handled, stored, mixed, loaded, transported, and disposed of via Office of the Indiana State Chemist's guidance requirements.

(H) Proper disposal of animal waste. If applicable, it is recommended that canine parks shall be sited at least one hundred fifty (150) feet away from a surface water body.

The four criteria established for identifying "sensitive [water] areas" are found in Rule 13 at 327 IAC 15-13-5 (70). Each of the four criteria is defined below.

(A) having threatened or endangered species or their habitat;

Indiana's Department of Natural Resources created a GIS database known as the "Natural Areas and Endangered, Threatened and Rare (ETR) Species" database. The acquisition of this database requires a special arrangement with DNR Natural Heritage Data Center. Species having state or federal designations of endangered, threatened, rare, special concern, extirpated or on a "watch list" are identified by generic descriptor (bird, mammal,

etc.), heritage species code and are located by latitude and longitude in decimal degrees, as well as by county and watershed.

(B) usage as a public surface water supply intake;

A GIS database of public surface water supply intakes has been merged by Purdue with the INDOT facilities and state highways databases to produce a GIS map which readily depicts the proximity of the INDOT properties to the intakes.

(C) usage for full-body contact recreation, such as bathing beaches;

This criteria was originally identified as "relevant community value," which was defined in the proposed Rule 13 Guidance Manual (February 2002) as "an area, both land and water, that is deemed important by local municipal, state or federal governments for their recreational value." These areas can be used for full-body contact activities, such as swimming and water skiing. A GIS database of state/federal/local public recreation areas with water bodies has been merged with a database of maintenance facilities and state-maintained highways.

(D) exceptional use classification as found in 327 IAC 2-1-11(b) or outstanding state resource water classification [also designated as "high quality waters"] as found in 327 IAC 2-1-2(3) and 327 IAC 2-1.5-19(b).

The Indiana Department of Environmental Management Office of Water Quality maintains GIS databases which identify the river and stream segments included in the above citations. Purdue has merged these databases with the INDOT facilities and highway databases and produced GIS maps that depict the proximity of the INDOT properties to the rivers and streams. A description of the GIS layers referenced above is found in Appendix I.

Indiana's Natural Resources Commission, in 1993, promulgated its "Outstanding Rivers List for Indiana." It is the state's "umbrella" list of rivers and streams "which have particular environmental or aesthetic interest."

The Outstanding Rivers list and its corollary databases served as the primary criteria for the establishment of the four "sensitivity levels" used for identifying state-maintained highway segments in environmentally sensitive areas; primarily within one mile of designated "priority" rivers and streams. The first three sensitivity levels are based on the "Priority" river and stream segments identified in Appendix J of this report.

The Priority 1 table includes 23 river and stream segments, 17 of which are Exceptional Use Waters and High Quality Waters (also known as Outstanding State Resource Waters). The remaining 6 segments are eligible for these designations.

The second table to the Appendix, "INDOT Priority No. 2," is comprised of "rivers identified as having outstanding ecological, recreational or scenic importance." There are 11 segments included on this list. None are currently on the Rule 13 "sensitive [water] areas" lists cited, but they may be added in the future or, subsequently, be considered by IDEM to be "sensitive [water] areas" for the purpose of NPDES permitting.

The third table in Appendix I, identified as "INDOT Priority No. 3," contains 26 river and stream segments, none of which are currently included in the Rule 13 "sensitive [water] areas" lists cited, but are segments "identified by state natural heritage programs or similar state programs as having outstanding ecological importance." These, too, may be added to the "sensitive [water] areas" list or, subsequently, be considered by IDEM to be such for the purpose of NPDES permitting.

The fourth sensitivity level includes highway segments that are <u>not</u> within one mile of a Priority 1, 2 or 3 river or stream but are within 1 mile of any of the other sensitivity criteria, singularly or in combination (two or three criteria, together). The other criteria: (1) natural

area having Endangered, Threatened or Rare (ETR) species; (2) public surface water supply intake (WTRIN) and (3) public recreation facility with water body used for full-body recreation (RECFAC), are also subsets of the first three sensitivity levels.

Sensitivity criteria are coded in the following tables for each Sensitivity Level, as follows:

"1" -highway segments within 1 mile of a Priority 1 stream

"2" -highway segments within 1 mile of a Priority 2 stream

"3" -highway segments within 1 mile of a Priority 3 stream

"4" -highway segments not within 1 mile of a Priority 1, 2, or 3 stream, but within 1 mile of other sensitivity criteria

"A" -highway segments inside karst areas

"B" -highway segments outside karst areas

Other sensitivity criteria include:

-1 within 1 mile of natural area having ETR [ETR] and within 1 mile of public surface water supply intake [WTRIN] and within 1 mile of public recreation facility with water body used for full-body recreation [RECFAC]

-2 within 1 mile of ETR and WTRIN

-3 within 1 mile of ETR and RECFAC

-4 within 1 mile of RECFAC and WTRIN

-5 within 1 mile of WTRIN

-6 within 1 mile of ETR

-7 within 1 mile of RECFAC

-8 no other analyses

Highway segments within 1 mile of a Priority 1 stream are coded "1." If those same highway segments are within karst areas, they are coded "A." Those same highway segments within 1 mile of a natural area having Endangered, Threatened, or Rare (ETR)

species will be coded "-6." The table for Seymour District highways, for example, shows 21.0 miles of highway segments coded 1A-6.

The complete description of sensitivity codes follows. Codes are used, along with colors, to designate highway segments on the GIS maps for each District and Subdistrict. The MS4 "Sensitive" Highway Segments categorized by sensitivity level, for each District, are identified in Appendix K.

Sensitivity Level 1

1. Highway segments within 1 mile of-

   Priority 1 streams, and

   A. within Karst areas, and

      -1 within 1 mile of natural area having ETR [ETR] and within 1 mile of public surface water supply intake [WTRIN] and within 1 mile of public recreation facility with water body used for full-body recreation [RECFAC]

      -2 within 1 mile of ETR and WTRIN

      -3 within 1 mile of ETR and RECFAC

      -4 within 1 mile of RECFAC and WTRIN

      -5 within 1 mile of WTRIN

      -6 within 1 mile of ETR

      -7 within 1 mile of RECFAC

      -8 no other analyses

   B. outside Karst areas, and

      -1 within 1 mile of natural area having ETR [ETR] and within 1 mile of public surface water supply intake [WTRIN] and within 1 mile of public recreation facility with water body used for full-body recreation [RECFAC]

      -2 within 1 mile of ETR and WTRIN

      -3 within 1 mile of ETR and RECFAC

      -4 within 1 mile of RECFAC and WTRIN

-5 within 1 mile of WTRIN

-6 within 1 mile of ETR

-7 within 1 mile of RECFAC

-8 no other analyses

Sensitivity Level 2

2. Highway segments within 1 mile of-

Priority 2 streams, and

A. within Karst areas, and

-1 within 1 mile of natural area having ETR [ETR] and within 1 mile of public surface water supply intake [WTRIN] and within 1 mile of public recreation facility with water body used for full-body recreation [RECFAC]

-2 within 1 mile of ETR and WTRIN

-3 within 1 mile of ETR and RECFAC

-4 within 1 mile of RECFAC and WTRIN

-5 within 1 mile of WTRIN

-6 within 1 mile of ETR

-7 within 1 mile of RECFAC

-8 no other analyses

B. outside Karst areas, and

-1 within 1 mile of natural area having ETR [ETR] and within 1 mile of public surface water supply intake [WTRIN] and within 1 mile of public recreation facility with water body used for full-body recreation [RECFAC]

-2 within 1 mile of ETR and WTRIN

-3 within 1 mile of ETR and RECFAC

-4 within 1 mile of RECFAC and WTRIN

-5 within 1 mile of WTRIN

-6 within 1 mile of ETR

-7 within 1 mile of RECFAC

-8 no other analyses

Sensitivity Level 3

3. Highway segments within 1 mile of-

Priority 3 streams, and

A. within Karst areas, and

-1 within 1 mile of natural area having ETR [ETR] and within 1 mile of public surface water supply intake [WTRIN] and within 1 mile of public recreation facility with water body used for full-body recreation [RECFAC]

-2 within 1 mile of ETR and WTRIN

-3 within 1 mile of ETR and RECFAC

-4 within 1 mile of RECFAC and WTRIN

-5 within 1 mile of WTRIN

-6 within 1 mile of ETR

-7 within 1 mile of RECFAC

-8 no other analyses

B. outside Karst areas, and

-1 within 1 mile of natural area having ETR [ETR] and within 1 mile of public surface water supply intake [WTRIN] and within 1 mile of public recreation facility with water body used for full-body recreation [RECFAC]

-2 within 1 mile of ETR and WTRIN

-3 within 1 mile of ETR and RECFAC

-4 within 1 mile of RECFAC and WTRIN

-5 within 1 mile of WTRIN

-6 within 1 mile of ETR

-7 within 1 mile of RECFAC

-8 no other analyses

Sensitivity Level 4

4. Highway segments not within 1 mile of-

Priority 1, 2, or 3 streams, but

A. within Karst areas, and

-1 within 1 mile of natural area having ETR [ETR] and within 1 mile of public surface water supply intake [WTRIN] and within 1 mile of public recreation facility with water body used for full-body recreation [RECFAC]

-2 within 1 mile of ETR and WTRIN

-3 within 1 mile of ETR and RECFAC

-4 within 1 mile of RECFAC and WTRIN

-5 within 1 mile of WTRIN

-6 within 1 mile of ETR

-7 within 1 mile of RECFAC

-8 no other analyses

B. outside Karst areas, and

-1 within 1 mile of natural area having ETR [ETR] and within 1 mile of public surface water supply intake [WTRIN] and within 1 mile of public recreation facility with water body used for full-body recreation [RECFAC]

-2 within 1 mile of ETR and WTRIN

-3 within 1 mile of ETR and RECFAC

-4 within 1 mile of RECFAC and WTRIN

-5 within 1 mile of WTRIN

-6 within 1 mile of ETR

-7 within 1 mile of RECFAC

Note: 4B-8 does not exist as a coded criteria as it represents highway segments, not within 1 mile of Priority 1, 2, or 3 streams, outside karst and not within 1 mile of any other sensitivity criteria; therefore, it is "not applicable" (n/a) in the table, under 4B-8, but this total is shown as "total non-sensitive mileage" in the bottom line of the last page of each District table.

IV. Monitoring Data for the MS4 Area Receiving Waters

INDOT's Environmental Services Section initiated a water quality monitoring project in June 2003. An expansion of this JTRP study, to allow the purchase of two YSI Sondes and two hand-held GPS units, facilitated monitoring Priority 1 of waters of the state from 60 locations, usually bridges, including:

District	Locations
Crawfordsville	16
Fort Wayne	5
Greenfield	2
LaPorte	21
Seymour	10
Vincennes	6

Water quality monitoring parameters included temperature, conductivity, dissolved oxygen (DO), pH, oxidation reduction potential (ORP), and turbidity. Chloride concentration was not recorded, as originally intended, because of the complicated calibration procedure required.

INDOT will repeat the monitoring of Priority 1 waters during the summer 2004. Priority 2 waters will also be monitored and stream samples will be collected from many locations for subsequent chloride testing, using Quantabs, a litmus-type strip, commonly used in the food industry.

Monitoring data and maps identifying the monitoring locations are included in the CD-ROM identified as Appendix L.

USGS Real-time Flow Gauge and Fixed Surface Water Quality Monitoring Station Data

The CD-ROM, included here as Appendix M, is also available at this website: www.ecn.purdue.edu/CMTI/stormwater/SWQMP_FSWQM.htm. As described at the website, the web resource spreadsheet was organized to allow municipal MS4s to access data, via hyperlinks, that otherwise can be a complicated, time-consuming task. The spreadsheet also presents INDOT's water quality monitoring data (from Appendix L) with USGS real-time flow gauge data and IDEM fixed surface water quality monitoring station data. The spreadsheet provides USGS and IDEM monitoring data from sites within 10 miles up- and down-stream of an INDOT monitoring site on the same waterway.

INDOT will rely on this and comparable websites to provide access to water quality data for use as the baseline characterization of waters that could receive storm water from its highways and maintenance facilities.[5] According to Rule 13, if storm water quality impairments are identified, measures must be implemented to correct the impairments. These measures can include structural best management practices (BMPs) or non-structural BMPs, such as the elimination of, or a change in, a function or practice that contributes to the impairment.

[5]Another useful website is the Hoosier Riverwatch database at http://www.hoosierriverwatch.com/search.html

Modifying MS4 Area Designation of Receiving Waters

Designations of "receiving waters" for storm water from INDOT highways and facilities is based, primarily, on GIS and other database analyses. On-site inspections of facilities and human judgment applied to the findings of such inspections will be the final determinant of how a "receiving water" is defined.

The designation of "sensitive" highway segments, in the INDOT Water Quality and Characterization model, is based on the proximity of the segment to a "sensitive" water body, listed by the DNR Commission as an Outstanding State Resource Water or Exceptional Use Water or is eligible for such listing. Other criteria for identifying "sensitive" water areas include: 1) those having endangered, threatened or rare species or their habitat; 2) those used as a public surface water supply intake, and 3) those used for full-body contact recreation (swimming).

There are natural (topographic and geological) and constructed features that may exist in the area between the designated highway segment and the "sensitive" water body that could reduce the amount of contaminants in storm water runoff that reaches the water body (e.g., vegetation serving as a filter strip). Such features may also reduce the volume of storm water runoff or actually prevent it from reaching the water body (e.g., slope between the highway and water body, if the highway was down-gradient of the water body).

Constructed features that could reduce the amount of contaminants and/or the volume of storm water runoff will usually be those constructed by INDOT during highway construction or the maintenance following construction. Primary among these features are the highway storm water conveyance systems.

Consideration of these systems should include:

1. side ditch
    a) prevalence/type/density of vegetation in the ditch;
    b) natural (e.g., clay) or constructed (e.g., rip-rap) barriers in the walls of the side ditch preventing runoff to the water body;
    c) the terminus of the side ditch, if other than the water body, and the distance to the water body from the terminus;
2. constructed culvert or pipe
    a) terminus, if other than the water body, and distance from the terminus to the water body;
3. other type of storm water conveyance
    a) terminus, if other than the water body, and distance from the terminus to the water body;
    b) construction materials used
4. bridge drains that discharge directly to a water body

A checklist of the various criteria can be formatted and used in inspecting the designated “sensitive” highway segments:

<u>Natural Features</u>

- ☐ distance to the water body
- ☐ slope between the highway and water body
- ☐ soil type and percolation rate
- ☐ vegetation type/density (ability to filter or retard runoff)

<u>Constructed Features</u>

- ☐ prevalence/type/density of vegetation in a side ditch

- ☐ materials serving as barriers (clay, rip-rap, paving, etc.) in the walls of the side ditch
- ☐ slope of the ditch walls
- ☐ type of culvert construction or drain pipe
- ☐ terminus of the side ditch, culvert or drain pipe if not the water body, and distance from the terminus to the water body

The baseline characterization, through water quality monitoring, will be modified for highway storm water runoff using "checklists" or log sheets like those on the following pages. The use of the checklists will enable a determination as to whether runoff actually reaches waters of the state. The summer 2003 water quality monitoring record (Appendix L) includes "comments" indicating that either there is an intermittent receiving water or that topographical or other factors prevent runoff from reaching the waters of the state.

The "INDOT Facility Storm Water and Washwater Effluent Drainage Assessment" (pages 53 to 55) is a current version of an assessment form employed during facility site visits over many years. The SPR 2854 study recently implemented will use this and other tools to characterize facilities and determine (1) if storm water runoff or discharge reaches waters of the state, (2) if it is contaminated with pollutants, and (3) the source of those contaminants.[6]

[6]"Deriving the Cost Impacts of Indiana's Storm Water Rule 13 on INDOT Maintenance Facility Operations," JTRP Project Number: C-36-78W, File Number: 04-07-23, SPR 2854, January 1, 2004 - June 30, 2006

Checklist for Determining the Impact of Highway Storm Water Run-off or Discharge to Waters of the State

Note: The assessment of a sensitive highway segment that results in one or more of the below characteristics being "checked," in the applicable Run-off or Discharge section, will exempt that segment from the list of sensitive highway segments in INDOT's Storm Water Quality Management Plan.

District/Subdistrict/Unit: _____
State Highway Name:_____
Sensitive Segment Location :_____

____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

Below are listed CHARACTERISTICS of the space (1) between the highway R/W and the sensitive waterbody, and (2) between the end of the pipe or ditch and the sensitive waterbody that, in all likelihood, PREVENT storm water from REACHING the sensitive waterbody.

1. "Run-off" means storm water that flows from the highway R/W and is NOT contained by a pipe or ditch. [Check all those that apply].

☐ distance is 100 feet or more
☐ slope is less than 18 percent
☐ type, density and/or height of vegetation (explain:_____ _____)
☐ type and assumed absorption capacity of the soil (explain:_____ _____)

2. "Discharge" means the contained flow of highway R/W storm water run-off from the end of a pipe or ditch. [Check all those that apply].

☐ distance is _____ feet or more
☐ slope is less than _____ percent
☐ type, density and/or height of vegetation (explain: _____ _____)
☐ type and assumed absorption capacity of the soil (explain: _____ _____)
☐ type, density and/or height of vegetation in the ditch (explain: _____ _____)

3. If bridges exist on this highway segment:

☐ storm water from the deck does NOT drain to the waterbody, below

Sensitive Waters Evaluation Procedures
INDOT Storm Water Management Plan

May 15, 2003

1. Highway discharges to Sensitive Waters will be evaluated and tested.

2. Use the Log Sheets to help evaluate where to test.

    a. Fill out the upper portion; District, Highway, County, Water body, Staff (Your Name), Date, Ref. Post # + Offset (Small Blue Sign at Bridge), Log Mile, & USGS Quad Map.
    b. The sheet is designed for a highway/stream crossing, with four quads to evaluate, i.e. NW, NE, SE, SW. Start at the northwest quad and proceed clockwise.
    c. Write number of feet of conveyance in the appropriate row and column, or "None". If there is a pipe, give its measure its length and diameter.
    d. Determine the discharge point locations using the GPS Navigator and write that in the Latitude and Longitude rows.
    e. Make note of Bridge Deck Drains, how many, what size, spacing length, diameter, which side of deck, on both decks (in a divided highway situation).
    f. Comments: is there erosion problems, is there illicit discharge onto the right-of-way and where, did you probe a discharge pipe from the median, are there other adjacent discharges to the stream, side-slope length, side-slope vegetation, side-slope slope (2:1, 3:1, 4:1). If there are pipes, note where they come from and discharge to.

3. Equipment list:
    Measuring Wheel
    Tape measure for pipe diameter, 16' or 25' adequate
    Shovel
    YSI Probe
    GPS Navigator
    Bucket
    Extension Pole (to hold bucket up to bridge deck drain outlet, under bridge)

4. Wear a INDOT safety vest at all time when on the right-of-way, out of the car.

Sensitive Waters Log Sheet
INDOT Storm Water Management Plan

District: _____ **Staff:** _____

Date: _____

Highway: _____

County: _____ **USGS Quadrangle:** _____

Water body: _____ **Reference Post # + Offset:** _____+_____

Log Mile: _____

Conveyance	**Quad:**	**Quad:**	**Quad:**	**Quad:**
Pipe				
Paved				
Grassy				
Riprap				

Discharge Point

Latitude				
Longitude				

Bridge Deck Drains:

_____

_____

Comments:_____

_____

_____

_____

Date_____

INDOT Facility Stormwater and Washwater Effluent Drainage Assessment

Name of Facility_____
District/Subdistrict_____

Surface Water

1. Does any area of the active surface collect storm water or facility-generated wash water (such as from washing trucks outdoors)?_____

   _____

2. Is there any movement of surface water from one area to another on-site by ditch, drain tile or natural channel? _____
3. Is there any movement of surface water off-site (e.g., beneath the perimeter fence) via sheet flow, ditch, pipe or channel to neighboring property? _____

   _____

4. Is the surface water discharged directly to -
   - ☐ drainage ditch or roadside ditch
   - ☐ a nearby creek, river or other water body
   - ☐ lagoon or holding pond
   - ☐ settling basin, catch basin, or other constructed retention structure
   - ☐ underground tank
   - ☐ municipal storm sewer Owner_____
   - ☐ municipal combined storm/sanitary sewer Owner_____
   - ☐ POTW Owner: _____
5. If surface water is discharged, other than to a municipal storm, sanitary or combined sewer, does it ultimately reach "waters of the state" (e.g., farm ditch, creek, stream, river, lake or pond)? If yes, name of nearest water body.

   _____

6. What is the estimated distance of this water body from the facility?_____

   _____

Shop Floor Drain & Wash Bay Effluent

1. Are there drains in shop floors and wash bays that remove liquids and wash water from the building(s)? _____
2. Do liquids and wash water flow to -
   - ☐ aboveground oil/water separator
   - ☐ aboveground tank
   - ☐ below ground oil/water separator
   - ☐ below ground tank
   - ☐ settling basin, catch basin, lagoon, holding pond or other constructed retention structure
   - ☐ none of the above
3. If liquids are captured by the devices in 2., above, are they contained until pumped and hauled to a POTW or evaporated, or do they overflow to a drainage system? _____

   If they overflow to a drainage system, is the system above or below ground?
4. If liquids overflow to a drainage system, does the flow mix with storm water?_____
5. If flow does mix with storm water, see "Surface Water" section (preceding page, #4 and #5) for discharge.
6. If the flow doesn't mix with storm water, is it discharged to -
   - ☐ subsurface soils
   - ☐ on-site septic system
   - ☐ drainage ditch or roadside ditch
   - ☐ a nearby creek, river or other water body
   - ☐ lagoon or holding pond
   - ☐ municipal storm sewer Owner_____
   - ☐ municipal combined storm/sanitary sewer Owner_____
   - ☐ municipal POTW Owner_____

8. If shop floor drain and washbay effluent is discharged, other than to a municipal storm, sanitary or combined sewer, does it ultimately reach "waters of the state?" If yes, name of the nearest water body: _____

Activity Areas (check those that apply and describe (1) whether they are bermed to prevent storm water runoff or (2) if there are drains and their locations in the activity areas)

- ☐ salt storage (pads or domes) _____
- ☐ salt/sand mixing_____
- ☐ salt bed loading/wetting_____
- ☐ salt bed washout_____
- ☐ salt bed storage _____
- ☐ vehicle and equipment washing (inside) _____
- ☐ vehicle and equipment washing (outside) _____
- ☐ asphalt equipment clean-out _____
- ☐ herbicide mixing and tank rinsing_____
- ☐ traffic paint mixing and transfer _____
- ☐ bulk tank off-loading and storage _____
- ☐ waste piles (e.g., ROW trash, street sweeping debris) _____
- ☐ truck/equipment parking_____
- ☐ truck/equipment fueling_____
- ☐ materials storage (210 lot, fencing, etc.)_____
- ☐ aggregate storage_____
- ☐ hot/cold patch storage_____
- ☐ storage of "scalp" and dirt from R/W maintenance_____

V. Assessment of Selected Structural and Non-Structural Best Management Practices (BMPs) Currently Implemented by INDOT

Introduction

The alteration of the natural environment to accommodate the transportation infrastructure, including highway, drains, bridges, maintenance facilities, toll road plazas and the like, is subject to a panoply of state and federal environmental laws and regulations. INDOT's "Construction Activity Environmental Manual"[7] provides an excellent description of these regulations and their application to construction of this infrastructure.

The inclusion by the U.S. Environmental Protection Agency of "state transportation agencies" as operators of municipal separate storm sewer systems (MS4s) attests to the potential impacts the maintenance of this infrastructure has on the environment, once constructed.

BMPs Pertaining to Deicing

The most common environmental impact from highway maintenance operations results from the application of deicers to improve highway safety for motorists. The effect of such application on groundwater is described in a recent U.S. Geological Survey report; portions of the abstract of this report are included here:

> The effects of highway deicer application on ground-water quality were studied at a site in northwestern Indiana using a variety of geochemical indicators. Site characteristics such as high snowfall rates; large quantities of applied deicers; presence of a high-traffic highway; a homogeneous,

[7]Environmental Services Section, Division of Environment, Planning and Engineering. (October 2002) http://www.in.gov/dot/pubs/manuals/cae/lindex.html)

permeable, and unconfined aquifer; a shallow water table; a known ground-water-flow direction; and minimal potential for other sources of chloride and sodium to complicate source interpretation were used to select a study area where ground water was likely to be affected by deicer application.

The water-quality data indicated that chloride was the most easily traced indicator of highway deicers in ground water. Concentration ratios of chloride to iodide and chloride to bromide and Stiff diagrams of major element concentrations indicated that the principal source of chloride and sodium in ground water from the uppermost one-third to one-half of the Calumet aquifer and downgradient from US-12 was from a halite highway-deicer source.

Chloride and sodium from highway deicers were present in the aquifer throughout the year. The highest concentrations of chloride and sodium in ground water were determined in samples collected during the spring and summer from wells open to the water table within about 9 feet of the highway. Chloride concentrations in ground water that were attributable to highway deicers also were found in tested wells about 400 feet downgradient from US-12 during the fall and winter and at greater depths than in wells closer to US-12.

Chloride concentrations exceeded the U.S. Environmental Protection Agency's (USEPA) secondary maximum contaminant level of 250 milligrams per liter for drinking water at seven wells downgradient from the highway during late winter, spring, and summer samplings. The chloride standard was exceeded only in water from wells with total depths that are less than about 10 feet below land surface.

Automated daily measurements of specific conductance, correlated to chloride concentrations, indicated that some deicer is retained in the aquifer near the highway throughout the entire year and acts as a continuous chloride source for ground water.[8]

[8]"Effects of Highway-Deicer Application on Ground-Water Quality in a Part of the Calumet Aquifer, Northwestern Indiana," Lee R. Watson, et al. U.S. Geological Survey Water Resources Investigations Report 01-4260. Prepared in cooperation with the Indiana Department of Transportation. (Indianapolis, Indiana) 2002.

INDOT officials and staff are acutely aware of the need to reduce the environmental impacts of salt storage and application and, in recent years, have implemented various structural and non-structural BMPs to reduce these impacts.

Structural BMPs

- *Connecting to POTW for Discharge of Vehicle Washwater and/or Installation of a Brine-making System to Reuse Washwater and Use Brine as Deicer on Highways.*

It is a rare occurrence, today, that a new or replacement maintenance facility would be sited or constructed without connecting to a POTW and/or installing a brinemaking system. The 5 "new" facilities constructed in the last two years all have oil/water separators, are connected to a POTW and have brinemaking with washwater reuse. One "old" facility installed an oil/water separator and connected to a POTW. One subdistrict and unit to be constructed this year will have an oil/water separator, brinemaking with washwater reuse and be connected to a POTW. The 5 facilities to be constructed during the next two years will all have the same amenities, as described above, except for one that is too distant from a POTW to be connected, but it will have a brinemaking system.[9]

- *Prototype Salt Storage Building*

The Tipton Unit constructed a new salt storage building to replace the "old" dome structure. The roof canopy, which extends down the sides, is fiber reinforced plastic and has a 15-year warranty. If the prototype proves out, it will be replicated elsewhere, as other storage facilities are replaced.[10] The facility is large enough to accommodate a

[9] SMCAVOY@indot.state.in.us, 26 May, 2004
[10] SMACVOY@indot.state.in.us, 27 Oct., 2003

bucket-loader and trucks, to allow salt/sand mixing and loading operations under cover -- to reduce contaminant loading of storm water and melt water.

- *Installation of Brinemaking Equipment*

The advantages of this technology have been well-documented by other researchers.[11] This research resulted in the publication, "Innovative Environmental Management of Winter Salt Runoff Problems," submitted to INDOT executive staff under the auspices of the Technology Deployment Work Group.[12] This report is included as Appendix N and is also available at www.ecn.purdue.edu/CMTI/INDOT/.

To those who are not highway maintenance/operations professionals, the most obvious means of reducing the impacts of road salt on the environment is to reduce the amount of salt applied to the road. This approach, however, ignores motorists' safety and could increase the liability of the department.

INDOT operates pursuant to an unwritten, but practiced, policy identified as "continuity of service." The only reference to this practice was found in the "Total Storm Management Manual,."[13] which states: "A coordinated effort must be made by all Districts and Subdistricts to provide the public with a uniform driving surface." (underline added)

---

[11]James E. Alleman, Professor, School of Civil Engineering, "Innovative Environmental Management of Winter Salt Runoff Problems at INDOT Yards," Project SPR-2379, File No. 4-7-9, 11/15/99-3/31/04

[12]James E. Alleman, Professor, School of Civil Engineering, principal author; Lynn A. Corson, Ph.D., Bobby McCulloch, Ph.D., School of Civil Engineering, Barry Partridge, Ph.D., and Dennis Belter, INDOT, contributors/reviewers. August 1, 2003

[13]A product of the INDOT Winter Operations Team. Draft (2/13/02) available at www.ecn.purdue.edu/jtrp/. Statement is on p. 95 of the draft.

Road salting, especially in the karst regions of southern Indiana and on highways proximate to "sensitive" waters of the state, is a particular concern because of contaminant loading of storm water runoff.

INDOT officials recognize the problem and have implemented measures to address it, as evidenced in the following email communication excerpts from INDOT officials:[14]

> We are making a state wide effort to increase the use of liquids for both anti-icing (pre-storm) and pre-wetting (during storm) at the spinner. All new trucks purchased for snow and ice removal include pre-wet systems and have since approximately 1999. New trucks also include ground speed control which provides more accuracy and helps control salt usage.
>
> The Vincennes District is increasing the use of salt brine for anti-icing also. This pretreatment prevents snow/ice bonding to the pavement and reduces overall salt usage.
>
> By copy of this e-mail, I'll ask Jerry Thompson, Vincennes Operations Engineer, to have the two sensitivity sites reviewed and make every effort to incorporate the salt saving methods mentioned above. We'll let you know the results of Jerry's review.
>
> Dennis W. Belter, Program Support Manager
> Indiana Department of Transportation, Indianapolis
>
> I think our increasing pre-wetting systems and our brine anti-icing program is evidence INDOT is in fact pursuing alternatives to dry salt and sand. I believe there is substantial evidence that the liquid pre-treatment program and the brine anti-icing program should result in less overall salt application, which is in fact the true goal of the Continuity of Service Plan. We have also shifted our focus away from sand, hopefully with the result being a more efficient removal with the potential of less salt usage. Our current plan is to grow the brine program into the Paoli Subdistrict for the winter of 2004-2005, subject to budgetary limitations.
>
> Jerry E. Thompson, P.E., District Operations Engineer
> Indiana Department of Transportation, Vincennes District

[14] DBELTER@indot.state.in.us (December 16, 2003) and JTHOMPSON@indot.state.in.us (December 17, 2003)

Approximately 120 INDOT facilities (mostly Units) store and apply salt. Six of INDOT's seven districts and over half of its 35 subdistricts made and used brine during the 2003-04 snow and ice season. The department purchased two tank trucks in 2004 and will be able to increase its practice of making brine at one location and transporting it to another for storage and application when needed. It is estimated that about 1,200 of the total 11,216 centerlane miles of highways maintained by INDOT regularly received brine application during the 2003-04 snow and ice season.[15]

Non-Structural BMPs

- *Ferric Ferrocyanide as an Anticaking Agent in Road Salt*

The total cyanide limit, according to IDEM water quality standards, is 0.005 mg/L. The same limit applies to free cyanide and amenable cyanide. Total cyanide is required to be monitored by the draft Indianapolis NPDES storm water permit, the "model" for INDOT's permit. In the October 6, 2003 Federal Register, U.S. EPA published its "Final Administrative Determination Document on the Question of Whether Ferric Ferrocyanic is One of the 'Cyanides' Within the Meaning of the List of Toxic Pollutants Under the Clean Water Act" (p. 57690). Its determination is that the chemical is a toxic pollutant. A Transportation Synthesis Report, "Anti-Caking Admixtures to Road Salt," prepared May 6, 2004 for WisDOT [Wisconsin DOT], surveyed usage of anti-caking agents and received responses from 19 state DOTs [not including Indiana].[16] The literature review accompanying the Report includes this analysis under the heading "Ferrocyanides and the Environment:"

[15] DBELTER@indot.state.in.us (June 3, 2004)

[16] from Nina McLawhorn, Research Administrator, Wisconsin DOT [nina.mclawhorn@dot.state.wi.us], to: 'nationalrac@yahoogroups.com.' Subject: [nationalrac] Anticaking Survey Summary. May 18, 2004.

> At this time, sodium ferrocyanide and ferric ferrocyanide appear to be the only additives used to impede caking or crusting in stored road salt. States that deal with anti-caking agents in road salts share certain practices, according to our Internet search and survey of state winter operations. Sodium ferrocyanide-usually in the form of the product Yellow Prussiate of Soda (YPS)-seems to be the favored anti-caking agent employed around the country. The alternative to YPS sometimes employed is Prussian Blue, a ferric ferrocyanide product.
>
> Concern over the environmental impact of ferrocyanides has been most acute in Canada. In the U.S., the FHWA has joined with the Environmental Protection Agency to designate ferric ferrocyanides as toxic, but the agencies have stopped short of banning its use in road salt, arguing that concentrations are not significant enough to cause ecological or public health concern. Unlike Canada, official U.S. concerns do not include sodium ferrocyanides, which may explain the widespread popularity of YPS over Prussian Blue. Scandinavian countries and several U.S. states concerned with the environmental impact of road salt typically focus on salinity or chloride levels in groundwater, and encourage restrained use of road salt. Restrictions on specific levels of ferrocyanides from anti-caking additives do not obtain.
>
> While there is some disagreement on the toxicity of ferric ferrocyanide (in Prussian Blue) being matched by that of sodium ferrocyanide (in YPS), scientific studies seem to support the FHWA and EPA position that it is the former, not the latter, that poses the most risk.
>
> Road salt itself is a potentially problematic toxin. The EPA's recent declaration of ferric ferocyanide (Prussian Blue) as a "toxic pollutant" and "hazardous substance" does not in the short-term preclude the use of it in road salts. But there is potential for future determinations of FFC-laden road salt damage that could have implications for litigation and regulation; hence, its use in highway programs should be carefully considered. See FHWA memo from Oct. 2003, and its links to official EPA pronouncements on FFC - http://www.fhwa.dot.gov/environment/toxsalt.htm.

The FHWA letter referenced in the preceding quote is included, here, for information purposes.

Memorandum

U.S. Department of Transportation
Federal Highway Administration

Subject: **INFORMATION:** EPA Toxic Determination of Compound in Road Salt

Date: October 29, 2003

From: Regina S. McElroy
Director, Office of Transportation Operations

James M. Shrouds
Director, Office of Natural and Human Environment

Reply to: HOTO-1

HEPN-1

To: Division Administrators
Resource Center Managers
Federal Lands Highway Division Engineers

To the attention of Environmental and Engineering staff.

The purpose of this message is to alert field offices that the Environmental Protection Agency (EPA) Office of Water announced a Final Administrative Determination on September 24 classifying Ferric Ferrocyanide (FFC), commonly called "Prussian Blue," as one of the "cyanides" on the Toxic Pollutant List under Section 307(a) of the Clean Water Act (CWA). The determination can be found at the following web address: http://wwwcf.fhwa.dot.gov/exit.cfm?link=http://a257.g.akamaitech.net/7/257/2422/14mar20010800/edocket.access.gpo.gov/2003/pdf/03-25272.pdf (or http://wwwcf.fhwa.dot.gov/exit.cfm?link=http://www.epa.gov/fedrgstr/EPA-WATER/2003/October/Day-06/w25272.htm). Toxic Pollutants listed under CWA Section 307(a) are also "hazardous substances" under the Comprehensive Emergency Response, Compensation and Liability Act (CERCLA). The EPA's determination is based on evidence that FFC under exposure to certain environmental conditions can potentially result in the breakdown and release of free cyanide, a highly toxic chemical.

Occurrence of the precise conditions required for the breakdown of FFC are highly unlikely, and State highway agencies (SHAs) have used road salt containing FFC and a similar cyanide compound, Sodium Ferrocyanide (SFC) for decades without incident. The compounds are used as anti-caking additives.

Prior to EPA's action, the Federal Highway Administration (FHWA) raised concerns with EPA about the potential impacts on highway operations and safety. But EPA indicates that States should not have to change any current practice regarding the use of road salt containing FFC, relative to compliance with the CWA or the CERCLA. However, they should be aware that EPA in the future could establish FFC as a reportable toxic pollutant with revised regulations under the CWA and CERCLA. For this reason, we suggest that the SHAs be advised about this determination and the use of salt containing FFC.

Even though reporting is not currently required, there still could be potential liability under CERCLA for required cleanup costs associated with a cyanide contamination problem, now including FFC. But EPA has advised us that no CERCLA cleanup action due to FFC in road salt has ever been undertaken by EPA, or for that matter, by any other party. Nevertheless, we think the potential for increased litigation, adverse public reaction, and other possible liabilities due to the EPA determination remains a concern to the highway program.

The primary contact for further information on the FFC action is: Ms. Marion Kelly, EPA Office of Water, Engineering and Analysis Division, 202-566-1045. If you need further assistance, contact either: Mr. Paul Pisano in FHWA's Office of Transportation Operations, 202-366-1301; or Mr. Fred Bank in FHWA's Office of Natural and Human Environment, 202-366-5004. We have available on request background information provided by EPA in making their determination. In addition, we will continue to monitor the situation and keep you informed as appropriate.

A comprehensive review of research on the subject over the past 30 years is identified in the reference cited below.[17]

The Material Safety Data Sheet (MSDS) for road salt supplied to INDOT in 2002 lists Prussian Blue and Yellow Prussiate of Soda (YPS) constituting 0.015 percent of the Safe-T-Salt product. INDOT is currently investigating the availability of alternative anti-caking agents and the results of the investigation will be reviewed by the Field Maintenance and Operations Task Force.

- *Operating Procedures Pertaining to Road Salt Operations*

Five INDOT documents constitute the procedures and guidance pertaining to road salt operations:[18]

1. INDOT Salt Housekeeping Guidelines for Personnel Involved in Snow Removal, October 2, 1998 (Memorandum);
2. Operating Procedure No. 22: Snow and Ice Chemicals - Pollution Control Guidelines, August 24, 1998;
3. Operating Procedure No. 2: Snow and Ice Control, August 24, 1998 (modified March 2001);
4. INDOT - Greenfield District Liquid Chemical Application Policy, December 2001;
5. Total Storm Management Manual, Winter Operations Team, February 13, 2002 (draft).

---

[17]"Potential Water-Quality Effects from Iron Cyanide Anticaking Agents in Road Salt," Michael J. Paschka, et al. Water Environment Research, Vol. 71, No. 6., p. 1255. (Sept./Oct. 1999)

[18]Items 1 and 4 listed above are included in Appendix A to this report. Items 2 and 3 are included as appendices to item 5 found at www.ecn.purdue.edu/jtrp/.

Operating Procedure 22, last revised in 1998, before the December 1999 promulgation of the U.S. EPA Phase II NPDES storm water regulations, needs to be

revised, again, to comport with the requirements and meaning of these and related state water quality regulations. Six changes have been recommended to the appropriate INDOT officials by the Principal Investigator as recently as March 31, 2004.

Highway Maintenance BMPs

- *Drainage Systems*

Three INDOT Performance Standards: Inspect Minor Drainage Structures (Code 2320 PM), Cleaning Minor Drainage Structures (Code 2350) and Clean Underdrains (Code 2360 PM), establish the procedures for "crews" to maintain state highway drainage systems [there are separate procedures for side ditches].[19] These performance standards are non-structural BMPs already in place and well-practiced. According to the INDOT policy regarding maintenance responsibilities for drainage in cities and towns (see page 30), "INDOT will be responsible for maintaining the inlets, catch basins, manholes and the connecting pipes between them," on state highways.

The Indiana Department of Environmental Management (IDEM) has advised that it intends to use the draft NPDES permit issued to the City of Indianapolis in May 2004 as the "model" for INDOT's permit.[20] Two provisions of the draft permit pertaining to drainage systems would be difficult for INDOT to implement and are, probably, unnecessary for IDEM to mandate:

[19]INDOT Field Operations Handbook for Crew Leaders, Operations Support Division, January 2001

[20]This draft permit is found at www.in.gov/idem/water/npdes/public_notice/indianapolisswdraft.doc.

> II.B.2.a. Set up a program to prioritize and mark storm drain inlets and catch basins within the MS4 area…to inspect and, as needed, re-establish the

legibility of the wording…submit a written plan and schedule to IDEM for approval;

II.B.2.b. Set up a program to prioritize catch basin inlets within the MS4 area based on the relative volumes of trash and/or debris [collected…] a schedule of catch basin cleaning shall be established and reported to [IDEM].

According to a January 2004 survey of INDOT districts conducted by the Environmental Services Section, there are 27,769 inlets and catch basins along state highways; 27,364 of them (98.54 percent) are connected to municipal combined or separate storm sewer systems. [See Appendix O] And though the inlet data have yet to be assigned to MS4 or non-MS4 communities, it is apparent that the majority of these are in MS4 communities.

These performance standards and their corresponding performance schedule should be accepted to satisfy any proposed permit requirements for drainage systems maintenance:

- Minor drainage structures are inspected "throughout the year when weather permits a complete inspection."
- Minor drainage structures are scheduled for cleaning "as determined by inspection [preceding] or as necessary to maintain drainage. After a period of heavy rainfall or after leaves have fallen, some structures may need attention to assure proper drainage."
- Underdrains are scheduled for cleaning "throughout the year when weather permits complete and thorough cleaning of the drains."

These, as with other maintenance activities, are recorded on "Crew Day Cards" and information item 6 -- listing of location(s) for the work performed -- can, if needed, be aggregated in a computerized report to verify the work performed.

- *Street Sweeping*

Section II.B.2.c. of the Indianapolis draft permit requires the city to "set up a program to prioritize streets and/or street segments within the MS4 area based on the relative volumes of trash and/or debris…a schedule of street sweeping of curbed streets shall be established and reported to [IDEM]…"

INDOT districts maintain agreements with municipalities for the sweeping of state highways within their jurisdiction. The remuneration for such services is small, but, apparently, satisfactory. In September 2003, INDOT officials considered surveying its district offices to identify the municipalities with which it maintained agreements. Discussions in March 2003, preliminary to the survey, revealed that there was no single location in the districts or Indianapolis where the list of municipalities could be obtained. Further discussions in April 2004 concluded that, because these agreements benefit the state highway system, the municipalities that provide the street sweeping services should "count" the volume or weight of trash/debris in <u>their</u> storm water permit reports to IDEM. This conclusion, when formalized, should be communicated to municipalities by INDOT district personnel.

- *Bridge Cleaning*

Rule 13, section 17(b)(2)(F), prohibits "concrete or asphalt hydrodemolition waste waters from storm water runoff except under the allowance of an appropriate NPDES wastewater permit."

INDOT bridge cleaning, according to an INDOT official, is not hydrodemolition, it is high pressure washing, around 2,000 psi. The washwater could be filtered, if required by IDEM, before being discharged to the waters of the state.[21] Filtering, however, will not remove the chlorides from the salt residue removed from the bridge.

Performance Standard 2440 PM, Flushing Bridge, applies to "cleaning of bridge seats, drain holes, expansion joints, gutter lines and truss members by flushing to remove accumulation of sand, chemicals [road salt] and debris." According to the "Equipment" listed in the Standard, a "water jet or water truck or hydroseeder" can be employed for the flushing, substantiating that the water pressure is considerably below that classified as hydrodemolition.

- *Bridge Painting*

The Principal Investigator monitors IDEM's monthly reports of Notices of Violation (NOVs) issued to entities alleged to have violated a state or federal environmental law. The only NOVs received by INDOT in over five years have both been issued because a bridge painting contractor did not properly containerize and/or label or transport hazardous waste paint removed from the bridge according to regulations and according to the INDOT contract based on its Standard Specification 619,

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[21] TDUNCAN@indot.state.in.us (March 18, 2003)

which "relies heavily on the current certifications and guides provided by the Steel Structures Paint Council. SSPC."[22]

The Standard Specification 619 -- Painting Bridge Steel,[23] in Section 619.06(a) Pollution Control, requires the contractor to include a "containment procedure plan…in the QCP [Quality Control Plan]." The other relevant provisions of section (a) state:

> The telephone numbers for the IDEM Emergency Response Branch, local health department, and all water intake users within 150 m (500 ft) shall be provided in the QCP.
>
> Blasting materials, scrapings, wire brushings, and paint particles shall be contained in accordance with SSPC-Guide 6 (CON), Class 3, specifically for zinc primed bridges, and SSPC-Guide 6 (CON), Class 2, for lead primed bridges.
>
> If a spill, as defined in IDEM Regulation 327 IAC 2-6 does occur, all work shall stop and immediate action shall be taken to clean up the site. Spills of material, which enter or threaten to enter the water, shall be handled in accordance with IDEM Regulation 327 IAC 2-6. The IDEM Emergency Response Branch, the local health department, and all water intake users within 150 m (500 ft) of the bridge shall be immediately contacted and advised of the spill. Written documentation of all such contacts and actions shall be kept. All applicable Federal, State, and local rules and regulations described in 619.07(b)1 shall be observed.
>
> No waste shall remain on the booms or on the water surface overnight. All blasting debris shall be cleaned up after each day's work. All waste material shall be properly stored at the project site to prevent loss or pollution.

Section 619.08 Surface Preparation includes performance standards; however, the Pollution Control section, which pertains to "pollution control and waste disposal of existing paint and debris," (underline added), doesn't appear to apply to 619.08(a), Pressure Washing or 619.08(b), Solvent Cleaning and the control of any pollution

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[22]found at www.in.gov/dot/div/contracts/standards/book/index.html

[23]Memorandum with attachment from Thomas L. Duncan, P.E., through Phyllis Hockett, LPG, Environmental Services Section Manager (March 27, 2002)

resulting from these surface preparation processes or the application of the new paint coating pursuant to Section 619.09, Paint Systems. The waterways under bridges and any

adjoining waterbodies need to be protected from pollution that may result from surface cleaning or paint application.

The proper INDOT authority should assess whether Standard Specification 619 and its attendant provisions [cited as "SSPC Guides"] provide satisfactory protection of water quality during the performance of all activities related to "Painting Bridge Steel."

Other Highway Maintenance BMPs

Performance Standards from the INDOT Field Operations Handbook are described in Appendix C to the INDOT draft Storm Water permit application [included in this report as Appendix A]. The Environmental Services Section assigned storm water protection strategies to each standard [referred to as "Environmental Notes"], which are also found in Appendix C to the draft permit application. Maintenance employees will be trained on the prevention strategies.

Highway Construction/Post-Construction BMPs

Introduction

Highway construction in Indiana is subject to many federal and state water quality laws and regulations and, because of unique geological features, two additional "Memoranda of Understanding," both of which mandate the installation or performance of best management practices to prevent groundwater contamination during construction or, following construction, during the performance of maintenance activities.

"Karst Agreement" [See Appendix P]

Dated October 13, 1993 and signed by INDOT, IDEM, IDNR and the U.S. Fish and Wildlife Service, this Memorandum of Understanding delineates "guidelines for construction of transportation projects in karst regions of the state." In fact, the agreement requires BMPs during and following construction:

> Section 2, para. 2: "Calculations of estimates of annual pollutant loads from the highway and drainage within the right-of-way will be made, including prior to, during and post construction estimates. The design of the treatment of the karst features will take into consideration treatments necessary to meet the standards of the monitoring and maintenance plan."
>
> Section 5: Drainage entering from beyond the right-of-way will be treated according to the same process as drainage generated by the project.
>
> Section 7: Hazardous materials traps (HMT's) will be constructed at storm water outfalls and other locations that will protect karst features from spill contamination.
>
> Section 8: Indiana Department of Transportation agrees to develop a monitoring and maintenance plan for the affected karst features. The establishment of water quality and a point at which a standard is established for remediation will be a part of each monitoring plan.
>
> Section 9: A low salt, and no spray strategy will be developed for each future project. A signing [signage] strategy for these items will also be developed for each project.
>
> Section 11: The erosion control plan must be available at the project administrator's office. An emergency response plan will be made a part of the contract documents. In addition, the contract documents will contain a strategy for signing to alert the public to the fact that all types of spills are potentially hazardous to the karst environment.

The karst agreement and INDOT's intent to adhere to its provisions resulted, ultimately, in the installation of two types of structural BMPs along SR 37 between Bedford and Mitchell: peat filters and two chamber detention ponds.

No policies, procedures or schedule pertaining to the maintenance of either type of structure has been located. An INDOT official reported that, as to the ponds, a staff

person instrumental in the design of the ponds "said that they did not plan on maintaining them. Once the vegetation was established in the second chamber, the filter medium was no longer needed. The structures then performed as only detention ponds with vegetative filtration. The upper chamber, however, still needs [to be] cleaned of floatables."[24]

According to staff in the Vincennes District, there are no formal procedures to inspect or clean the ponds, nor has any training been provided concerning maintenance, if any is required.

One conversation conveyed that peat filters used to be changed occasionally years ago, but the location of all of them is not known by some of the newer employees.

BMP selection criteria are currently being researched and preferred types of structural BMPs will be recommended.[25] Perhaps, double-chamber detention ponds can be installed elsewhere in the state; however, without a determination of their efficiency and an estimate of their maintenance frequency and costs, such a recommendation may not be advised. INDOT should assess these structures, adopt formal procedures and a schedule for inspection and maintenance and determine if these BMPs can and should be replicated elsewhere.

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[24] TDUNCAN@indot.state.in.us (August 28, 2003)

[25] "Assessment and Selection of Storm Water Best Management Practices for Highway Construction, Retrofitting and Maintenance," JTRP Project No. C-36-78V, File No. 4-7-22, SPR-2853, 1/1/04-6/30/06

Sole Source Aquifer Memorandum of Understanding

The April 1989 Memorandum of Understanding between the U.S. EPA Region 5 and Federal Highway Administration Region 5, Indiana Division "is to ensure that Federal-aid highway projects located in designated sole source aquifers are designed, constructed and maintained in a manner that will prevent the introduction of contaminants into the aquifer in quantities that may create a significant hazard to public health. All proposed projects located [wholly or in part] within the limits of the St. Joseph Aquifer System must comply with the requirements of the subject MOU…"[26]

The provisions of the agreement pertain to:

(1) construction of additional through-traffic lanes or interchanges on existing roadways;

(2) construction of a two or more lane highway on new alignment;

(3) construction of rest areas on scenic overlooks with on-site sewerage disposal facilities;

(4) any project involving a new or existing well;

(5) any other project that FHWA, in consultation with EPA, believes may have a potential to affect the designated aquifer through its recharge zone so as to create a significant hazard to public health.

According to the June 23, 1988 Federal Register publication of EPA's "Notice of Final Determination" regarding the "St. Joseph Aquifer System, Indiana, Sole Source

[26]Cover letter to Mrs. Christine W. Letts, Director, Indiana Department of Highways, Indianapolis, Indiana from Arthur A. Fendrick, Division Administrator, May 9, 1989.

Aquifer Petition," the aquifer, then, served as the sole or principal source of drinking water for approximately 290,000 residents of Elkhart, St. Joseph, LaGrange, Noble and Kosciusko Counties. EPA's "basis for determination" refers to "over 44 cases of ground water contamination in Elkhart County, alone" and that potential sources for contamination include, among five named sources, "(E) salting of roads for ice control."[27] EPA has authority to "review projects that may introduce excessive amounts of any EPA Priority Pollutants and the following contaminants into a sole source aquifer:

Chlorides (road salting, salt storage, etc.)

Bacteria (septic drainfields, land application, etc.)

Nitrates (feedlots, fertilizer storage and application, etc.)

Pesticides normally used for landscape maintenance."

There are no sensitivity level 1, 2 or 3 highways in the area served by the sole source aquifer. However, there are 6 maintenance facility locations: Elkhart Maintenance and Toll Road District (Toll Roll District), South Bend Unit and Mishawaka Unit (LaPorte District) and Goshen Sub and Elkhart Sub and Unit (Fort Wayne District). These facilities will be prioritized for a site visit during the SPR 2854 study, "Deriving the Cost Impacts of Indiana's Storm Water Rule 13 on INDOT Maintenance Facility Operations."

It is assumed that the Memorandum of Understanding remains in effect and that highway construction and maintenance plans, since 1988, have been specified accordingly. The department should assess whether these plans have incorporated structural or non-structural BMPs as a condition of compliance with the memorandum.

[27] Federal Register, Vol. 53, No. 121, Thursday, June 23, 1988. p. 23683

Constructed Wetlands

The only other type of structural BMP in the state highway system -- and there is only one example of this type -- is the constructed wetland located on the south side of the Toll Road at the Grant Street exit (14A), north of the old toll plaza. It was part of the $2.5 million plaza improvement project completed in the fall of 1999. The funding was from an EPA grant to IDEM and the project was administered by the INDOT Toll Road District. The project was initiated because of excessive silt and sand from vehicles exiting the steel mills and an aggregate mining area accumulating on the roadway and entering the Calumet River in a storm water runoff. It is estimated to drain an area of toll road and ramps comprising approximately 50 acres. Apparently, little if any maintenance has needed to be performed since it was constructed.[28]

There is one other wetland, a 7.5 acre tract, constructed in late 2003 along I-65 and SR 62 in Clarksville. It has a small filtering capacity for storm water runoff from about one-quarter mile of I-65 southbound, but it was constructed to replace wetlands destroyed in the "Revive 65" highway improvement project. Its primary function, then, is mitigation."[29]

[28] dwarner@toll.indot.state.in.us (August 21 and 27, 2003)
[29] TDUNCAN@indot.state.in.us (January 27, 2004)

APPENDICES
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APPENDIX A

(Appendix A to this Permit Application is identical to Appendix K of the study report and, therefore, is not included in this appendix)

INDIANA DEPARTMENT OF TRANSPORTATION

National Pollutant Discharge Elimination System (NPDES)
Individual Storm Water Discharge Permit
September 24, 2003

INTRODUCTION

The Indiana Department of Transportation (INDOT) is responsible for approximately 11,300 center line miles (28,500 total lane miles) of highways and interstates in Indiana, as well as 5,519 bridges. These highways and bridges are located in all ninety-two (92) counties and all designated Municipal Separate Storm Sewer System (MS4's) in Indiana. To avoid being a co-permittee with hundreds of MS4's, INDOT proposes permit action for an individual storm water discharge permit, in accordance with 327 IAC 5-4-6. INDOT's NPDES Individual Storm Water Discharge Permit will regulate and allow the discharge of storm water runoff from those State Highways, Interstates, and bridges, as well as Operation/Maintenance facilities that are located within the limits of an MS4 or an Urbanized Area (UA), including the Toll Road (I-80/90). An MS4 is defined in *327 IAC 15-13-3 MS4 area designation criteria,* as a Municipal Separate Storm Sewer System with a conveyance serving a municipal population of seven thousand (7,000) or more. An Urbanized Area is also defined in *327 IAC 15-13-3*, as an area with a population density equal to, or greater than five hundred (500) people per square mile, that is located outside an MS4 jurisdictional limit. All demographics are referenced to the 2000 Census data. All INDOT Highways, Interstates, bridges, as well as Operation/Maintenance facilities that are located within an MS4's jurisdiction shall meet the minimum requirement under those MS4's NPDES Storm Water permit; however, the INDOT highways and facilities will not be subject to any unreasonable or inexplicable monetary assessments, taxes, or fees, imposed by the MS4's.

INITIAL CHARACTERIZATION and PRIORITIZATION of RECEIVING WATERS

IDEM has required that INDOT develop an initial characterization of the receiving waters, waters of the State, that INDOT right-of-way or facilities will have potential to impact. Since INDOT highways drain to virtually every stream or river in the State, it will be impossible to develop an initial characterization of every one of the waters of the State. INDOT has initiated a Joint Transportation Research Project (JTRP), with principal investigator Lynn Corson, Ph.D. Director of Indiana Clean Manufacturing Technology and Safe Materials Institute, Purdue University, School of Civil Engineering. The primary goal of the JTRP was to prioritize the more "sensitive waters" that INDOT may impact. IDEM has established four (4) criteria for "sensitive waters":

1. Providing habitat for threatened or endangered species.
2. Usage as a public surface water supply intake.
3. Relevant community value ("full-body contact recreation").
4. Exceptional use classification, outstanding State resource water classification, or "high quality waters".

INDOT Priority System

Indiana Natural Resources Commission, in 1993, promulgated its "Outstanding Rivers List for Indiana". This is a list of Indiana rivers and streams that have particular environmental or aesthetic interest. The INDOT priority system identified four (4) levels of priority and the list of priority 1-3 (2,557) is included in APPENDIX A. The JTRP study identified 18,653 sites where the following INDOT priority 1-4 "sensitive waters" criteria was used:

- INDOT facilities and highways within a Rule 13 designated MS4 area
- INDOT facilities and highways within a Rule 13 designated Urbanized Area
- INDOT facilities not connected to a Public Owned (Operated) Treatment Works (POTW)
- INDOT facilities and highways within a karst area
- INDOT facilities and highways within 3,000 feet of a community public well (well head protection area)
- INDOT facilities and highways within 1,000 feet, 3,000 feet, or one (1) mile of a public surface water intake
- INDOT facilities and highways within one (1) mile of high quality and exceptional use waters
- INDOT facilities and highways within one (1) mile of federal, state, county, municipal or township recreation facility having a lake, pond, river, or stream
- INDOT facilities and highways within 3,000 feet of groundwater that is highly vulnerable to contamination
- INDOT facilities and highways within 3,000 feet of a natural area containing endangered, threatened, or rare species
- INDOT facilities and highways within one (1) mile of the "best remaining example of a natural wetland community," as defined by IDNR

INDOT Initial Characterization

Initial characterization will be developed by testing selected receiving waters, based on priority. Periodic follow-up sampling and testing will be accomplished for annual reporting. A 6920 Sonde multiparameter portable testing probe manufactured and distributed by YSI Environmental was used to test the priority waters for initial characterization. Subsequent laboratory tests will be run to correlate pollutants of concern. The YSI Probe tested the following parameters:

- Conductivity (μS/cm) (micro-mhos/centimeter or micro-Siemens/centimeter)
- Dissolved Oxygen (DO) (mg/L) (milligram/Liter)
- Chloride (mg/L) (milligram/Liter)
- pH (%)
- Oxygen Reduction Potential (ORP) (mV) (millivolts)
- Turbidity (NTU) (nephelometric turbidity units)
- Temperature (°C) (Degree Celsius)

The initial testing of all Priority 1 waters was conducted between July 14th, and August 12th, 2003. The latitude and longitude coordinates, to the nearest 0.001 of a minute, were also obtained at each test site using a portable 12 channel GPS devise called etrex, manufactured by Garmin. The results of the initial testing are included in APPENDIX B.

STORM WATER QUALITY MANAGEMENT PLAN

The Storm Water Quality Management Plan (SWQMP) required by the proposed permit is designed to produce the information necessary to effectively manage a statewide storm water conveyance system on urban highways and meet the requirements of the federal storm water regulations. The proposed permit requires that the applicant reduces pollutants to the maximum extent practicable and completes and implements the SWQMP. The SWQMP includes continued implementation through annual reports. The SWQMP will include the following components:

Public Education and Outreach Program
Public Participation and Involvement Program (Public input into INDOT's SWQMP)
Illicit Discharge Detection and Elimination Program
Construction Site Storm Water Runoff Control (Rule 5, 327 IAC 15-5-1)
Post Construction Storm Water Management
Pollution Prevention at INDOT Operation and Maintenance Facilities located within an MS4 and for Road-Side Maintenance located within an MS4 (Good Housekeeping)

I. PUBLIC EDUCATION AND OUTREACH

A. Benefits of INDOT's Public Education and Outreach Program

An informed and knowledgeable public is critical to the success of a storm water management program. Without public knowledge of water quality problems caused by runoff from highways, it is difficult to obtain public support for statewide storm water quality programs. As with all of the six minimum control measures, the goal of this measure is to improve the chemical, physical and biological quality of the waters of the State by reducing the degradation from highway runoff. In order to achieve this water quality benefit, Public Education programs should be targeted to these outcomes:

- **Improve understanding** of the reasons why storm water quality programs must exist. Public understanding of the statewide impacts to waters of the State are important when INDOT must impose added requirements to permits, fees, or contracts, and when seeking volunteers to help implement some programs.

- **Greater compliance** with the program as the public becomes aware of the personal responsibilities expected of them and others, including the individual actions they can take to protect and improve the quality of waters in their area of the State.

B. Program Requirements

To paraphrase the Rule 13 regulations (327 IAC 15-13-12) into requirements that may be used for an individual NPDES permit for INDOT:

> INDOT shall develop a SWQMP that includes methods and measurable goals that will be used to inform the public, construction site personnel, and INDOT

employees about the impacts polluted storm water runoff can have on water quality and ways they can minimize their impact on storm water quality.
INDOT shall utilize existing programs and outreach materials to meet this measure.
INDOT shall complete and submit a certification form to the Indiana Department of Environmental Management (department) once the program has been developed and implemented, or three hundred sixty-five (365) days from the date of permit issuance, whichever is earlier. At a minimum, every five (5) years the program shall be reviewed for adequacy and accuracy and updated as necessary.
INDOT shall develop measurable goals for this measure.

C. Guidelines for Developing and Implementing This Measure

To satisfy this minimum control measure, INDOT will:

- Implement a public education program to distribute educational materials to the citizens of Indiana, or conduct equivalent outreach activities about the impacts of storm water discharges and the steps that can be taken to reduce storm water pollution.
- Target construction contractors and aggregate suppliers with information materials appropriate to them on the potential storm water impacts of improper waste disposal and illegal discharges from their operations and construction sites.
- Determine the appropriate best management practices (BMP's), in this case informational and educational methods to be used, and measurable goals for this minimum control measure.

There are three (3) main action areas of importance in implementing a successful public education and outreach program.

1. Forming Partnerships

Currently INDOT sponsors the **"Adopt-A-Highway Program"**, wherein community-based organizations, corporations, schools, clubs, fraternities, sororities, and associations can accept the responsibility of keeping a segment of State Highway clean and neat in return for placing an informational sign stating that their organization is responsible for this endeavor. The trash and debris collected from this activity will be weighed for annual reporting and is, and will continue to be, properly disposed of. This program is quite successful and will be continued and expanded wherever possible.

Currently INDOT conducts an annual program called **"Trash-Bash"**, wherein INDOT employees (some volunteering outside their everyday tasks), correctional detainees (Department of Corrections), and Adopt-A-Highway participants pickup trash on interstate and state routes that are to be mowed. This activity is coordinated every year just before the mowing season begins. The trash and debris collected from this activity will be weighed for annual reporting and is, and will continue to be, properly disposed of.

Currently INDOT has a Partnering Program with contractors that perform construction on INDOT projects. INDOT has developed a ***Partnering Handbook*** for these construction projects. The first step in a formalized partnering process is an all day partnering workshop in which team members:

- establish a common mission statement, team objectives, and guidelines;
- define issue resolution and problem escalation processes specific to that team; and
- create an evaluation process to ensure continuous improvement.

The development of a Team Charter during the workshop enables all parties to focus on cooperation, communication, and commitment. The Charter is a listing of mutually agreeable goals of all stakeholders. While the contract itself defines the responsibilities of each party, the Charter provides a document in which all parties can share their goals for the contract. The Charter is not a legal document. Rather, it is a personal commitment of the participants that they will work for the success of the project. A storm water quality management component can be easily incorporated into the workshop. This continuous Partnering Program will be an asset to keeping construction sites clean and preventing excess, sediment laden, runoff from entering streams, through a cooperative effort among all stakeholders at the site.

Currently INDOT conducts pre-construction conferences for all of its projects. These conferences are an in-depth discussion of the contract requirements between INDOT and the Contractor, including any sub-contractors. A storm water quality management component can be easily incorporated into a pre-construction conference.

Currently INDOT collects the carcasses of animals that are killed on highways. These small and large animals are reported on a form and the disposition depends on the location, INDOT treats the animal carcass in one of the following five (5) ways:

① Processed for meat or pet food
② Contract pick-up
③ Composted at INDOT facility
④ Incinerated at INDOT facility
⑤ Buried on-site or off-site

INDOT will strive to enter into partnerships with other governmental agencies and entities to fulfill the requirements of this minimum control measure. The Indiana Department of Natural Resources has programs like "Riverwatch" and Project "Wet" and "Indiana Storm Drain Stenciling Project" that INDOT can partner with and support in local areas where highways will have greater impact to waters of the State.

2. Using Educational Materials and Strategies

Brochures and other forms of literature on Highway Storm Drainage will be developed to inform the public how INDOT is taking steps to improve the water quality of the storm water runoff from highways. This information will also include education of how people can contribute to the efforts of improving the storm water quality. Brochures and fact sheets will be distributed annually at the State Fair, possibly with vehicle registration and driver license receipts at the Bureau of Motor Vehicles (BMV), and at the Interstate Rest Areas and Welcome Centers. An informational and educational message will be printed on the State Highway Map that INDOT annually updates and distributes statewide.

INDOT website will be used to broadcast the brochure and any storm water quality information to internet users.

Roadway and Rest Area signage will be increased to inform the traveling public of environmentally sensitive areas and areas where storm water runoff is being improved. Rest Areas will have signs that say: *No RV Waste Dumping*, *No Dumping of Vehicle Fluids*, *Spill Reporting Phone Number*...(both INDOT and IDEM), and *Pet Area* (at least 150 feet from stream). Roadway signs will say; *No Spray Zone*, *Low Salt Zone*, *Spill Reporting Phone Number*...(both INDOT and IDEM), *Environmentally Sensitive Area Any Spills In Area Are Potentially Hazardous*. Storm drain marking at inlets to sensitive waters can be installed as a part of INDOT construction projects.

3. Reaching a Broad and Diverse Audience

As tax monies become available, radio, television, and billboard advertisements may be incorporated into INDOT's Public Outreach program. Multilingual printed posters and brochures will be used to reach audiences less likely to read standard materials. INDOT materials will also be targeted toward the motoring public with information that will encourage people to keep their vehicles well maintained so as not to leak or drip oil and gas onto the highways, where these materials will be washed into the streams as pollutants.

D. Measurable Goals

INDOT will conduct a survey at the State Fair in all five (5) years of the permit to ascertain how many people have gained knowledge about storm water runoff from highways over the years from INDOT's public education program.

The following are the measurable goals for INDOT's Public Education and Outreach Program for the initial five (5) year permit period.

Target Date	Activity
Year 1 November 1, 2003 to October 31, 2004	• Conduct initial survey at State Fair, August 2004. • Create information on INDOT website relative to storm water runoff from highways by July 2004. • Develop brochures to be placed at Rest Areas and distribute at the State Fair, August 2004. • Develop message for the State Map to be published June, 2004, distribute maps at State Fair August 2004 • Develop spill clean-up materials (kits) and information to be installed in Year 2 at Rest Areas, Weigh Stations, and Welcome Centers.
Year 2 November 1, 2004 to October 31, 2005	• Distribute brochures at Rest Areas and Welcome Centers by August 2005. • Conduct follow-up survey at State Fair, August 2005. • Distribute brochures and maps at State Fair, August 2005. • Develop signs for Rest Areas and Roadways by October 31, 2005. • Deploy spill clean-up kits and information at Rest Areas, Weigh Stations and Welcome Centers by August 2005.
Year 3 November 1, 2005 to October 31, 2006	• Develop target audience-based programs with construction contractors and aggregate suppliers to introduce at Purdue Road School in March 2007. • Develop a partnership with IDNR Programs, Riverwatch, Project WET, and Stenciling Program by October 31, 2006. • Conduct follow-up survey at State Fair, August 2006. • Maintain spill clean-up kits and information. • Begin installing signs at Rest Areas and on Roadways, April 2006.
Year 4 November 1, 2006 to October 31, 2007	• Revise brochure in multiple languages to be distributed at select Rest Areas in Year 5. • Conduct follow-up survey at State Fair, August 2007. • Maintain spill clean-up kits and information. • Continue installing signs at Rest Areas and on Roadways throughout 2007. • Continue developing and expanding the partnership with IDNR Programs in 2007.
Year 5 November 1, 2007 to October 31, 2008	• Continue and expand partnership with IDNR Programs in 2008. • Conduct follow-up survey at State Fair, August 2008. • Distribute revised brochure in multiple languages at State Fair, August 2008. • Conduct target audience-based training program with construction contractors and aggregate suppliers February 2008. • Maintain spill clean-up kits and information.

II. PUBLIC PARTICIPATION AND INVOLVEMENT

A. Benefits of INDOT's Public Participation and Involvement Program

The Public can provide valuable input and assistance to INDOT's storm water management program. Since it is the activities of the public within the State that produce pointless personal pollution, and the public that pays taxes to fund the INDOT functions, it is imperative that the public be empowered to play an active role in both the development and implementation of the program. An active and involved community is critical to the success of a storm water management program to allow for:

- **Broader public support,** since citizens who participate in the development and decision making process are partially responsible for the program and are more likely to take an active role in its implementation;

- **A broader base of expertise and economic benefits,** since the citizens of the State can be a valuable, free, intellectual resource; and

- **A conduit to other programs,** as citizens involved in the storm water program development process provide important cross-connection and relationships with other municipal and government agency programs. This benefit is particularly valuable when trying to implement a storm water program integrated on a watershed basis.

B. Program Requirements

To paraphrase the Rule 13 regulations (327 IAC 15-13-13) into requirements that may be used for an individual NPDES permit for INDOT:

> INDOT shall develop an SWQMP that includes provisions to allow opportunities for the public to participate in the storm water management program development and implementation.
> INDOT shall comply with applicable public notice requirements.
> INDOT shall complete and submit a certification form to the department once the program has been developed and implemented, or three hundred sixty-five (365) days from the date of permit issuance, whichever is earlier. At a minimum, every five (5) years the program shall be reviewed for adequacy and accuracy and updated as necessary.
> INDOT shall develop measurable goals for this measure.

C. Guidelines for Developing and Implementing This Measure

To satisfy this minimum control measure, INDOT will:

- Comply with applicable State (Indiana Code, IC 4-22-3, Open Public Hearings) and local public notice requirements using an effective mechanism for reaching the public;

- Determine the appropriate BMP's and measurable goals for this minimum control measure. Possible implementation approaches, BMP's (i.e., the program actions and activities), and measurable goals are described below.

INDOT will, to the greatest extent possible, include the public in developing, implementing, and reviewing each minimum measure of their storm water management programs. The public participation process will make every effort to reach out and engage all economic and ethnic issues. INDOT recognizes that there are challenges associated with public involvement. Nevertheless, INDOT strongly believes that these challenges can be addressed through an aggressive and inclusive program. Challenges and example practices that can help ensure successful participation are discussed below.

Currently INDOT involves the public in the planning process for transportation projects funded with Federal Highway Administration (FHWA) dollars. Annually, INDOT meets with citizens across the State to discuss transportation issues, programmed projects and to provide time for public involvement in development of their transportation programs. In August every year, six meetings are held across the State to provide this information and collect input on the draft Indiana Statewide Transportation Improvement Program (INSTIP).

Current INDOT holds numerous public hearings on individual projects through out the State. These public hearings are in accordance with the National Environmental Policy Act of 1969 (NEPA) and the opportunity for open public comment is in accordance with Indiana Code, IC 4-22-3, Open Public Hearings. These hearings are required on all federally funded highway projects that require environmental review and appropriate environmental documents.

Storm Water Quality Management Plan Public Hearings/Meetings will be held at six sites across the State to provide Highway Storm Water Runoff information and collect input for the Plan. The opportunity for open public comment will be in accordance with Indiana Code, IC 4-22-3. Informational materials relative to these hearings will be published in different languages appropriate for the area of the State in which they are being held.

Currently INDOT often relies on advertising in local newspapers to announce the above mentioned planning meetings and public hearings. INDOT also lists the scheduled hearings on the internet as part of the on-line calendar. Since there may be large sectors of the population who do not read the local press or use the internet, the audience reached can be limited. Therefore, alternative advertising methods will be used whenever possible, including radio or television spots (public service announcements), postings at bus or light rail stops (Mass Transit Terminals), announcements in neighborhood newspapers/newsletters, announcements at civic organization meetings, school functions, distribution of flyers, all including multilingual announcements where appropriate.

D. Measurable Goals

Measurable goals, which are required for each minimum control measure, are intended to gauge permit compliance and program effectiveness. At a minimum, the measurable goal for this program is to provide adequate public notice of all public hearings and planning

meetings, published in a community publication or newspaper of general circulation, when implementing the storm water management programs required under the permit.

The following are the measurable goals for INDOT's Public Participation and Involvement Program for the initial five (5) year permit period.

Target Date	Activity
Year 1 November 1, 2003 to October 31, 2004	• Develop and conduct six State-wide Public Hearing/Meetings by November 30, 2003 • Notices will be published in several print media and bilingual flyers, including internet postings, in accordance with Indiana Code, IC 4-22-3 • Final recommendations as a result of the public comments will be published by March 1, 2004.
Year 2 November 1, 2004 to October 31, 2005	• Programs will also be posted on the internet "List Service" by March 1, 2004.
Year 3 November 1, 2005 to October 31, 2006	• Nothing required, as the Storm Water Quality Management Plan has been adopted and implemented.
Year 4 November 1, 2006 to October 31, 2007	• Nothing required, as the Storm Water Quality Management Plan has been adopted and implemented.
Year 5 November 1, 2007 to October 31, 2008	• Prepare for renewal of NPDES Permit by conducting six State-wide Public Hearing/Meetings before October 1, 2008 • Notices will be published in several print media and bilingual flyers, including internet postings, in accordance with Indiana Code, IC 4-22-3 • Final recommendations as a result of the public comments will be published by November 1, 2008.

III. ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM

An illicit discharge is defined as any discharge to INDOT right-of-way that has not been authorized by INDOT licensure. Illicit discharges enter the system through direct means of outlet pipes either mistakenly or deliberately discharged onto INDOT right-of-way or connected to an INDOT storm drainage system. Illicit discharges can also enter the system indirectly/inadvertently from cracked sanitary systems, spills on the highway, or spills collected by drain outlets and conveyed to INDOT right-of-way.

Illicit discharges may be continuous or intermittent. Intermittent discharges usually occur when carried by a storm event, while continuous illicit discharges will often flow during dry weather.

A. Benefits of INDOT's Illicit Discharge Detection and Elimination Program

Illicit discharges can result in untreated discharges that contribute high levels of pollutants, including heavy metals, toxins, oil and grease, solvents, nutrients, viruses, and bacteria, to receiving waterbodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic life, wildlife, and human health. Reduction of illicit discharges helps to maintain the integrity of the highway drainage system and minimizes the amount of pollutants that are discharged to waters of the State.

B. Program Requirements

To paraphrase the Rule 13 regulations (327 IAC 15-13-14) into requirements that may be used for an individual NPDES permit for INDOT:

> INDOT shall develop an SWQMP that includes a commitment to develop and implement a strategy to detect and eliminate illicit discharges to INDOT right-of-way.
> INDOT shall locate and identify the outfalls in INDOT's priority system that are discharging to sensitive waters of the State.
> INDOT shall develop a regulatory mechanism that will prohibit illicit discharges onto right-of-way, and establish appropriate enforcement procedures and actions.
> INDOT shall complete and submit a certification form to the department once the regulatory mechanism has been developed and implemented, or three hundred sixty-five (365) days from the date of permit issuance, whichever is earlier. At a minimum, every five (5) years the program shall be reviewed for adequacy and accuracy and updated as necessary.
> INDOT shall educate public employees, businesses, and the general public about the hazards associated with illicit discharges and improper disposal of waste.
> INDOT shall develop measurable goals for this measure.

C. Guidelines for Developing and Implementing This Measure

This section identifies those provisions that are required under the regulations. Although the extent of the efforts INDOT can dedicate to a storm water management program are dependent on available resources, staff, and degree and character of the illicit discharges, the following three (3) minimum requirements must be satisfied:

- Development of an Illicit Discharge Detection and Reporting System
- Development of a Storm Water Control Policy (*Discharge to ROW License*)
- Storm Water Drainage Maps

1. Illicit Discharge Detection and Reporting System

> INDOT shall train Operations and Maintenance workers to recognize and report all illicit discharges to the right-of-way that are detected during routine maintenance operations. The procedures for reporting detected illicit discharges will be referred to as INDOT's **Enforcement Response Plan for Illicit Discharges** to the right-of-way. INDOT does not have a mechanism to take

enforcement action against violators who discharge illicitly onto the right-of-way. INDOT will report illicit discharge violators to the proper authority, to IDEM or to the County Health Department. A tagging/marking system shall be developed to readily (physically) identify those discharge points that are authorized by INDOT, all others will be considered illicit or illegal.

2. Storm Water Control Policy

In the past INDOT has agreed to allow adjacent developments to discharge storm water onto the right-of-way if the pre-development quantity of runoff was not exceeded after construction was completed. The NPDES rule requires that the quality of runoff be characterized. INDOT will develop a **Discharge to Right-of-way License** for developers and property owners that wish to discharge their storm water to INDOT right-of-way. This will be a five (5) year renewable license; thus, allowing INDOT the opportunity to review the licensee's compliance with the conditions placed on the license. The most important condition that will be placed on the license is that the licensee will submit data annually to INDOT to verify that the discharge has not polluted. Another condition of the license will require the property owner to install structural measures to keep floatable materials and other pollutants from entering INDOT right-of-way. If the property is sold, it will be the responsibility of the seller to inform the buyer that they are required to transfer the license to their name. If the owner ceases to operate or otherwise losses control of the property, it is their responsibility as licensee to inform INDOT of the change in land-use, operation, or control. INDOT will then investigate the disposition of the property and the discharge to the right-of-way, and take appropriate action.

INDOT will develop a program to systematically re-evaluate those existing discharges that were allowed onto the right-of-way in the past, and require the development or developer or property owner to apply for a **Discharge to Right-of-way License** and provide storm water quality data to verify that the discharge does not contain pollutants. Also the property owner may be required to install structural measures to keep floatable materials and other pollutants from entering INDOT right-of-way.

3. Storm Water Drainage Maps

IDEM's NPDES Rule for storm water runoff in MS4 areas requires that, *a storm sewer system map showing the location of all outfalls and ...conveyances,* be developed. INDOT has all of the drainage systems, outfalls, bridges, and conveyances on project plans and as-built drawings in various formats, hard copy or electronic, for every highway under their jurisdiction. It would be redundant and costly to re-map the INDOT highway drainage system just for this permit. However, INDOT is currently in the process of developing a Geographic Information System (GIS) for all of the highways under its jurisdiction, a GIS layer will be developed on which the drainage systems, outfalls, bridges, and conveyances shall be located. Therefore, it is INDOT's position that this mapping requirement has been fulfilled. However, outfalls will be located with Global

Positioning Satellite (GPS) and labeled (mapping) during sampling and testing according to the INDOT priority system of sensitive waters.

D. Measurable Goals

Measurable goals, which are required for each minimum control measure, are intended to gauge permit compliance and program effectiveness. At a minimum, the measurable goal for this program would be to provide an Illicit Discharge Detection and Reporting System and a Storm Water Control Policy.

The following are the measurable goals for INDOT's Illicit Discharge Detection and Elimination Program for the initial five (5) year permit period.

Target Date	Activity
Year 1 November 1, 2003 to October 31, 2004	• Develop written procedures for reporting illicit discharges by July 2004. • Develop a training program for INDOT field employees to identify illicit discharges by September 2004.
Year 2 November 1, 2004 to October 31, 2005	• Conduct training for INDOT field employees to identify illicit discharges and to know the documentation and reporting procedures September 2005. • INDOT will begin developing a Discharge to Right-of-way License, it may require legislative action. • Develop GIS system for mapping INDOT infrastructure, including drainage conveyances and discharge points, 25% complete by October 31, 2005.
Year 3 November 1, 2005 to October 31, 2006	• Conduct training for INDOT field employees to identify illicit discharges and to know the documentation and reporting procedures September 2006. • Continue to develop the Discharge to Right-of-way License. • Continue developing GIS system for mapping INDOT infrastructure, including drainage conveyances and discharge points, 50% complete by October 31, 2006.
Year 4 November 1, 2006 to October 31, 2007	• Conduct training for INDOT field employees to identify illicit discharges and to know the documentation and reporting procedures September 2006. • Evaluation of the field employees training and illicit discharge detection and reporting procedures will be performed, January 2007. • Continue to develop the Discharge to Right-of-way License. • Continue developing GIS system for mapping INDOT infrastructure, including drainage conveyances and discharge points, 75% complete by October 31, 2007.
Year 5 November 1, 2007 to October 31, 2008	• Finalize the Discharge to Right-of-way License, 03/08. • Begin issuance of Discharge to Right-of-way Licenses by October 1, 2008.

	• Continue developing GIS system for mapping INDOT infrastructure, including drainage conveyances and discharge points, 100% complete by October 31, 2008.

IV. CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

(See RULE 5, 327 IAC 15-5-1), one (1) acre or more of disturbed soil

A. Benefits of INDOT's Construction Site Program

Storm water runoff from highway construction sites ultimately discharges into local ditches, creeks, streams, lakes, and rivers. Sediment is usually the main pollutant of concern. During a short period of time, construction sites can contribute more sediment to streams than would be deposited naturally over several decades. The resulting siltation, and the contribution of other pollutants from construction sites, can cause physical, chemical, and biological harm to waters of the State. Excess sediment can quickly fill ditches and lakes and require dredging and destroy aquatic habitats.

Additional pollutants are also often present in storm water runoff from highway construction sites and may result in degradation of receiving water. Nutrients (nitrogen and phosphorous) are of specific concern and can cause significant impairment. In addition solid and sanitary wastes, pesticides, oil and grease, concrete truck washout, construction chemicals, construction debris and metals may be discharged and cause an impact to the waters of the State.

Erosion Control Plans, Standard Specifications, and Standard Drawings of erosion control measures are components of INDOT's Construction Site Storm Water Runoff Control Program. With the development of an Inspection Program and Enforcement Program INDOT will be able to further minimize the amount of sediments that are discharged to waters of the State during highway construction.

B. Program Requirements

To paraphrase the Rule 13 regulations (327 IAC 15-13-15) into requirements that may be used for an individual NPDES permit for INDOT:

> INDOT shall comply with **Rule 5**, 327 IAC 15-5
> INDOT shall complete and submit a state-issued certification form to the department once the regulatory mechanism for inspection and enforcement has been developed and implemented, or three hundred sixty-five (365) days from the date of permit issuance, whichever is earlier. At a minimum, every five (5) years the program shall be reviewed for adequacy and accuracy and updated as necessary.

C. Guidelines for Developing and Implementing This Measure

1. Minimum Design Criteria
   INDOT Standard Specification, Section 205, and

current Supplemental Specifications
INDOT Standard Drawings, Section 205

a. **Best Management Practices (BMP's)**

i. *Preventive Measures*; minimize disturbance area of excavation, preserve natural vegetation, good housekeeping.
ii. *Erosion Controls*; mulch, seed mix, stockpile covers.
iii. *Sediment Controls*; perimeter silt fence, inlet protection, check dams, stabilized construction entrances, sediment basins.
iv. *Drainage Conveyance Controls*; check dams, diversion channels, temporary crossings.
v. *Non-Sediment Controls*; cover chemical storage, spill containment and procedures, waste containment. The contractor performing the actual operations must comply with Section 311 of the Federal Clean Water Act and with 327 IAC 2-6 concerning spills of oil and hazardous materials.

b. **Stabilization**

i. *Temporary Stabilization*; maximum bare soil exposure time limit if the excavation operation has been inactive for 14 days, or more
ii. *Seasonal Stabilization*; if construction ceases for a season, i.e. over the winter
iii. *Final Stabilization*; permanent seeding, sodding or other stabilization measures.

c. **Materials Handling**

The contractor will be required to take steps to control waste, discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste from leaving the work site or staging area and being washed into waters of the State.

2. Control Mechanism

New contract provisions will be developed to strengthen existing Standard Specifications and to require the contractor to routinely **document** inspects of the erosion control BMP's. The BMP's must be inspected weekly and after a rain event at the site, per the current Supplemental to INDOT Standard Specifications, Section *205.04 Maintenance*. Any damage to the BMP will be repaired.

Contractors will be required to submit a Quality Control Plan before beginning construction. An outline of the **Quality Control Plan** is as follows:

REFERENCES.

a. Rule 5, 327 IAC 15-5
b. Indiana Handbook for Erosion Control in Developing Areas

-Indiana Department of Natural Resources, Division of Soil Conservation

c. Indiana Drainage Handbook
-Indiana Department of Natural Resources, Division of Water

Quality Control Technician Training

Contractor must have at least one qualified person on-site to inspect and supervise the maintenance of the erosion control measures (BMP's). This person will have completed the training provided by the Indiana Department of Natural Resources (IDNR), or approved equal, and pass an INDOT exam (biannually) proving they have acquired the skills and abilities in erosion control measures installation, inspection, and maintenance.

Quality Control Inspection

a. Quality Control Inspection Points
b. Quality Control Inspection Frequency
c. Documentation of Quality Control Inspections
d. Corrective Action on deficiencies within five (5) working days

Work Sequence Schedule (include Borrow or Disposal Area, Haul Roads, etc.) on INDOT Right-of-way or Property as outlined in the Contract

Pollution Control Plan (Staging Area)

a. Containment Procedures
b. Waste Disposal Plan
c. Spill Prevention and Protection Plan
d. Spill Clean-up Plan
e. Materials Stockpiles and Materials Storage Management
f. Entrance and Exit treatment to prevent tracking of mud off site
g. Concrete truck washing area management

3. Storm Water Runoff Control Site Plans (Erosion Control Plan)

a. Procedures for reviewing and approving storm water control site plans (erosion control plan): Currently IDNR intends to review INDOT erosion control plans. The Notice Of Intent letter (NOI) is to be submitted to IDEM, with copies to IDNR and local Soil Water Conservation District (SWCD).

b. System to track the effectiveness of the storm water control site plan (erosion control plan): An audit program to periodically inspect construction projects for BMP effectiveness shall be conducted by the Division of Environment, Planning, and Engineering, Environmental Services Section. INDOT shall provide adequate project oversight to prevent inadequate storm water control plans from being implemented, thus allowing degradation of waters of the State.

4. Inspections and Enforcement

a. **Inspection Program**

i. *Routine and Scheduled Self Inspections by the Contractor.*
INDOT contractors will be required to perform and **document** self inspections. Self inspections will be performed weekly, preferably on Monday morning when crews are returning to work from a week end off. Self inspections will be conducted after a rain event at the site, within the first work day after the rain event. INDOT shall develop and provide the contractor with standardized inspection forms.

ii. *Compliance Inspections.*
IDNR personnel may conduct unscheduled (surprise) inspections to assess the over-all site and erosion control plan and BMP's for compliance. INDOT Project Engineers or Project Supervisors will periodically inspect portions of the BMP's to assure that the contractor is performing the necessary maintenance properly.

iii. *Complaint Response Inspections.*
If a complaint is lodged by the public or another agency (IDNR or Soil and Water Conservation District) stating that the erosion control measures at the construction site are not adequate, a INDOT representative will meet with the contractor's representative to address the issues. If the contractor does not take steps to correct the issues in a set period of time (determined at the meeting), then INDOT will proceed with enforcement action. IDNR may be involved throughout this process, if they so desire.

b. **Enforcement Procedures**

INDOT Standard Specification 108.06.

i. Failure to Install BMP's Correctly.
① The INDOT Project Engineer/Supervisor shall inform the contractor that an erosion control measure is not installed properly.
② If not corrected in a timely manner, a Notice of Violation (NOV) letter will be issued by the Project Engineer, by the third (3rd) calendar day after the contractor was informed.
③ If not corrected within five (5) calendar days, a fine of $1,000 per day that the problem persists will be levied, retroactive to the first notification date. Therefore a $5,000 fine will be assessed at the end of the fifth calendar day, and $1,000 per day there after.

ii. Failure to Maintain BMP's.
① The INDOT Project Engineer/Supervisor shall inform the contractor that an erosion control measure is not being maintained properly.
② If not corrected in a timely manner, a Notice of Violation (NOV) letter will be issued by the Project Engineer, by the third (3rd) calendar day after the contractor was informed.

③ If not corrected within five (5) calendar days, a fine of $1,000 per day that the problem persists will be levied, double-retroactive to the first notification date. Therefore a $10,000 fine will be assessed at the end of the fifth calendar day, and $1,000 per day there after.

iii. Failure to Perform Routine and Documented Inspections.

① The INDOT Project Engineer/Supervisor shall inform the contractor that documented inspection have not been performed.

② If five (5) calendar days pass without a documented inspection, a fine of $5,000 will be levied, and a fine of $1,000 per day that the problem persists will be levied beginning the sixth day.

5. Training and Education for Construction Site Supervisors, Project Engineers, inspectors, designers, and technicians.

IDNR has indicated that they are revising the *Indiana Handbook for Erosion Control in Developing Areas* for the NPDES Phase II Rules. IDNR is developing a program to train erosion control inspectors and technicians. INDOT Project Engineers, Project Supervisors, design engineers, and technicians shall be trained for erosion control inspection by IDNR.

D. Measurable Goals

These measurable goals reflect the needs and characteristics of INDOT as it serves the people of Indiana and the traveling public. The following are the measurable goals for INDOT's Construction Site Storm Water Runoff Control Program for the initial five (5) year permit period.

Target Date	Activity
Year 1 November 1, 2003 to October 31, 2004	• Pre-construction Conference with Contractor shall include an item to discuss the importance of erosion control maintenance, by March 2004. • INDOT Design manual shall be changed to require the designer to develop erosion control plans for projects that disturb at least one (1) acre of ground, by June 2004. • Develop standardized inspection forms by June 30, 2004.
Year 2 November 1, 2004 to October 31, 2005	• INDOT Project Engineers, Project Supervisors, design engineers, and technicians shall be trained for erosion control inspection by IDNR, as time permits, beginning November 2004. • Begin developing Quality Control Plan required by contractor for erosion control, November 2004. • Implement standardized inspection forms by December 31, 2004, to be used on-site by trained inspectors.
Year 3 November 1, 2005 to	• INDOT Project Engineers, Project Supervisors, design engineers, and technicians shall continue to be trained

October 31, 2006	for erosion control inspection by IDNR, as time permits. • Develop Enforcement Procedure for contractor non-compliance of erosion control maintenance, November 2005. • Implement standardized inspection forms to be used by the contractor as of August 2006 contracts. • Continue developing Quality Control Plan required by contractor for erosion control.
Year 4 November 1, 2006 to October 31, 2007	• INDOT Project Engineers, Project Supervisors, design engineers, and technicians shall continue to be trained for erosion control inspection by IDNR, as time permits. • Implement Enforcement Procedure for contractor non-compliance of erosion control maintenance, March 2007. • Implement Quality Control Plan for erosion control, required by contractor as of November 2006 contracts. • Develop an audit program to periodically inspect construction projects for BMP effectiveness, December 2006.
Year 5 November 1, 2007 to October 31, 2008	• Implement an audit program to periodically inspect construction projects for BMP effectiveness, April 2008. • Audit 25% of the construction projects for erosion control compliance, 2008 construction season.

V. POST CONSTRUCTION STORM WATER MANAGEMENT

A. Benefits of INDOT's Post Construction Storm Water Management Program

Post-construction storm water management in areas undergoing new development or redevelopment is necessary because runoff from these areas has been shown to significantly affect receiving water bodies. Many studies indicate that prior planning and designing for the minimization of pollutants in post-construction storm water discharges is the most cost-effective approach to storm water quality management.

There are three (3) forms of impact from post-construction runoff:

(1) Increase in the type and quantity of pollutants in storm water runoff. As runoff flows over areas altered by development, it picks up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters.

(2) Increase in the quantity of water delivered to the water body during storms. Increased impervious surfaces impede the gradual infiltration of water through vegetation and soil. Instead, water is collected from surfaces such as asphalt and concrete and routed to drainage systems where large volumes of runoff quickly flow to the nearest receiving water. The results include stream bank scouring and downstream flooding, lending to a loss of aquatic life and damage to property.

(3) Increase in the temperature of water delivered to the water body during storms. Increased impervious surfaces such as asphalt and concrete have higher temperatures and do not allow for the natural infiltration through vegetation and soil that would keep the runoff at an ambient temperature. Therefore large volumes of runoff with higher temperatures quickly flow to the nearest receiving water and in-turn elevate the stream temperature. Thermal impact to streams and rivers causes less oxygen dissolution and other degradation of conditions conducive to support aquatic life.

B. Program Requirements

To paraphrase the Rule 13 regulations (327 IAC 15-13-16) into requirements that may be used for an individual NPDES permit for INDOT:

INDOT shall develop an SWQMP that includes a commitment to develop, implement, manage, and enforce a program to address discharges of post-construction storm water run-off from new development and redevelopment areas which disturb one (1), or more, acre of land.

INDOT shall promote the use of:

(1) Buffer strip and riparian zone preservation.
(2) Filter strip creation.
(3) Minimization of land disturbance and surface imperviousness.
(4) Minimization of directly connected impervious areas.
(5) Maximization of open space.

INDOT shall use any combination of storage, infiltration, filtering, or vegetative practices to reduce the impact of pollutants in storm water run-off on receiving waters. In addition to the combination of practices, the following requirements shall be utilized:

(1) Infiltration practices will not be allowed in wellhead protection areas.
(2) Discharges from the highway right-of-way will not be allowed directly into sinkholes or fractured bedrock, without treatment that results in the discharge meeting Indiana ground water quality standards as referenced in 327 IAC 2-11.
(3) Any storm water practice that is a Class V injection well must ensure that the discharge from such practices meets Indiana ground water quality standards as referenced in327 IAC 2-11
(4) As site conditions allow, a vegetated filter strip of appropriate width shall be maintained along unvegetated swales and ditches.
(5) As site conditions allow, the rate at which water flows through the highway conveyance shall be regulated to reduce outfall scouring and stream bank erosion.
(6) For new retail gasoline outlets and refueling areas that replace their existing tank systems, (for Toll Road Facilities only); these facilities shall be required by contractual means to design and install appropriate practices to reduce lead, copper, zinc, and polyaromatic hydrocarbons in storm water run-off.

INDOT personnel responsible for plan review, inspection, and enforcement of post-construction BMPs shall attend, at a minimum, an annual training session addressing appropriate control measures that have been approved of by the department and the department of natural resources, division of soil conservation.

INDOT shall complete and submit a state-issued certification form to the department once the plan has been developed and implemented, or seven hundred thirty (730) days from the date of permit issuance, whichever is earlier. At a minimum, every five (5) years the program shall be reviewed for adequacy and accuracy and updated as necessary.
INDOT shall develop measurable goals for this measure

C. Guidelines for Developing and Implementing This Measure

INDOT will encourage designers to incorporate BMP's into the design of highways to address:

- Buffer strip and riparian zone preservation (along ditches, creeks, streams, rivers, wetlands, and lakes).
- Filter strip creation (highway side slopes).
- Minimization of land disturbance and impervious surface, wherever practicable.
- Minimization of impervious areas directly connected to waters of the State.

Storage or detention BMP's control storm water by providing a wet pond, dry basin, or multi-chambered catch basin to collect and slowly release runoff to receiving waters. These practices control storm water volume, settle out particulates, and reduce thermal impacts to receiving waters.

Infiltration practices are designed to facilitate the percolation of runoff through the soil to groundwater, thereby reducing both storm water quantity and mobilization of pollutants. These BMP's incorporate pervious mediums into the design to filter the water.

Vegetative practices are landscaping features that, with optimal design and good soil conditions, enhance pollutant removal, maintain/improve natural site hydrology, promote healthier habitats, and increase aesthetic appeal. Vegetative BMP's include filter strips or buffer strips, grassy swales, and artificial (constructed) wetlands.

Currently INDOT, in accordance with a Memorandum of Understanding (MOU) with IDEM, has a BMP design for storm water discharge from an INDOT highway right-of-way into sink holes in the karst topography regions of Indiana. There have been a number of these BMP's installed along SR 37 in Lawrence County.

D. Measurable Goals

These measurable goals reflect the needs and characteristics of INDOT as it serves the people of Indiana and the traveling public. The following are the measurable goals for INDOT's Post Construction Storm Water Management Program for the initial five (5) year permit period.

Target Date	Activity
Year 1 November 1, 2003 to October 31, 2004	• Develop Design Criteria for Post Construction BMP's, current JTRP Project, begin November 1, 2003. • Develop Standard Operating Procedures for the maintenance of Storm Water BMP's, begin October 1, 2004.
Year 2 November 1, 2004 to October 31, 2005	• Continue to develop Design Criteria for Post Construction BMP's, current JTRP Project. • Continue to develop Standard Operating Procedures for the maintenance of Storm Water BMP's.
Year 3 November 1, 2005 to October 31, 2006	• Implement new design criteria for BMP's, October 1, 2006.
Year 4 November 1, 2006 to October 31, 2007	• Continue to implement new design criteria for BMP's. • Implement the new Standard Operating Procedures for the maintenance of Storm Water BMP's, begin October 1, 2007.
Year 5 November 1, 2007 to October 31, 2008	• Evaluate the new design criteria for BMP's for effectiveness and cost, proposed JTRP Project, begin October 1, 2008. • Evaluate the new Standard Operating Procedures for the maintenance of Storm Water BMP's for man hour allocation, effectiveness, common problems, and cost, proposed JTRP Project, begin October 1, 2008.

VI. POLLUTION PREVENTION AT INDOT OPERATION AND MAINTENANCE FACILITIES and for ROAD SIDE MAINTENANCE/ GOOD HOUSEKEEPING

A. Benefits of INDOT's Good Housekeeping Program

The Pollution Prevention/Good Housekeeping Program for INDOT is a key element of the Storm Water Quality Management Plan. This measure requires INDOT to examine and subsequently alter it's activities to help ensure a reduction in the amount and type of pollution that; (1) collects on highways, parking lots at rest areas and operation and maintenance facilities, open spaces, stored aggregate materials, and vehicle maintenance areas and is discharged into waters of the State; and (2) results from activities such as highway maintenance, and poor maintenance of storm sewer systems. While this measure is meant primarily to improve or protect receiving water quality by altering INDOT activities, facility operations and property maintenance, INDOT can realize cost savings from such things as spill prevention (thus reducing clean-up costs), inventory control, and re-use/recycling of materials.

B. Program Requirements

To paraphrase the Rule 13 regulations (327 IAC 15-13-17) into requirements that may be used for an individual NPDES permit for INDOT:

INDOT shall develop a SWQMP that includes a commitment to develop and implement a program to prevent or reduce pollutant run-off from operations.
INDOT shall complete and submit a certification form to the department once the program has been developed and implemented, or three hundred sixty-five (365) days from the date of NOI letter submittal, whichever is earlier. At a minimum, every five (5) years the program shall be reviewed for adequacy and accuracy and updated as necessary.
INDOT shall develop written documentation of maintenance activities, maintenance schedules, and long term inspection procedures for BMPs to reduce floatables and other pollutants discharged from separate storm sewers. Maintenance activities shall include, as appropriate, the following:
(A) Periodic litter pick up
(B) Periodic BMP structure cleaning
(C) Periodic pavement sweeping
(D) Roadside shoulder and ditch stabilization.
(E) Planting and proper care of roadside vegetation.
(F) Remediation of outfall scouring conditions
INDOT shall develop controls for reducing or eliminating the discharge of pollutants from operational areas, including roads, parking lots, maintenance and storage yards. Appropriate controls shall include the following:
1) Covering or otherwise reducing the potential for polluted storm water run-off, from deicing salt or sand storage piles.
2) Establishing designated snow disposal areas that have minimal potential for pollutant run-off impact on receiving waters.
3) Providing facilities for containment of any accidental losses of concentrated solutions, acids, alkalies, salts, oils, or other polluting materials
4) Standard operating procedures for spill prevention and clean up during fueling operations; spill prevention, controls and countermeasures plan (SPCC plan) per **40 CFR Part 112**
5) BMPs for vehicular maintenance areas.
6) Prohibition of equipment or vehicle wash waters and concrete or asphalt hydro demolition waste waters into storm water run-off, except under allowance of an appropriate NPDES wastewater permit
7) Promotion of recycling (to reduce litter).
8) Minimization of pesticide, herbicide and fertilizer use. Pesticides shall be used, applied, handled, stored, mixed, loaded, transported, and disposed of via office of the Indiana State Chemist's guidance requirements.
9) Proper disposal of animal waste and road-kill. Canine parks shall be sited at least one hundred fifty (150) feet away from surface water body.

INDOT shall develop written procedures for the proper disposal of waste removed from separate storm sewer systems and operational areas. All materials removed from separate storm sewer systems and operational areas, including dredge spoil, accumulated sediments, floatables, and debris, must be:
1) Reused or recycled; or
2) Disposed of in accordance with applicable solid waste disposal regulations.

INDOT shall develop written documentation that appropriate employees have been properly trained, with periodic refresher sessions, on topics such as proper disposal of hazardous wastes, vegetative waste handling, fertilizer, herbicide and pesticide application, and the function of implemented BMPs

INDOT shall develop measurable goals for this measure.

C. Guidelines for Developing and Implementing This Measure

The intent of this control measure is to ensure that existing and future highway and facility operations and maintenance are performed in ways that will minimize contamination of storm water runoff. This measure is divided into two areas under INDOT control:

- Highway and roadside maintenance
- Facilities operation and maintenance

Under each of these categories the following pollution prevention measures are addressed:

- Waste management (recycling)
- Ground surface stabilization (erosion control)
- Structural runoff controls (materials storage cover and runoff containment)
- Snow removal and de-icing

1. Highway and Roadside Maintenance

INDOT uses a ***Field Operations Handbook*** to guide maintenance workers in their tasks of maintaining the pavement, shoulders, side slopes, ditches, and rest areas. Those operations from the Handbook that are pertinent to storm water quality for Highway and Roadside Maintenance are:

Clipping Shoulders - Major clipping of overgrown shoulders to remove excess material and to restore proper slope for adequate drainage. Includes clipping of overgrown shoulders adjacent to the driving surface and sod adjacent to paved or aggregate shoulder. Also includes related cleaning and reshaping of the adjacent roadside ditches as required.

Machine Mowing - Machine mowing of roadside vegetation within the designated mowing limits of the right-of-way using tractor mowers and hand trimming as required, to maintain an attractive roadside and to control erosion and drainage. This activity **does not** include the hand mowing and trimming at rest areas, roadside parks and picnic areas.

Brush Cutting - Cutting, trimming and removing brush, small trees, tree branches and limbs within the right-of-way using power or hand tools to restore sight distance, eliminate traffic hazards and remove encroaching vegetation.

Herbicide Treatment - Application of chemicals to roadside vegetation and soil along shoulders, guardrail sections, around sign posts, delineators, mail boxes, bridge ends and other areas to eliminate or control undesirable vegetation.

Seed and/or Fertilizing - Seeding, reseeding, and fertilizing of shoulders, front and back slopes, medians and other designated areas to restore vegetation for erosion control and beautification.

Topping Trimming or Removal of Trees - Topping, trimming or removal of large trees within the right-of-way requiring the use of equipment such as a bucket truck and a boom truck. Includes stump removal when performed as a part of the tree operation.

Stump Removal - Removal of stumps within the right-of-way to eliminate traffic hazards or improve efficiency of other maintenance activities. (Stump cutting performed in conjunction with tree removal should be reported to Activity 2250)

Spot Mowing and Hand Trimming - Spot or hand mowing to control Johnson grass, Canadian thistle and other noxious weeds, and hand trimming or mowing needed in addition to that performed during Machine Mowing (Activity 2210). This activity **does not** include hand mowing or trimming at rest areas, roadside parks, districts, Subdistrict or unit location.

Clean and Reshape Ditches - Machine cleaning of roadside ditches with excavating equipment to restore original grade and maintain adequate drainage. Includes the loading, hauling, and disposal of excess material, reshaping front and back slopes, and shoulder restoration as related to ditching. May also include pipe replacement in the ditch line and under driveways.

Motor Patrol Ditching - Machine cleaning of roadside ditches with motor patrol to restore original grade and maintain adequate drainage. Includes the loading, hauling, and disposal of excess material, reshaping front and back slopes, pipe culvert replacement and shoulder restoration as related to ditching.

Cleaning Minor Drainage Structures - Manual or machine cleaning and removal of debris from box culverts, pipe culverts, catch basins, inlets and paved ditches to maintain adequate drainage.

Clean Underdrains - Clean inside and outside of underdrains pipes to restore adequate drainage flow. Mark locations of outlets.

Other Drainage Maintenance -Other routine drainage maintenance activities that are not specifically identified as separate activities.

Hand Cleaning Bridges - Cleaning of bridge deck surfaces, expansion joints, drains holes, bridge seats and sidewalks by hand shoveling, sweeping and air blasting to remove accumulation of sand, chemicals and debris.

Flushing Bridge - Cleaning of bridge seats, drain holes, expansion joints, gutter lines and truss members by flushing to remove accumulation of sand, chemicals, and debris.

Snow and Ice Removal - This activity includes all operations during and after a storm required to remove snow and ice from the roadway. Includes loading operations required to support snow and ice removal operations, removal of snow from ditches, removal of ice caused by flooding and opening of frozen drains.

Other Winter Maintenance - Other routine winter maintenance activities that are not specifically identified as separate activities.

Rest Area and Lift Bridge Attendant - The care and cleaning of rest areas and enforcement of INDOT policies for rest areas and enforcement of INDOT policies for rest area usage and operation of lift bridges on the State Highway system by full time attendants.

Roadside Park, Rest Area and Weigh Station Maintenance - Maintenance of building, grounds and parking lots of state maintained rest areas, roadside parks and weigh stations. This activity is performed on interstate only. All other such work is reported to Facilities Activities (2830+Subactivity)

Work for Department of Natural Resources - All maintenance activities performed on the designated roadways and parking areas of the Indiana Department of Natural Resources.

Work for State Institutions - All maintenance activities performed on the designated roadways of the State of Indiana institutions.

Full Width Litter Pickup - Full width cleaning of continuous sections of the right-of-way area including pickup, loading, hauling and disposing of accumulated litter to remove unsightly or hazardous objects and obstructions to drainage.

Currently INDOT has a program called ***Trash Bash***. This program involves picking up trash along the right-of-way each Spring before mowing begins. Division of Corrections labor is also utilized for the trash pickup.

Spot Litter Pickup - Cleaning isolated sections of the right-of-way including pickup, loading and disposing of litter and debris to remove unsightly or dangerous objects.

Roadway Cleaning - Mechanical or manual sweeping of roadway, including intersections, curbs and gutters, to remove excess loose sand, chemicals, and debris. Manual cleaning of bridges should be reported as Activity 2410, Hand Cleaning Bridge Decks.

Material Handling and Storage - Handling and storage materials for routine maintenance activities excluding snow and ice control materials. Includes the loading, hauling, unloading, mixing, stockpiling, and storage of material. See also SALT AND DE-ICER MATERIALS HANDLING in Section 2. below.

ADOPT-A-HIGHWAY

Currently INDOT has a program called ***Adopt-A-Highway*** that involves community groups taking responsibility for designated sections of a highway to clean, maintain, and beautify with landscaping, if desired. In turn INDOT places a standard ***Adopt-A-Highway*** sign acknowledging the community organization responsible for the beautification of the highway. These segments of highway are in municipalities or near urbanized areas in which the organization is located.

2. Facilities Operation and Maintenance

Those operations from the ***Field Operations Handbook*** that are pertinent to storm water quality for Operations and Maintenance Facilities are:

Stockpiling Winter Material - The stockpiling, mixing and processing of abrasives and chemicals performed before and during the winter season.

Equipment Servicing - The routine service and maintenance of the Department's equipment fleet.

Buildings & Grounds Maintenance - The general maintenance and care-taking of the buildings and grounds at District, Subdistrict, and other maintenance unit locations.

Scraping and Painting of Equipment - Manual scraping of loose paint to remove from equipment. Rust should also be removed. Painting equipment to improve appearance and to increase life span of equipment. *Note: When Unit Foreman or crew leaders are working as a part of a crew (not supervising other crews) their time is to be reported to the activity they are performing.*

SALT AND DE-ICER MATERIALS HANDLING

INDOT has created a ***Winter Operations Team*** that meets on a regular basis and has produced a manual for storm water management, ***Total Storm Management Manual, 2/2/02.*** Chapter three (3) of this manual is titled, *Environmental Issues*, and covers topics such as, *Environmental Consideration, Pollution Control, Administration and Supervision, Site Analysis, Drainage, Design of Brine Storage / Evaporation Facilities, and Guidelines.*

INDOT currently has two Standard Operating Procedures, for field operations and maintenance personnel, that deal specifically with snow and ice removal.

Procedure No. 2, *SNOW AND ICE CONTROL,* revised January/March 2001, provides for a uniform understanding and establishes guidelines for achieving the Department's goals and objectives for snow and ice control. This procedure classifies the different state highways based on their level of service so priorities may be set in the snow and ice removal schedules. Procedure No. 2 covers, *Responsibilities, Preparation for Winter, Operations, and Post Winter Operations,* with detailed guidance on *Equipment Inspection, Spreader Calibration, Materials Stockpiling, Training, Material Applications, and Equipment Cleanup.* **Procedure No. 22, *SNOW AND ICE CHEMICALS - POLLUTION CONTROL GUIDELINES***, revised July 1998, provides *...that we take appropriate action at each and every location to create a clean environment.* This procedure further states, *...it is imperative that we take every reasonable precaution to insure that we have established a course of responsible salt management and instilled a level of conscious awareness within the work force that "an ounce of prevention is worth a pound of cure".* Procedure No. 22 covers, *Priority, Site Analysis, Drainage, Design of Brine Storage/Evaporation Facilities, Mixing/Handling of Deicing Chemicals, Sensible Salting,* and *Cleanup if Existing Facilities.*

INDOT *Salt Housekeeping Guidelines for Personnel Involved in Snow Removal,* was issued by Memorandum from the Office of Chief Engineer/Highway Operations, dated October 2, 1998. These guidelines provide detailed instructions to operations personnel to eliminate excess salt releases to the environment. The guidelines cover salt delivery, Fall preparation, liquid chemical handling, salt operations during the storm, salt operations after the storm, post season concerns, and spill procedures.

All INDOT salt storage is currently under roof. INDOT has initiated a program to construct salt/sand mixing buildings that are connected to the covered salt piles (salt domes). Incorporated into these multi-structure salt mixing facilities is the capture, retention, and use (or disposal) of all water runoff. The runoff is stored in a tank for use as brine, a salt/water solution.

Brine is used as a pre-wetting agent, and sometimes in lieu of salt when the temperature is optimum. Using brine minimizes the amount of salt needed and speeds the process of salt melting ice and snow.

INDOT has developed a ***Liquid Chemical Application Policy*** specific for the Greenfield District. The *Goals and Mission Statement* for the Greenfield District Liquid Chemical Application Policy are:

INDOT's goal is to provide continuous service to roadways to remove snow and ice from the pavement surface (Operating Procedure 2, Jan. 2001). For interstate routes and other roads with an annual daily traffic (ADT) count greater than 5,000, the coverage is 6 routes per (12 hr.) shift.

Liquid chemicals are used to aid in obtaining the high level of service and as a measure to conserve salt usage. There are four basic uses for liquid deicing chemicals: anti-icing, deicing, frost-prevention, and pre-wetting.

The District goal of anti-icing is to pre-treat 100% of roadways as equipment availability allows and as conditions require. This will be accomplished on a per storm basis as directed by call out of personnel. Continuity of service shall be the common aim of all units.

Similar policies can be written for other INDOT Districts.

INDOT has written a ***Spill Prevention, Control, and Countermeasures Plan*** that describes how facilities are to respond to unintended releases of the liquid petroleum products and liquid deicing storage to meet the needs of each location. INDOT is moving toward zero underground storage tanks. Currently INDOT has only a few waste oil tanks that are underground and no fuel is stored underground at any facility. Liquid deicer is stored in above-ground tanks with secondary containment.

RECYCLING

INDOT has focused on creating source reduction and recycling infrastructure throughout its 250 State owned facilities. The Department has established recycling programs in all Districts and Divisions, developed programs specifically tailored to meet INDOT needs, and promoted information to employees to help reach goals set forth for the organization.

INDOT has long taken a proactive approach to Greening the Government activities associated with its performance in construction projects as well as internal facility applications. With the passing of Executive Order 99-07 (Greening the Government) in April of 1999, INDOT has made substantial progress toward reaching goals related to the Greening Plan and establishing the department as an environmental leader in the state.

INDOT has focused on creating source reduction and recycling infrastructure throughout its 200 State owned facilities. Through the infrastructure the department has established recycling programs in all Districts and Divisions, developed programs specifically tailored to meet INDOT
needs and promoted information to employees to help reach goals set forth for the organization.

I. Project Description Summary:

A. Coordination: Coordination of INDOT Greening Activities is accomplished through a system of appointed recycling coordinators and dedicated INDOT employees. The structure is set up in the following hierarchy: INDOT Recycling Coordinator, Division and District Recycling Coordinators, INDOT Facility Contacts and INDOT Employees. Meetings to discuss current program status, current projects and upcoming projects occur on a quarterly basis with the District and Division Recycling Coordinators. This information is utilized to expand source reduction and recycling opportunities throughout INDOT.

B. Education: Education of INDOT personnel is accomplished in several fashions. Education methods include the following tools as a means to promote Greening activities:
District and Division Recycling Presentations, New Employee Orientation on Source Reduction and Recycling, Monthly Articles pertaining to Greening the Government Activities that are published in a monthly INDOT newsletter (Crossroads), an INDOT Website that covers issues related to Greening the Government, Energy Conservation and Recycling specifically related to the Indiana Department of Transportation. Furthermore, education is also accomplished through Greening the Government Updates that are provided by Indiana Department of Administration and distributed throughout the INDOT Recycling Infrastructure.

C. Programs: INDOT has developed several programs related to the promotion of Greening the Government Activities. These programs include the Most Outstanding Recycler Award, which is a monthly recognition program at INDOT promoted through Crossroads. A "Clean Your Files Day" Program specifically tailored to INDOT. The INDOT Recycling Trivia Question game promoted through the Crossroads. INDOT District and Division Recycling Programs, the INDOT Conservation Program and the INDOT waste diversion contracts. The waste diversion contracts involve all materials outside of traditional municipal solid waste (MSW). These materials include tires, shop waste, light bulbs, household and automotive batteries, PCB and Non-PCB containing ballasts and all mercury containing devices.

D. Promotional Activities: INDOT Recycling Mascot- Roady Recycler was created as the spokesperson for the INDOT Greening the Government Program. Roady has been utilized to promote INDOT Greening the Government Activities. INDOT also rewards individuals with Recycled content prizes to help promote awareness of Greening the Government programs as well as internal INDOT Programs. All promotional prizes that are awarded to INDOT staff are constructed of recycled content materials. The promotional prizes are awarded during District and Division Recycling presentations, New Employee Orientation presentations, submitting the correct answer to the INDOT Recycling Trivia Game and as a prize for being awarded as INDOT's Most Outstanding Recycler.

II. Innovation Summary:

The INDOT Greening the Government program is inclusive of all areas to provide effective education and promotion of all programs and opportunities available to INDOT personnel. Employees, both current and new are provided information on a monthly basis regarding source reduction and recycling opportunities. INDOT personnel have the opportunity to participate in recycling programs at INDOT facilities as well as participate in annual source reduction and recycling opportunities provided by INDOT and other state agencies.

INDOT recycling programs include materials such as office paper, newspaper, aluminum and steel, glass bottles, plastics #1 and #2, cardboard, magazines, paperboard, automotive and household batteries, CD's, computer discs, motor oil, transmission fluid, hydraulic fluid, power steering fluid, antifreeze, oil filters,

mineral spirits, oil absorbents, paint, light bulbs, PCB and Non-PCB containing ballasts, mercury containing devices, toner cartridges, concrete and asphalt.

INDOT awards individuals for their efforts related to recycling through the Most Outstanding Recycler award program on a monthly basis. Awards are given to individuals that show outstanding effort related to source reduction and recycling. Single and/or multiple award recipients are recognized each month for their efforts. Their names and description as to why they received the award are printed in the monthly Crossroads newsletter.

INDOT focuses on the use of special waste materials for INDOT applications in construction projects. They include but are not limited to tire scraps, crushed glass bottles, fly ash and foundry sand. Projects utilizing waste tire scraps have been completed in the INDOT LaPorte District and projects utilizing crushed glass bottles have been completed in the INDOT Vincennes District. Studies of the current projects are currently underway. Fly Ash and Foundry Sand projects are currently under development and are projected to occur in the southern portion of Indiana.

INDOT has also focused efforts on pollution prevention through several programs that are very innovative to the state. They include the Alternative Work Schedule (AWS) where INDOT employees are allowed to work fewer days during the pay period, which in turn reduces vehicle pollution, congestion and potential traffic accidents.

INDOT utilizes teleconferencing technology as another means to reduce the amount of potential pollution from State vehicles. Through teleconferencing as well as three-way calling INDOT has helped eliminate the need to travel to a specific location and in turn reduce the amount of potential pollution created through vehicle emissions. This technology has also helped INDOT become much more efficient in normal daily operations and employee efficiency.

Furthermore, INDOT has adopted the Federal Policy of purchasing Flexible Fueled Vehicles (both cars and light trucks) which allows vehicles to operate on both regular gasoline and ethanol. Through the use of the corn based Ethanol fuels, INDOT will help eliminate potential smog forming emissions that are created through consumption of regular gasoline.

As a final effort to reduce pollution INDOT promotes the efficient use of the INDOT motor pool by carpooling to meetings when possible. This helps eliminate emissions from vehicles as well as saves on wear and tear of the State Vehicles and reduces fuel consumption.

III. Measurable Results Summary:

Results related to INDOT's comprehensive program have been very positive in all Greening the Government/Source Reduction and Recycling Programs. The most positive measurable result has been the education of INDOT employees related to

the monthly INDOT Crossroads article and the INDOT source reduction and recycling web site.

The INDOT Crossroads Article and associated material has helped provide a great deal of information to INDOT employees on INDOT source reduction and recycling programs as well as other Government agency programs on various subjects. The INDOT web site has provided information on contacts within INDOT's Central Office and in all INDOT Districts to help with the development of INDOT statewide programs associated with source reduction and recycling.

Enthusiasm of INDOT employees has also increased related to the source reduction and recycling activities. This being in response to the various programs and opportunities INDOT have provided to its employees. This in turn has significantly increased the amount of participation in the various INDOT recycling programs/opportunities.

Other measurable results have come from the number of different and distinct materials that INDOT has targeted for its source reduction and recycling programs. More and more programs are developed within INDOT each year and since the number of programs have increased as well as the number of materials collected for recycling the amount of materials recycled at INDOT has increased significantly.

Because INDOT is a large state agency tracking of specific materials cannot be accomplished through the programs unless additional equipment, manpower as well as money are increased to help with the record keeping purposes in approximately 200 state owned facilities. For 2001, INDOT recycled the following quantities of materials (2001 figures have yet to be completely compiled, certain materials could not be included):

- Waste Oil and Associated Material: 50,000+ gallons
- Over 5,000 bulbs: fluorescent, traffic, headlight, high-pressure sodium, etc.
- Approximately 150 lbs. of PCB and Non-PCB containing ballasts
- Over 1,000 lbs. of household batteries
- Over 1,000 combined tons of office paper, newspaper, aluminum and steel, glass bottles, plastics #1 and #2, cardboard, magazines and paperboard (This includes all materials recovered in the Marion County program as well as INDOT facilities located throughout the state).
- Approximately 2,500 gallons of waste antifreeze.
- 120 pounds of PCB and Non-PCB containing ballasts.
- 145 55-gallon barrels of used oil filters.
- Approximately 10,000 INDOT and abandoned waste tires as well as over 200 tons of scrap tires recovered from INDOT roadways.
- 1,200 gallons of mineral spirits.
- Approximately 1 million tons of milled asphalt and crushed concrete.

IV. Comprehensiveness:

INDOT's Greening Program is very comprehensive in relation to education. Education has become the main focus of the INDOT Greening hierarchy and is

accomplished through several methods. The most significant is the chain of INDOT Recycling Coordinators throughout the INDOT Divisions and Districts as well as the INDOT facilities. The Recycling Coordinators are the main link to information sources, program development as well as communication with the INDOT employees.

The educational system established in the INDOT Greening program is that of a reward-based system. Rewarding employees for both their knowledge as well as their efforts. This includes rewarding employees with recycled content prizes related to the INDOT Crossroads recycling trivia game, the Most Outstanding Recycler award and recycled content prizes given out at INDOT District and Division recycling presentations.

The educational material conveyed through the INDOT presentations, Crossroads articles, the INDOT website and electronic communication allow INDOT employees to become aware of Greening activities throughout the department. As well as learn about recycled content products and companies that produce the recycled content products.

Presentations, whether Division, District or New Employee Orientation are very extensive covering all aspects of programs specific to a particular area. The monthly Crossroads article covers information relevant to INDOT Greening the Government Programs such as household battery recycling as well as special INDOT Greening Projects such as the use of shredded tires as road base or crushed glass bottles utilized as a B-Borrow substitute in an INDOT pipe backfill project.

INDOT's Intranet Home Page is another significant source of information regarding Greening Activities. The website, which is located at

http://is-100141.indot.state.in.us:8080/testsite/

contains very valuable information that is accessible to all INDOT employees that have Internet access on their computer. Relevant Greening the Government/INDOT Conservation Effort's information can be found under Employee Information on the Home Page. Specific information covered on the web site includes the INDOT Energy Conservation Policy, INDOT Division and District Recycling Coordinators, INDOT's Clean Your Files Day Program (CYFD), INDOT's Most Outstanding Recycler List, INDOT Crossroads Article, INDOT Recycling Trivia Question Information, INDOT's Recycling Trivia Question Winner List and specific information related to INDOT waste diversion quantities.

INDOT's internal recycling program is leading in the number of separate waste streams targeted for reuse and recycling. Approximately 25 separate and unique materials are collected through the current programs operating throughout INDOT. Collection, transportation and processing of the various materials are completed internally by INDOT personnel and equipment or commercially by vendors contracting with INDOT or through local county solid waste management districts. Review of the separate types of materials collected in the program and associated quantities can be viewed in the Section III of the Nomination Questions above.

INDOT's Pollution Prevention efforts are also paramount in relation to Greening the Government. Review of Section II, Innovation Summary, provides a great deal of information regarding Pollution Prevention efforts at INDOT specifically related to Transportation.

Other areas where INDOT has focused on Pollution Prevention is through the reuse of more than 1 million tons of milled concrete and asphalt in new road construction projects annually. INDOT has also introduced a Filtered Part Washing System into the INDOT maintenance shop environment to help eliminate the production of spent mineral spirits. And finally, INDOT has participated in the closed loop re-refined oil purchasing and recycling program since the inception of the program in 1999. In 2001, this program helped INDOT recycle over 50,000 gallons of waste oil and related products.

D. Measurable Goals

Measurable goals, which are required for each minimum control measure, are intended to gauge permit compliance and program effectiveness. At a minimum, the measurable goal for this program would be to provide pollution prevention at INDOT operation and maintenance facilities and for road side maintenance/ good housekeeping.

The following are the measurable goals for INDOT's pollution prevention at INDOT operation and maintenance facilities and for road side maintenance/ good housekeeping program for the initial five (5) year permit period.

Target Date	Activity
Year 1 November 1, 2003 to October 31, 2004	• Form a Field Maintenance and Operations Task Force to meet regularly and develop an Environmental Management System (EMS), tying all the standard operating procedures into one system with measurable results, begin by October 1, 2004. • Evaluate whether added environmental measures are required for existing maintenance and operation procedures, begin by October 1, 2004. See APPENDIX C
Year 2 November 1, 2004 to October 31, 2005	• Field Maintenance and Operations Task Force will review all existing field maintenance and operations procedures and evaluate these procedures for compliance with storm water regulations and pollution reduction, on-going through 2005. • Task Force will determine if INDOT Maintenance and Operations Facilities will become ISO 14001 certified.
Year 3 November 1, 2005 to October 31, 2006	• Field Maintenance and Operations Task Force to meet regularly and develop an Environmental Management System, on-going through 2006.

	• Develop an annual training program for INDOT field employees to provide added environmental awareness and measures to field operations activities, begin by October 1, 2006.
Year 4 November 1, 2006 to October 31, 2007	• Field Maintenance and Operations Task Force to meet regularly and develop an Environmental Management System, on-going through 2007. • Implement annual training of INDOT field employees to provide added environmental awareness and measures to field operations activities, begin training October 1, 2007.
Year 5 November 1, 2007 to October 31, 2008	• Field Maintenance and Operations Task Force to meet regularly and develop an Environmental Management System, on-going through 2008. • Evaluate the field employees training for effectiveness, by October 1, 2008. • INDOT Environmental Management System (EMS) for Maintenance and Operations in place by October 1, 2008.

Crawfordsville District												
ID #	High-way	Co. No.	Water Body	Date	Time	Temp (C°)	Cond. (µS/cm)	DO (mg/L)	pH (%)	ORP (mV)	Turb. (NTU)	Chlor. (mg/L)
1	SR 26	79	Wildcat	7/15/03	8:25	21.3	547	8.18	8.10	135.6	33.8	
					8:27	21.29	548	8.08	8.08	144.9	39.2	
2	SR 26	79	Wildcat	7/15/03	9:45	19.99	557	8.49	8.02	187.9	92.1	
					9:47	20	556	8.43	8.02	189.2	102.1	
3	SR 38	79	Wildcat	7/15/03	10:11	20.87	545	8.31	8.10	206.5	26.4	
					10:13	20.87	545	8.14	8.10	206.3	26.6	
31	US 41	86	Fall	7/15/03	14:57	19.89	477	9.35	8.02	195.4	51.2	
					14:59	19.91	477	9.12	8.01	196.4	50.4	
32	SR 55	86	Big Pine	7/15/03	15:11	21.82	522	8.57	8.16	215.1	116.5	
					15:13	21.81	522	8.41	8.14	216.0	117.2	
33	SR 26	86	Mud Pine	7/15/03	14:05	20.9	538	8.85	7.98	213.0	38.2	
					14:07	20.9	536	8.65	7.98	214.1	39.4	
38	I-74	54	Sugar	7/14/03	10:00	20.82	538	9.01	8.11	149.8	20.5	
					10:02	20.84	537	8.89	8.11	168.3	26.5	
39	US 231	54	Sugar	7/14/03	10:29	20.85	541	9.10	8.13	157.9	24.3	
					10:31	20.86	542	8.91	8.12	172.0	28.0	
40	US 136	54	Sugar	7/14/03	10:47	21.03	547	9.03	8.12	172.5	18.4	
					10:49	21.06	547	8.90	8.12	180.5	18.4	
41	SR 32	54	Sugar	7/14/03	11:16	21.26	558	9.01	8.12	170.2	20.2	
					11:18	21.27	558	8.80	8.12	176.3	19.7	
42	SR 234	54	Indian	7/14/03	11:45	21.67	556	9.12	8.17	181.6	29.4	
					11:47	21.68	556	8.95	8.17	183.8	30.8	
45	US 41	61	Sugar	7/14/03	11:28	22.37	546	8.67	8.22	188.0	26.5	
					11:30	22.38	546	8.61	8.22	187.9	26.5	
46	US 41	61	Sugar Mill	7/14/03	12:20	23.79	561	9.29	8.34	171.6	4.6	
					12:22	23.78	561	9.18	8.34	174.4	4.6	
91	SR 352	4	Mud Pine	7/15/03	14:27	20.03	529	6.90	7.08	215.5	24.4	
					14:29	20.03	529	6.52	7.07	215.6	24.5	
92	SR 26	86	Big Pine	7/15/03	13:50	20.92	573	8.04	7.80	198.2	35.7	
					13:52	20.93	573	7.76	7.80	202.7	35.7	
93	US 36	67	Big Walnut	7/15/03	14:14	23.02	592	9.06	8.22	168.9	9.8	
					14:16	23.04	592	8.94	8.21	175.3	9.7	

LaPorte District												
ID #	High-way	Co. No.	Water Body	Date	Time	Temp (C°)	Cond. (µS/cm)	DO (mg/L)	pH (%)	ORP (mV)	Turb. (NTU)	Chlor. (mg/L)
14	SR 29	8	Wildcat	7/15/03	11:29	21.69	456	8.00	7.88	209.8	114.2	
					11:31	21.6	456	7.59	7.89	208.4	115.6	
13	SR 75	8	Wildcat	7/15/03	11:07	22.02	465	7.96	7.92	197.9	133.0	
					11:09	22.01	465	7.64	7.91	200.2	131.5	
6	US 421	8	Wildcat	7/15/03	10:46	20.12	530	8.04	7.82	216.5	61.2	
					10:48	20.12	530	7.80	7.81	215.6	62.6	
24	I-94	64	Salt	7/23/03	11:54	19.92	606	7.23	7.75	133.6	37.5	
					11:56	19.92	606	7.07	7.75	145.5	37.5	
25	SR 149	64	Lit. Calumet	7/23/03	15:38	19.87	730	8.47	7.91	160.9	28.2	
					15:40	19.88	730	8.07	7.92	171.8	28.4	
87	St. Pk.	64	L. Michigan	7/23/03	**road run off - no water to test**							
28	US 12	64	Beverly Sh.	7/23/03	13:34	16.51	256	6.87	7.50	58.2	4.2	
					13:36	16.51	256	6.52	7.45	53.0	4.2	
29	US 12	64	Beverly Sh.	7/23/03	**water too shallow, 2" deep, cannot test**							
90	US 12	64	Brown D.	7/23/03	dry							
30	US 12	64	Kintzele D.	7/23/03	13:55	20.17	925	8.45	7.65	139.1	11.5	
					13:57	20.16	925	8.35	7.65	135.4	11.3	
85	US 12	64	Long Lake	7/23/03	**no point source discharge**							
27	US 12	64	Munson D.	7/23/03	13:15	18.42	1106	8.77	7.94	187.3	45.3	
					13:17	18.43	1106	8.62	7.93	177.3	30.4	
88	US 20	64	Beverly Sh.	7/23/03	**dry**							
89	US 20	64	Beverly Sh.	7/23/03	**dry**							
86	US 20	64	EB Lit. Cal.	7/23/03	12:31	20.40	381	5.99	7.43	190.6	5.7	
					12:33	20.41	381	5.79	7.40	191.2	5.8	
26	US 20	64	Lit. Calumet	7/23/03	12:16	19.46	736	8.13	7.91	196.8	25.6	
					12:18	19.46	736	8.17	7.90	198.3	25.9	

23	US 20	64	Salt	7/23/03	12:05	19.93	610	7.40	7.76	139.3	35.6	
					12:07	19.93	610	7.11	7.75	146.8	35.4	
Greenfield District												
ID #	High-way	Co. No.	Water Body	Date	Time	Temp (C°)	Cond. (µS/cm)	DO (mg/L)	pH (%)	ORP (mV)	Turb. (NTU)	Chlor. (mg/L)
100	SR 121	24	Whitewater	7/31/03	9:32	20.13	644	11.37	8.21	61.1	4.2	
					9:34	20.13	644	11.25	8.21	64.0	4.2	
11	SR 22	34	Wildcat	7/15/03	11:39	21.29	418	8.06	7.85	212.5	216.8	
					11:41	21.29	417	7.63	7.84	213.3	223.9	
Seymour District												
ID #	High-way	Co. No.	Water Body	Date	Time	Temp (C°)	Cond. (µS/cm)	DO (mg/L)	pH (%)	ORP (mV)	Turb. (NTU)	Chlor. (mg/L)
96	SR 62	13	Blue R.	8/12/03	**too steep, dense filtration**							
97	SR 62	13	Blue R.	8/12/03	**unsafe, steep hill, dense filtration**							
55	SR 1	24	Whitewater	7/31/03	11:01	21.10	582	10.97	8.19	101.6	4.2	
					11:03	21.10	582	10.72	8.18	100.4	4.4	
54	US 52	24	Whitewater	7/31/03	9:45	20.41	637	11.63	8.24	86.3	5.2	
					9:47	20.41	637	11.51	8.24	85.1	5.1	
101	US 52	24	Whitewater	7/31/03	10:24	21.84	602	9.69	8.28	114.1	31.7	
					10:26	20.84	602	9.29	8.27	110.6	30.8	
102	US 52	24	Whitewater	7/31/03	10:37	21.52	605	11.49	8.24	106.1	4.5	
					10:39	21.52	605	11.44	8.23	99.4	4.3	
103	US 52	24	Whitewater	7/31/03	**impractical, unsafe, dangerous curve, terrain too steep,**							
					dense filtration							
104	US 52	24	Whitewater	7/31/03	**impractical, unsafe, dangerous curve, terrain too steep**							
					dense filtration							
105	US 52	24	Whitewater	7/31/03	**impractical, unsafe, dangerous, too steep, dense filtration**							
106	US 52	24	Whitewater	7/31/03	**impractical, unsafe, dense vegetation/filtration**							
107	US 52	24	Whitewater	7/31/03	11:20	21.37	581	11.07	8.23	107.4	28.1	
					11:22	21.38	581	10.98	8.22	103.2	29.5	
82	I-64	31	Blue R.	8/12/03	11:23	23.44	445	11.07	7.99	69.3	4.7	
					11:25	23.46	444	10.23	7.98	73.1	4.7	

83	SR 62	31	Blue R.	8/12/03	11:47	22.89	463	10.72	7.88	115.7	4.1	
					11:49	22.87	463	10.32	7.85	115.2	4.3	
94	SR 62	31	Blue R.	8/12/03	**too steep, dense filtration**							
95	SR 62	31	Blue R.	8/12/03	**too steep, dense filtration**							
74	SR 64	31	Blue R.	8/12/03	10:47	21.49	454	10.77	8.11	45.8	10.1	
					10:49	21.49	454	9.60	8.10	51.6	9.9	
73	SR 135	88	Blue R. S.	8/12/03	9:57	21.32	270	8.11	7.62	37.6	10.8	
					9:59	21.29	270	7.54	7.58	44.2	10.1	
65	SR 60	88	N. Fk. Lost	8/11/03	**dry**							
66	SR 60	88	N. Fk. Lost	8/11/03	**dry**							
72	SR 150	88	Blue R.	8/12/03	10:15	21.24	450	10.15	8.02	57.9	11.5	
					10:17	21.24	450	9.66	8.02	62.7	11.4	
Vincennes District												
ID #	High-way	Co. No.	Water Body	Date	Time	Temp (C°)	Cond. (µS/cm)	DO (mg/L)	pH (%)	ORP (mV)	Turb. (NTU)	Chlor. (mg/L)
68	SR 337	59	Lost R.	8/11/03	11:59	22.83	480	11.46	8.07	116.5	3.4	
					12:01	22.81	480	11.43	8.06	116.9	3.6	
69	SR 337	59	Stampers	8/11/03	**dry**							
64	SR 37	59	Lost R.	8/11/03	**dry**							
62	SR 56	59	Lost R.	8/11/03	13:33	19.99	558	8.89	7.88	48.6	15.4	
					13:35	19.99	550	8.64	7.86	54.0	16.1	
70	SR 56	59	Stampers	8/11/03	12:20	16.18	396	14.48	8.05	127.1	4.2	
					12:22	16.19	415	14.49	8.04	125.5	4.2	
71	SR 56	59	Wolf	8/11/03	**too shallow to test**							
67	SR 60	59	Carters.	8/11/03	11:30	19.03	536	10.53	8.04	80.7	3.7	
					11:32	19.14	537	10.22	8.11	82.3	3.7	
60	US 150	59	Lost R.	8/11/03	13:55	21.69	572	7.49	7.83	137.8	64.3	
					13:57	21.69	572	7.07	7.81	135.1	64.7	

61	US 150	59	Lost R.	8/11/03	13:45	20.68	561	9.07	7.89	122.9	16.4	
					13:47	20.68	564	8.25	7.84	121.1	13.3	
63	US 150	59	Lost R.	8/11/03	14:09	18.70	583	10.58	7.94	162.2	15.0	
					14:11	18.69	583	10.00	7.91	161.3	14.9	
99	US 150	59	Lost R.	**steep embankment, dangerous curve (nowhere to park)**								
Fort Wayne District												
ID #	High-way	Co. No.	Water Body	Date	Time	Temp (C°)	Cond. (µS/cm)	DO (mg/L)	pH (%)	ORP (mV)	Turb. (NTU)	Chlor. (mg/L)
36	I-69	2	Cedar	7/29/03	14:15	20.72	534	10.32	7.80	129.7	62.6	
					14:17	20.71	534	10.08	7.80	128.3	64.4	
37	SR 1	2	Cedar	7/29/03	14:40	21.32	511	10.76	7.87	133.3	76.4	
					14:42	21.32	512	10.09	7.86	133.3	80.0	
34	SR 327	2	Cedar	7/29/03	13:55	20.43	486	9.38	7.52	106.7	79.6	
					13:57	20.44	486	9.13	7.52	108.4	80.0	
35	SR 327	2	Cedar	7/29/03	13:50	19.77	477	9.98	7.54	124.5	43.2	
					13:52	19.77	477	9.41	7.52	126.1	43.7	
16	SR 19	43	Tippecanoe	7/29/03	11:02	21.39	541	8.04	7.88	111.8	14.2	
					11:04	21.39	541	7.94	7.88	111.5	13.9	
59	US 6	57	Elkhart R.	7/29/03	12:22	22.49	543	6.38	7.51	159.9	18.7	
					12:24	22.51	543	6.13	7.51	157.8	18.1	

APPENDIX C

VI. POLLUTION PREVENTION AT INDOT OPERATION AND MAINTENANCE FACILITIES and for ROAD SIDE MAINTENANCE/ GOOD HOUSEKEEPING

- The intent of this control measure is to ensure that existing and future highway and facility operations and maintenance are performed in ways that will minimize contamination of storm water runoff.

1. Highway and Roadside Maintenance

INDOT uses a ***Field Operations Handbook*** to guide maintenance workers in their tasks of maintaining the pavement, shoulders, side slopes, ditches, and rest areas. Those operations from the Handbook that may impact storm water quality for Highway and Roadside Maintenance are presented below. The environmental notes may be added to identify the additional measures that field personnel will have to perform to assure that storm water quality is protected. See the Environmental Notes at the end of this Appendix.

Shallow Patching - Minor patching of small areas of bituminous roadway or paved shoulder surface with hot or cold bituminous mixtures and hand tools to correct potholes, edge failures, and other potential surface hazards. This activity also includes temporary patching of bituminous and concrete surfaces and the use of hot liquid bituminous material and aggregate for patching bituminous surfaces or crack and joint spalling of concrete surfaces. ***Environmental Notes 1, 2, & 3***

Deep Patching -Major patching of roadway surface and paved shoulders to correct extensive surface failure caused by base failure, blowup, or settlement. Includes, on all surface types, the full depth removal of surface and base material and replacement with compacted bituminous mixture. Includes time spent cutting in preparation for deep patching. Includes cutting in preparation for deep patching. ***Environmental Notes 1, 2, & 3***

Premix Level - Minor machine or hand leveling and wedging of small isolated areas of bituminous or concrete roadway and shoulder surfaces with hot or cold bituminous mixtures to correct depressions at bridge ends, surface failures and depressions caused by settlement at pipe replacements and deep patches. ***Environmental Notes 1, 2, & 3***

Full Width Shoulder Seal - Seal Coating of continuous full width sections of paved shoulder surface with hot bituminous material and seal/cover aggregate to correct extensive cracking, seal the surface and restore shoulder life. Includes routing of the joints and taping of pavement markings in preparation for sealing. Shoulders with rumble strips should not be sealed. ***Environmental Notes 1, 2, 3, & 7***

Seal Coating-Chip - Seal Coating continuous full width section of roadway surface with hot bituminous material and coarse aggregate to correct extensive cracking, raveling, spalling, and shallow surface failures and to prevent deterioration of the surface. Includes routing of joints and taping of pavement markings in preparation for sealing. ***Environmental Notes 1, 2, 3, & 7***

Sealing Longitudinal Cracks And Joints - Mechanical cleaning and sealing longitudinal cracks and joints with a liquid bituminous sealant to prevent the entry of moisture and debris which leads to surface and base failure. Includes the edge cracks between concrete surfaces and bituminous shoulder, the widening cracks and the centerline joint. Includes routing of joints and taping of pavement markings in preparation for sealing. ***Environmental Notes 1, 2, & 3***

Sealing Cracks - Cleaning and sealing open cracks and joints in bituminous and concrete roadways and paved shoulder surfaces to prevent the entry of moisture and debris, which leads to surface, and base failure. This activity also includes sealing short sections or isolated areas of alligatored, raveled, or spalled bituminous surfaces to prevent entry of moisture and further deterioration of the surface. Also includes routing of joints and taping of pavement markings in preparation for sealing. ***Environmental Notes 1, 2, & 3***

Sealing Coating-Sand - Seal coating continuous full width sections of roadway surface with hot liquid bituminous material and fine aggregate (sand) to correct extensive cracking, raveling, and shallow surface failures and to prevent deterioration of the surface. Includes routing of joints and taping of pavement markings in preparation for sealing. ***Environmental Notes 1, 2, 3, & 7***

Sealing Cracks with Crumb Rubber Material - Cleaning and sealing cracks and joints in bituminous and concrete roadways and paved shoulder surfaces to prevent the entry of moisture and debris, which leads to surface, and base failure. Includes routing of joints and taping of pavement markings in preparation for sealing. ***Environmental Notes 1, 2, & 3***

Spot Repair of Shoulders - Repairing small areas of shoulders by adding aggregate, reshaping and compacting to correct edge ruts, potholes, and corrugations and to replace lost material at washouts, around mailboxes, and public road approaches. *Note: This activity is used for reporting work on aggregate shoulders and/or any aggregate areas adjacent to a paved shoulder. Repairs to paved shoulders should be reported to Activity 2010 (SHALLOW PATCHING) or Activity 2020 (DEEP PATCHING) as appropriate.* ***Environmental Notes 1, 2, 3, & 7***

Blading Shoulders - Blading and reshaping shoulders to eliminate edge ruts, ridges, corrugations and high shoulders. ***Environmental Notes 2, 3, 4, & 7***

Clipping Shoulders - Major clipping of overgrown shoulders to remove excess material and to restore proper slope for adequate drainage. Includes clipping of overgrown shoulders adjacent to the driving surface and sod adjacent to paved or aggregate shoulder. Also includes related cleaning and reshaping of the adjacent roadside ditches as required. ***Environmental Notes 2, 3, 4, & 7***

Recondition Shoulders - Reconditioning continuous shoulder sections by adding aggregate, reshaping and compacting to restore the shoulder grade and surface. ***Environmental Notes 2, 3, 4, & 7***

Joint And Bump Repair - Grinding or planing of bituminous surfaces to remove bumps, ripples and heaved joints. Includes sealing of areas at a later date. ***Environmental Notes 1, 2, 3, & 7***

Other Roadway and Shoulder Maintenance - Other routine work activities performed on the roadway or shoulder surface that are not specifically identified as separate work activities. This activity **does not** include work that is directly related to another activity such as preparation and clean up. ***Environmental Notes 1, 2, 3, 4, & 7***

Machine Mowing - Machine mowing of roadside vegetation within the designated mowing limits of the right-of-way using tractor mowers and hand trimming as required, to maintain an attractive roadside and to control erosion and drainage. This activity **does not** include the hand mowing and trimming at rest areas, roadside parks and picnic areas. ***Environmental Notes 2 & 10***

Brush Cutting - Cutting, trimming and removing brush, small trees, tree branches and limbs within the right-of-way using power or hand tools to restore sight distance, eliminate traffic hazards and remove encroaching vegetation. ***Environmental Notes 2, 8, & 10***

Herbicide Treatment - Application of chemicals to roadside vegetation and soil along shoulders, guardrail sections, around sign posts, delineators, mail boxes, bridge ends and other areas to eliminate or control undesirable vegetation. ***Environmental Note 2***

Seed and/or Fertilizing - Seeding, reseeding, and fertilizing of shoulders, front and back slopes, medians and other designated areas to restore vegetation for erosion control and beautification. ***Environmental Notes 2 & 4***

Topping Trimming or Removal of Trees - Topping, trimming or removal of large trees within the right-of-way requiring the use of equipment such as a bucket truck and a boom truck. Includes stump removal when performed as a part of the tree operation. ***Environmental Notes 2, 8, & 10***

Stump Removal - Removal of stumps within the right-of-way to eliminate traffic hazards or improve efficiency of other maintenance activities. (Stump cutting performed in conjunction with tree removal should be reported to Activity 2250) ***Environmental Notes 2, 3, 4, & 8***

Spot Mowing and Hand Trimming - Spot or hand mowing to control Johnson grass, Canadian thistle and other noxious weeds, and hand trimming or mowing needed in addition to that performed during Machine Mowing (Activity 2210). This activity **does not** include hand mowing or trimming at rest areas, roadside parks, districts, Subdistrict or unit location. ***Environmental Notes 2 & 10***

Right-Of-Way Fence - Repair damaged, state-owned, right-of-way fencing to maintain delineation of the right-of-way. Includes rebuilding existing fence using in place material and/or replacing short sections of damaged fencing with new materials. This activity **does not** include repair of fence at district, subdistrict or unit site. ***Environmental Notes 2, 4, & 10***

Other Roadside Maintenance - Other routine maintenance activities that are not specifically identified as separate activities. *Note: Work performed in preparation of or as follow up to a specific activity is to be recorded to that activity.* ***Environmental Notes 2, 3, 4, & 8***

Clean and Reshape Ditches - Machine cleaning of roadside ditches with excavating equipment to restore original grade and maintain adequate drainage. Includes the loading, hauling, and disposal of excess material, reshaping front and back slopes, and shoulder restoration as related to ditching. May also include pipe replacement in the ditch line and under driveways. ***Environmental Notes 2, 3, 4, 5, 6, 8, & 10***

Inspect Minor Drainage Structures - Inspecting and minor cleaning of all minor drainage structures including box culverts, pipe culverts, catch basins, inlets and paved side ditches with emphasis on small cross culverts. Inspect to determine both structural and drainage adequacy. Defects should be reported for future scheduling. ***Environmental Notes 2, 3, 4, 5, 6, & 10***

Pipe Replacement - Cross Pipe culvert replacement and/or pipe liner installation required as a result of damage or deterioration in order to maintain adequate drainage. Includes state-owned pipes at intersections of county roads, but **does not** include pipes installed in the ditch line or pipes installed under driveways. ***Environmental Notes 2, 3, 4, 5, 6, & 10***

Motor Patrol Ditching - Machine cleaning of roadside ditches with motor patrol to restore original grade and maintain adequate drainage. Includes the loading, hauling, and disposal of excess material, reshaping front and back slopes, pipe culvert replacement and shoulder restoration as related to ditching. ***Environmental Notes 2, 3, 4, 5, 6, 8, 9, & 10***

Cleaning Minor Drainage Structures - Manual or machine cleaning and removal of debris from box culverts, pipe culverts, catch basins, inlets and paved ditches to maintain adequate drainage. ***Environmental Notes 2, 3, 5, 9, & 10***

Clean Underdrains - Clean inside and outside of underdrains pipes to restore adequate drainage flow. Mark locations of outlets. ***Environmental Notes 2, 3, 9, & 10***

Other Drainage Maintenance -Other routine drainage maintenance activities that are not specifically identified as separate activities. ***Environmental Notes 2, 3, 4, 5, 6, 8, 9, & 10***

Hand Cleaning Bridges - Cleaning of bridge deck surfaces, expansion joints, drains holes, bridge seats and sidewalks by hand shoveling, or sweeping and air blasting to remove accumulation of sand, chemicals and debris. ***Environmental Notes 2, 3, 9, & 10***

Bridge Repair - Minor repairs to bridge structures including repair, replacement or painting of handrails, curbs or sidewalks repair, minor joint and deck repair, timber deck repair, support repair, deck sealing and other minor repairs. Includes emergency deck or support repair and minor maintenance of lift bridges. Also includes preparation work and taping of pavement markings in preparation for bridge repair. ***Environmental Notes 1, 2, 3, 5, 6, 9, & 10***

Flushing Bridge - Cleaning of bridge seats, drain holes, expansion joints, gutter lines and truss members by flushing to remove accumulation of sand, chemicals, and debris. ***Environmental Notes 2, 3, & 10***

Patching Bridge Decks - patching of bridges using a Portland Cement, concrete or approved epoxy adhesive. Includes marking, sawing and breaking out old concrete with jackhammers. ***Environmental Notes 1, 2, 3, 9, & 10***

Other Bridge Maintenance - Other routine bridge maintenance activities that are not specifically identified as separate activities. ***Environmental Notes 1, 2, 3, 5, 6, 9, & 10***

Emergency Maintenance - Emergency or extraordinary **temporary** repairs, traffic control and clean up of roadway, roadside, and structures on the State Highway System in response to emergency conditions. Overtime callout for routine maintenance activities such as patching, sign

repair, or drainage maintenance should be charged to the repair activity if permanent repairs are made. ***Environmental Notes 1, 2, 3, 4, 5, 6, 7, 8, 9, & 10***

Snow and Ice Removal - This activity includes all operations during and after a storm required to remove snow and ice from the roadway. Includes loading operations required to support snow and ice removal operations, removal of snow from ditches, removal of ice caused by flooding and opening of frozen drains. ***Environmental Notes 2***

Winter Patrol - Patrol of roads during the winter season (November 1-April 1) to determine the development of hazardous conditions requiring attention by maintenance forces. ***Environmental Notes 2, 3, & 10***

Other Winter Maintenance - Other routine winter maintenance activities that are not specifically identified as separate activities. ***Environmental Notes 2, 3, & 10***

Rest Area and Lift Bridge Attendant - The care and cleaning of rest areas and enforcement of INDOT policies for rest areas and enforcement of INDOT policies for rest area usage and operation of lift bridges on the State Highway system by full time attendants. ***Environmental Notes 1, 2, 3, 4, 5, 6, 7, 8, 9, & 10***

Roadside Park, Rest Area and Weigh Station Maintenance - Maintenance of building, grounds and parking lots of state maintained rest areas, roadside parks and weigh stations. This activity is performed on interstate only. All other such work is reported to Facilities Activities (2830+Subactivity) ***Environmental Notes 1, 2, 3, 4, 5, 6, 7, 8, 9, & 10***

Work for Department of Natural Resources - All maintenance activities performed on the designated roadways and parking areas of the Indiana Department of Natural Resources. ***Environmental Notes 1, 2, 3, 4, 5, 6, 7, 8, 9, & 10***

Work for State Institutions - All maintenance activities performed on the designated roadways of the State of Indiana institutions. ***Environmental Notes 1, 2, 3, 4, 5, 6, 7, 8, 9, & 10***

Full Width Litter Pickup - Full width cleaning of continuous sections of the right-of-way area including pickup, loading, hauling and disposing of accumulated litter to remove unsightly or hazardous objects and obstructions to drainage. . ***Environmental Notes 2, 3, 6, 8, 9, & 10***

Currently INDOT has a program called ***Trash Bash***. This program involves picking up trash along the right-of-way each Spring before mowing begins. Division of Corrections labor is also utilized for the trash pickup. ***Environmental Notes 2, 3, 6, 8, 9, & 10***

Spot Litter Pickup - Cleaning isolated sections of the right-of-way including pickup, loading and disposing of litter and debris to remove unsightly or dangerous objects. ***Environmental Notes 2, 3, 6, 8, 9, & 10***

Roadway Cleaning - Mechanical or manual sweeping of roadway, including intersections, curbs and gutters, to remove excess loose sand, chemicals, and debris. Manual cleaning of bridges should be reported as Activity 2410, Hand Cleaning Bridge Decks. ***Environmental Notes 2, 3, 6, 8, 9, & 10***

Material Handling and Storage - Handling and storage materials for routine maintenance activities **excluding snow and ice control materials. Includes the loading, hauling, unloading, mixing, stockpiling, and storage of material.** ***Environmental Notes 2, 6, & 10***

Maintenance Improvements - Non-routine work not requiring special funding performed by maintenance forces on the State Highway System. For planning purposes, this activity includes improvements on all the various elements of the system-surface, shoulders, roadside, and Department buildings and grounds. ***Environmental Notes 1, 2, 3, 4, 5, 6, 7, 8, 9, & 10***

2. Facilities Operation and Maintenance

Those operations from the ***Field Operations Handbook*** that are pertinent to storm water quality for Operations and Maintenance Facilities are:

Stockpiling Winter Material - The stockpiling, mixing and processing of abrasives and chemicals performed before and during the winter season. ***Environmental Notes 2***

Equipment Servicing - The routine service and maintenance of the Department's equipment fleet. ***Environmental Notes 2 & 10***

Buildings & Grounds Maintenance - The general maintenance and care-taking of the buildings and grounds at District, Subdistrict, and other maintenance unit locations. ***Environmental Notes 1, 2, 3, 4, 5, 6, 7, 8, 9, & 10***

Scraping and Painting of Equipment - Manual scraping of loose paint to remove from equipment. Rust should also be removed. Painting equipment to improve appearance and to increase life span of equipment. *Note: When Unit Foreman or crew leaders are working as a part of a crew (not supervising other crews) their time is to be reported to the activity they are performing.* ***Environmental Notes 2, 8, 9, & 10***

Environmental Notes for Operation and Maintenance Activities:

1. Application of liquid asphalts shall be as required and shall not result in excess material leaving roadway surface and entering ditches or waterways. Liquid asphalt shall not be applied if rain is forecast within the time required for the asphalt to cure to its solid state.

2. Cleanup of tools and equipment shall be accomplished in a controlled manner and special emphasis shall be placed on not allowing any materials from this cleaning to enter the environment.

3. Excavated materials such as rock, old concrete, old asphalt, and soil are considered clean fill and may be re-used at the jobsite if environmental concerns are satisfied. If necessary, excavated materials may have to be hauled back to the INDOT facility for later use or disposal (soil for shoulder reconstruction, old concrete as riprap).

4. Excavated areas, bladed shoulder edges, exposed bare soil, and shallow-sloped erosion areas shall be mulch seeded or sodded, as directed by the supervisor, in accordance with INDOT Standard Specification Section 621. Seeded areas shall be checked weekly to assess their condition.

5. In highly erodeable ditch areas riprap check dams, or other erosion and sediment control measures shall be installed, as directed by the supervisor, in accordance with INDOT Standard Specification Section 205, and INDOT Standard Drawings 205 for installation of Erosion Control Measures. On highly erodeable side slopes, riprap shall be installed, as directed by the supervisor, in accordance with INDOT Standard Specification Section 616.

6. Scrap metal pipes or portions of pipes shall be transported back to the INDOT facility.

7. Application of aggregates and sand materials shall be done in such a manner that excessive amounts of material do not escape the roadway surface.

8. Process all cut trees or brush through the chipper/spreader. If it is not possible to process trees or brush through the chipper/spreader, transport material back to INDOT facility for disposal. It is preferred to utilize the chips in compost or as ground cover at state properties. Incineration may be considered if allowed by local ordinance.

9. If material to be removed exhibits odor, it will be tested before removal to insure proper disposal. Contact the District Environmental Coordinator. After suspect material is removed, it is to be segregated, so as not to contaminate clean material.

10. The types of material encountered along the Right-of-way consists of soil, tires, and general debris. INDOT encourages field personnel to segregated and recycled the larger metal material. Tires are to be transported to a district tire recycling location and the general debris to be properly disposed of.

APPENDIX B

Storm Water General Permit Rule 13

Designation Criteria and Designated Entities

Return to Rule 13

IDEM has created the designation criteria and designated entity list for entities regulated under 327 IAC 15-13 (Rule 13). Notification letters were mailed to all initially designated entities in June, July and August 2001. As information becomes available, the designation listing and criteria may be revised.

Designation Criteria

(1) Any entity located on a Census Bureau urbanized area map is automatically designated (based on 2000 Census data mapping) - urbanized area maps are available at the Census Bureau web page.

(2) Any entity whose population (based on 2000 Census data) is greater than or equal to 10,000 is automatically designated (regardless of percentages of combined sewer systems);

(3) Any entity whose population (based on 2000 Census data) is greater than or equal to 7,000 is potentially designated if:

(a) The community had a percent growth between 1990 and 2000 greater than or equal to 10 (see percent growth table); or

(b) The community population, when combined with other entity populations/full-time equivalent enrollments within the community (e.g. universities, correctional facilities, hospitals, military bases), is greater than or equal to 10,000

(4) Any entity (e.g. universities, correctional facilities, hospitals, military bases) with a daily user population/full-time equivalent enrollments of 1,000 or more is potentially designated if:

(a) The entity is located within a designated community or mapped urbanized area; and

(b) The entity has, and is responsible for, a storm water conveyance system.

(5) Any entity that is either physically connected to a regulated MS4 entity, or has documented evidence of contributing to impairment of water quality is potentially designated (likely used after the initial MS4 list is designated, when more data is available).

(6) Within a mapped urbanized area, a community that has a population under 1,000 people is conditionally exempt, as long as the exempted community is not contributing to an impairment of water quality.

Designated Entity Listing
Based on 2000 Urbanized Area Map:

Alexandria	**Allen County**	Anderson	Arcadia
Avon	Bargersville	**Bartholomew County**	Battle Ground
Beech Grove	Bloomington	**Boone County**	Bristol
Brooklyn	Brownsburg	Carmel	Cedar Lake
Chandler	Chesterfield	Chesterton	Cicero
Clark County	Clarksville	Columbus	Crown Point
Cumberland	Daleville	Danville	Dayton
Dearborn County	**Delaware County**	Dunlap CDP	Dyer
East Chicago	Edgewood	Edinburgh	Elkhart
Elkhart County	Ellettsville	Evansville	Fishers
Floyd County	Fortville	Fort Wayne	Franklin
Galena CDP	Gary	Georgetown	Georgetown CDP
Goshen	Granger CDP	Greenwood	Griffith
Gulivoire Park CDP	**Hamilton County**	Hammond	**Hancock County**
Hendricks County	Hidden Valley CDP	Highland	Highland CDP
Hobart	**Howard County**	Huntertown	Indian Heights CDP
Ingalls	Jeffersonville	**Johnson County**	Kokomo
Lafayette	**Lake County**	Lake Dalecarlia CDP	Lake Station
LaPorte	**LaPorte County**	Lawrence	Leo-Cedarville
Long Beach	**Madison County**	McCordsville	Melody Hill CDP
Merrillville	Michigan City	Mishawaka	**Monroe County**
Mooresville	**Morgan County**	Muncie	Munster
New Albany	New Chicago	New Haven	New Palestine
New Paris CDP	New Whiteland	Newburgh	Noblesville

N. Terre Haute CDP	Oak Park CDP	Ogden Dunes	Osceola
Parker City	Pendleton	Pittsboro	Plainfield
Portage	Porter	**Porter County**	**Randolph County**
Roseland	St. John	**St. Joseph County**	Schererville
Seelyville	Sellersburg	Simonton Lake CDP	South Bend
South Haven CDP	Southport	Speedway	Terre Haute
Tippecanoe County	Trail Creek	Valparaiso	**Vanderburgh County**
Vigo County	**Warrick County**	Westfield	West Lafayette
W. Terre Haute	Whiteland	Yorktown	Zionsville

*CDP stands for Census Defined Place. These areas typically have no governmental offices, and storm water conveyances in these areas are usually the responsibility of the local county.

Counties marked in **bold** print.

Based on Population and Growth Criteria:

Angola	Auburn	Bedford	Columbia City
Connersville	Crawfordsville	Decatur	Frankfort
Greencastle	Greenfield	Greensburg	Huntington
Jasper	Kendallville	Lakes of the 4 Seasons CDP	Lebanon
Logansport	Lowell	Madison	Marion
Martinsville	New Castle	Peru	Plymouth
Richmond	Seymour	Shelbyville	Vincennes
Wabash	Warsaw	Washington	

Based on University/College Enrollment and Location within an Urbanized Area:

Anderson Univ.	Ball State Univ.	Bethel College	DePauw Univ.
Earlham College	IIT-Fort Wayne Univ.	Indiana Univ.-Bloomington	Indiana Univ.-East
Indiana Univ.-Kokomo	Indiana Univ.-Northwest	Indiana Univ.-South Bend	Indiana Univ.-Southeast
IU/PU-Fort Wayne	Indiana State Univ.	Indiana Wesleyan Univ.	Ivy Tech-Bloomington
Ivy Tech-Muncie	Ivy Tech-Lafayette	Ivy Tech-North Central	Ivy Tech-Northeast
Ivy Tech-Northwest	Ivy Tech-Southwest	Ivy Tech-Wabash Valley	Purdue Univ.-W. Lafayette
Rose-Hulman Institute	St. Mary's College	Univ. of Evansville	Univ. of Notre Dame
Univ. of St. Francis	Univ. of Southern Indiana	Tri-State Univ.-Angola	Valparaiso Univ.

Based on Residential Population and Location within an Urbanized Area:

Aberdeen Prop. Owner's Assoc.	Honey Creek CD*	Oak Park CD*	Tri-County CD*
Twin Creeks CD*	Valparaiso Lakes Area CD*		

*CD stands for Conservancy District.

Based on Inmate Population and Location within an Urbanized Area:

Lakeside-Michigan City	Pendleton Correctional	Plainfield Correctional	U.S. Penitentiary-Terre Haute

Urbanized Area Communities, Conservancy Districts and Counties that are conditionally exempt based on Low Population or no MS4:

Bethany	Beverly Shores	Burns Harbor	Country Club Heights
Dune Acres	Duneland Beach	Greenville	Independence Hill CD*
Indian Village	Little Wea CD*	Michiana Shores	**Posey County**
Potawattamie Park	River Forest	Selma	Shadeland
Spring Lake	Taylorsville CDP	Town of Pines	Tremont
Utica	West Harrison	Whiting	Woodlawn Heights

*CD stands for Conservancy District.

Urbanized Area Universities/Colleges that are conditionally exempt based on Low Enrollment or no MS4:

Franklin College	Goshen College	Ivy Tech-Columbus	Ivy Tech-Kokomo
Ivy Tech-South Central	Ivy Tech-Southeast	Ivy Tech-Whitewater	Purdue Univ.-Calumet
St. Mary of the Woods Col.	Vincennes Univ.		

Urbanized Area Communities/Counties that are Covered by Indianapolis' Phase I Permit:

Castleton	Clermont	Crows Nest	Cumberland (Marion Co.)
Homecroft	Marion County	Meridian Hills	N. Crows Nest
Rocky Ripple	Spring Hill	Warren Park	Williams Creek
Wynnedale			

Urbanized Area Universities/Colleges that are Covered by Indianapolis' Phase I Permit:

Butler Univ.	IU/PU-Indianapolis	Ivy Tech-Indianapolis	Marian College
Univ. of Indianapolis			

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Phone: (800) 451-6027 (toll free in Indiana) (317) 232-8603 (Indianapolis area)
Report Environmental Emergencies: (888) 233-7745

Disclaimer

Winchester Unit	Greenfield	Albany	no	connected	no rule13 connected	-84.99430	40.17255

APPENDIX C

Analysis of 2003 GPS locations for District, sub, unit and salt facilities.
New file has 146 individual locations.
16 are different than the 2000 version file we have been using.
Differences:

1. Layafette Unit is incorrect in the new file, the location given is the research parking lot. (This was in error in the 2000 version as well but we fixed it.)
2. The 7 Toll road locations are slightly different (between 50 to 240 feet.) Possibly represents staff using a different (better) GPS unit. I checked the 7 Toll Road facilities. Our original file and the new file are consistent in terms of still being located on the same site (the difference is smaller than the actual facilities.) We should note that both the new and old location of the LaPorte Toll Road Maint. Facility is 450 feet north east of the true location, according to the 1999 aerial photos. Both old and new database have points located in an empty field north of the toll road, rather than south like the facility in the photo.
3. Rensselaer and Dale are new locations.
4. Ashboro Unit is 250 feet SE of old point location. Same facility on photo. Old location was equipment barn, new location is salt piles.
5. Wanatah Unit is 266 feet NE of old point location. Same facility on photo. Old location was driveway, new location is salt loaders.
6. Medaryville Unit is 2500 feet north of old point. New point is correct, old point was in an empty field.
7. Sellersburg Unit is 690 feet NW of old point. New point is driveway and old point is equipment barn.
8. Mount Vernon Satellite (Vincennes District) is new to us.
9. Vincennes Sub is new point 420 feet southeast of old "Vincennes Unit and sub"point. The old database had 1 point for Vincennes District, unit and sub; this is now split into a district point and a sub point. However both the new points are still 325 feet north of the true location. Both databases have points for Vincennes district office and sub that are located in a field 325 feet north of the actual facilities.
10. "Crawfordsville District" and "Crawfordsville Sub" are now two points with the same location where we had two points before, labeled as "Crawfordsville District" and "Crawfordsville Sub and Unit"

In conclusion, Rensselaer and Dale and Mount Vernon Satellite are new points, and Medaryville is a better location; the rest are not significant changes to the existing analysis. 5 facilities which were in the old analysis are noted as closed (but still used for storage) Valparaiso Unit, Old Madison sub, Hanna Unit, Orland Unit, Warren Unit.

Aug 09, 2003 Larry Theller

spreadsheet created 05/24/04 to display the current version of the latitude-longitude of the Indot Facility map layer.							
FACILITIES	DISTRICT_NAME	SUBDISTRICT	RULE13	CONNECTION	COMBINED	LONGITUDE	LATITUDE
Aberdeen Unit	Seymour	Aurora	no	not connected	no rule13 not connected	-84.98933	38.90453
Albany Sub	Greenfield	Albany	no	connected	no rule13 connected	-85.21152	40.29730
Alexandria Unit	Greenfield	Albany	yes	connected	yes rule13 connected	-85.66927	40.27845
Amity Unit	Seymour	Columbus	no	not connected	no rule13 not connected	-85.99427	39.41203
Anderson Unit	Greenfield	Greenfield	yes	connected	yes rule13 connected	-85.66295	40.04855
Angola Sub	Fort Wayne	Angola	yes	connected	yes rule13 connected	-85.02712	41.63255
Ashboro Unit	Crawfordsville	Terre Haute	no	not connected	no rule13 not connected	-87.11183	39.38923
Aurora Sub	Seymour	Aurora	no	connected	no rule13 connected	-84.96910	39.03258
Bainbridge Unit	Crawfordsville	Cloverdale	no	not connected	no rule13 not connected	-86.87915	39.76162
Beanblossom Unit	Seymour	Bloomington	no	not connected	no rule13 not connected	-86.25563	39.29290
Bedford Unit	Vincennes	Paoli	yes	connected	yes rule13 connected	-86.52283	38.86370
Birdseye Unit	Vincennes	Tell City	no	not connected	no rule13 not connected	-86.70173	38.23072
Bloomfield Unit	Vincennes	Linton	no	connected	no rule13 connected	-86.93553	39.01775
Bloomingdale Unit	Crawfordsville	Veedersburg	no	not connected	no rule13 not connected	-87.23715	39.81805
Bloomington Sub	Seymour	Bloomington	yes	connected	yes rule13 connected	-86.55317	39.19512
Bluffton Sub	Fort Wayne	Bluffton	no	not connected	no rule13 not connected	-85.27850	40.74272
Brimfield Unit	Fort Wayne	Goshen	no	not connected	no rule13 not connected	-85.41545	41.45373
Brookville Unit	Seymour	Aurora	no	not connected	no rule13 not connected	-85.00860	39.42372
Brownstown Unit	Seymour	Columbus	no	not connected	no rule13 not connected	-86.11375	38.88128
Cambridge City Unit	Greenfield	Centerville	no	not connected	no rule13 not connected	-85.14323	39.85115
Carbondale Unit	Crawfordsville	Fowler	no	not connected	no rule13 not connected	-87.35097	40.34610
Centerville Sub	Greenfield	Centerville	no	not connected	no rule13 not connected	-84.97508	39.81868
Chandler Unit	Vincennes	Evansville	yes	connected	yes rule13 connected	-87.37530	38.04357
Chesterton Unit	LaPorte	LaPorte	yes	not connected	yes rule13 not connected	-87.04123	41.63593
Chrisney Unit	Vincennes	Dale	no	connected	no rule13 connected	-87.03693	38.02133
Cloverdale Sub	Crawfordsville	Cloverdale	no	connected	no rule13 connected	-86.80005	39.53515
Columbus Sub	Seymour	Columbus	yes	connected	yes rule13 connected	-85.96153	39.19727
Corydon Unit	Seymour	Falls City	no	connected	no rule13 connected	-86.13527	38.24897
Crawfordsville District	Crawfordsville	Crawfordsville	yes	connected	yes rule13 connected	-86.90800	40.08233
Crawfordsville Sub	Crawfordsville	Crawfordsville	yes	connected	yes rule13 connected	-86.90800	40.08233
Crown Point Unit	LaPorte	Gary	yes	not connected	yes rule13 not connected	-87.31185	41.38233
Dale Old Unit (and test lab)	Vincennes	Dale	no	connected	no rule13 connected	-86.98688	38.16722
Dale Unit (new)	Vincennes	Dale	no	not connected	no rule13 not connected	-86.97665	38.19620
Derby Unit	Vincennes	Tell City	no	connected	no rule13 connected	-86.62582	38.06048
Elkhart Maintenance facility	Toll Road District	Toll Road	yes	not connected	yes rule13 not connected	-86.06183	41.73171
Elkhart Sub (new)	Fort Wayne	Goshen	yes	connected	yes rule13 connected	-85.96523	41.63922
Evansville Sub	Vincennes	Evansville	no	connected	no rule13 connected	-87.54938	38.12972

Evansville Unit	Vincennes	Evansville	yes	connected	yes rule13 connected	-87.61500	37.97397
Falls City Sub	Seymour	Falls City	yes	connected	yes rule13 connected	-85.75160	38.34720
Flora Unit	LaPorte	Monticello	no	not connected	no rule13 not connected	-86.52707	40.53367
Fort Harrison Unit	Crawfordsville	Terre Haute	yes	not connected	yes rule13 not connected	-87.37393	39.50728
Fort Wayne District	Fort Wayne	Fort Wayne	yes	connected	yes rule13 connected	-85.17795	41.12750
Fort Wayne Sub	Fort Wayne	Fort Wayne	yes	connected	yes rule13 connected	-85.17752	41.12627
Fortville Unit	Greenfield	Tipton	no	not connected	no rule13 not connected	-85.84178	39.99630
Fowler Sub	Crawfordsville	Fowler	no	not connected	no rule13 not connected	-87.31620	40.61278
Frankfort Sub	Crawfordsville	Frankfort	yes	connected	yes rule13 connected	-86.53312	40.27805
Frankfort Unit	Crawfordsville	Frankfort	yes	connected	yes rule13 connected	-86.53375	40.27815
Gary Sub	LaPorte	Gary	yes	not connected	yes rule13 not connected	-87.42950	41.58868
Gas City Unit	Fort Wayne	Wabash	no	connected	no rule13 connected	-85.56815	40.48197
Goshen Sub	Fort Wayne	Goshen	yes	connected	yes rule13 connected	-85.82408	41.57177
Grantsburg Unit	Vincennes	Tell City	no	not connected	no rule13 not connected	-86.47035	38.29677
Greenfield District	Greenfield	Greenfield	yes	connected	yes rule13 connected	-85.77993	39.78335
Greenfield Sub	Greenfield	Greenfield	yes	connected	yes rule13 connected	-85.78272	39.78212
Greensburg Unit	Seymour	Columbus	yes	not connected	yes rule13 not connected	-85.51945	39.36447
Hanna Unit (closed)	LaPorte	LaPorte	no	not connected	no rule13 not connected	-86.73800	41.42577
Indianapolis Sub	Greenfield	Indianapolis	yes	not connected	yes rule13 not connected	-86.04525	39.72615
Jasper Unit	Vincennes	Dale	yes	connected	yes rule13 connected	-86.89835	38.36563
Kentland Unit	LaPorte	Rensselaer	no	not connected	no rule13 not connected	-87.43922	40.81237
Kokomo Unit	Greenfield	Tipton	yes	not connected	yes rule13 not connected	-86.05473	40.47873
Lafayette Unit	Crawfordsville	Fowler	yes	not connected	yes rule13 not connected	-86.87205	40.48867
LaGrange Maintenance facility	Toll Road District	Angola	no	not connected	no rule13 not connected	-85.54600	41.74635
Lake Maintenance facility	Toll Road District	Gary	yes	connected	yes rule13 connected	-87.50660	41.63867
LaPorte District	LaPorte	LaPorte	yes	connected	yes rule13 connected	-86.69163	41.58508
LaPorte Maintenance facility	Toll Road District	LaPorte	no	not connected	no rule13 not connected	-86.68276	41.67366
LaPorte Sub	LaPorte	LaPorte	yes	connected	yes rule13 connected	-86.69452	41.58460
Laud Unit	Fort Wayne	Warsaw	no	not connected	no rule13 not connected	-85.46875	41.08290
Lebanon Unit	Crawfordsville	Frankfort	yes	not connected	yes rule13 not connected	-86.50633	40.07948
Liberty Unit	Greenfield	Centerville	no	not connected	no rule13 not connected	-85.01287	39.63208
Linton Sub	Vincennes	Linton	no	connected	no rule13 connected	-87.16908	39.03038
Lizton Unit	Crawfordsville	Crawfordsville	no	not connected	no rule13 not connected	-86.53697	39.89223
Logansport Unit	LaPorte	Monticello	yes	not connected	yes rule13 not connected	-86.39833	40.73513
Madison Sub (closed)	Seymour	Madison	yes	not connected	yes rule13 not connected	-85.40840	38.76238
Madison Sub (new)	Seymour	Madison	no	connected	no rule13 connected	-85.42128	38.83492
Markle Unit	Fort Wayne	Bluffton	no	not connected	no rule13 not connected	-85.34332	40.82975
Martinsville Unit	Seymour	Bloomington	no	not connected	no rule13 not connected	-86.37913	39.41078
Medaryville Unit	LaPorte	Winamac	no	not connected	no rule13 not connected	-86.89295	41.14329

Michigan City Unit	LaPorte	LaPorte	yes	not connected	yes rule13 not connected	-86.90845	41.67905
Miller Unit	LaPorte	Gary	yes	not connected	yes rule13 not connected	-87.30973	41.58628
Mishawaka Unit	LaPorte	Plymouth	yes	not connected	yes rule13 not connected	-86.15130	41.65408
Monroe Unit	Fort Wayne	Bluffton	no	not connected	no rule13 not connected	-84.95620	40.74757
Monticello Salt Dome	LaPorte	Monticello	no	not connected	no rule13 not connected	-86.74459	40.70147
Monticello Sub	LaPorte	Monticello	no	not connected	no rule13 not connected	-86.75215	40.72583
Mount Vernon Satelite	Vincennes	Evansville	no	not connected	no rule13 not connected	-87.91742	37.92195
Muncie Unit	Greenfield	Albany	yes	connected	yes rule13 connected	-85.36702	40.24028
New Albany Unit	Seymour	Falls City	yes	connected	yes rule13 connected	-85.82133	38.30925
New Castle Unit	Greenfield	Centerville	no	not connected	no rule13 not connected	-85.38698	39.87642
New Gary Sub	LaPorte	Gary	yes	not connected	yes rule13 not connected	-87.24615	41.59512
New Haven Unit	Fort Wayne	Fort Wayne	yes	connected	yes rule13 connected	-84.99467	41.06857
New Paris Unit	Fort Wayne	Goshen	no	not connected	no rule13 not connected	-85.87148	41.45160
Newport Unit	Crawfordsville	Veedersburg	no	not connected	no rule13 not connected	-87.41110	39.86968
North Manchester Unit	Fort Wayne	Warsaw	no	not connected	no rule13 not connected	-85.79533	40.99758
North Vernon Unit	Seymour	Madison	no	not connected	no rule13 not connected	-85.63975	39.02798
Orland Unit	Fort Wayne	Angola	no	not connected	no rule13 not connected	-85.17543	41.65122
Paoli Sub	Vincennes	Paoli	no	connected	no rule13 connected	-86.46447	38.56323
Paxton Unit	Vincennes	Linton	no	not connected	no rule13 not connected	-87.39995	39.02408
Penntown Unit	Seymour	Aurora	no	not connected	no rule13 not connected	-85.10188	39.28438
Peru Unit	Fort Wayne	Wabash	no	not connected	no rule13 not connected	-86.12740	40.79350
Petersburg Unit	Vincennes	Petersburg	no	connected	no rule13 connected	-87.28700	38.50253
Plainfield Unit	Crawfordsville	Cloverdale	yes	connected	yes rule13 connected	-86.39420	39.69112
Plymouth Sub	LaPorte	Plymouth	no	not connected	no rule13 not connected	-86.30215	41.41657
Porter Maintenance facility	Toll Road District	Toll Road	yes	not connected	yes rule13 not connected	-87.18375	41.58152
Portland Unit	Greenfield	Albany	no	not connected	no rule13 not connected	-85.02760	40.42023
Poseyville Unit	Vincennes	Evansville	no	connected	no rule13 connected	-87.77387	38.17018
Princeton Unit	Vincennes	Petersburg	no	connected	no rule13 connected	-87.61103	38.35663
Remington Salt Storage(I-65/US24)	LaPorte	Renesselaer	no	not connected	no rule13 not connected	-87.11718	40.76630
Rensselaer Sub (new)	LaPorte	Rensselaer	no	connected	no rule13 connected	-87.13934	40.94605
Rensselaer Sub (old)	LaPorte	Rensselaer	no	connected	no rule13 connected	-87.14537	40.94550
Rochester Unit	LaPorte	Winamac	no	not connected	no rule13 not connected	-86.24160	41.06420
Romney Unit	Crawfordsville	Crawfordsville	no	not connected	no rule13 not connected	-86.90673	40.23098
Roselawn Unit	LaPorte	Rensselaer	no	not connected	no rule13 not connected	-87.27688	41.14370
Rushville Unit	Greenfield	Greenfield	no	not connected	no rule13 not connected	-85.48338	39.59874
Salem Unit	Seymour	Falls City	no	not connected	no rule13 not connected	-86.17288	38.61957
Salisbury Road Unit	Greenfield	Centerville	yes	connected	yes rule13 connected	-84.94057	39.86688
Scottsburg Unit	Seymour	Madison	no	connected	no rule13 connected	-85.79498	38.68482
Sellersburg Unit	Seymour	Falls City	yes	connected	yes rule13 connected	-85.75246	38.34897

Seymour District	Seymour	Columbus	yes	connected	yes rule13 connected	-85.86137	38.96105
Shelburn Unit	Vincennes	Linton	no	not connected	no rule13 not connected	-87.38843	39.19505
Shelbyville Unit	Greenfield	Greenfield	yes	connected	yes rule13 connected	-85.77203	39.54858
Shipshewana	Fort Wayne	Angola	no	not connected	no rule13 not connected	-85.55447	41.66283
Shoals Unit	Vincennes	Paoli	no	not connected	no rule13 not connected	-86.81680	38.68473
South Bend Unit	LaPorte	Plymouth	yes	not connected	yes rule13 not connected	-86.32210	41.68365
Spencer Unit	Seymour	Bloomington	no	not connected	no rule13 not connected	-86.72815	39.28415
Steuben Maintenance facility	Toll Road District	Angola	no	not connected	no rule13 not connected	-85.11508	41.75210
Tell City Sub	Vincennes	Tell City	no	connected	no rule13 connected	-86.62170	38.05972
Terre Haute Sub	Crawfordsville	Terre Haute	yes	connected	yes rule13 connected	-87.32953	39.42745
Tipton Sub	Greenfield	Tipton	no	connected	no rule13 connected	-86.05382	40.28125
Toll Road District	Toll Road District	Toll Road	yes	not connected	yes rule13 not connected	-86.06230	41.73049
Trenton Unit	Greenfield	Albany	no	not connected	no rule13 not connected	-85.23190	40.45062
Unit 2 (Tibbs)	Greenfield	Indianapolis	yes	connected	yes rule13 connected	-86.21478	39.76528
Unit 3 (71st St)	Greenfield	Indianapolis	yes	not connected	yes rule13 not connected	-86.29342	39.88183
Unit 4 (65th St)	Greenfield	Indianapolis	yes	connected	yes rule13 connected	-86.07813	39.87813
Unit 5 (Madison)	Greenfield	Indianapolis	yes	connected	yes rule13 connected	-86.15597	39.75205
US 27 South Unit	Fort Wayne	Fort Wayne	yes	not connected	yes rule13 not connected	-85.09222	40.98998
Valparaiso Unit (closed)	LaPorte	LaPorte	yes	not connected	yes rule13 not connected	-87.00415	41.44878
Veedersburg Sub	Crawfordsville	Veedersburg	no	not connected	no rule13 not connected	-87.24873	40.10413
Versailles Unit	Seymour	Madison	no	not connected	no rule13 not connected	-85.26045	39.04863
Vincennes District Sub	Vincennes	Petersburg	no	connected	no rule13 connected	-87.53003	38.62882
Vincennes District Unit	Vincennes	Petersburg	no	connected	no rule13 connected	-87.53117	38.62955
Wabash Sub	Fort Wayne	Wabash	yes	connected	yes rule13 connected	-85.80355	40.82470
Wanatah Unit	LaPorte	LaPorte	no	not connected	no rule13 not connected	-86.90177	41.43468
Warren Unit	Fort Wayne	Bluffton	no	not connected	no rule13 not connected	-85.44017	40.66748
Warsaw Sub	Fort Wayne	Warsaw	no	not connected	no rule13 not connected	-85.89550	41.27053
Washington Unit	Vincennes	Petersburg	yes	connected	yes rule13 connected	-87.17182	38.64607
Waterloo Unit	Fort Wayne	Angola	no	not connected	no rule13 not connected	-85.03465	41.43775
Westfield Unit	Greenfield	Tipton	yes	not connected	yes rule13 not connected	-86.17145	40.04080
Winamac Sub	LaPorte	Winamac	no	connected	no rule13 connected	-86.60480	41.07888
Winchester Unit	Greenfield	Albany	no	connected	no rule13 connected	-84.99430	40.17255

APPENDIX D

List of Facilities, by District, Within and Outside MS4 Areas

Within MS4	Outside MS4
Crawfordsville	
Crawfordsville District	Carbondale
Crawfordsville Sub & Unit	Fowler Sub & Unit
Terre Haute Sub & Unit	Ashboro Unit
Frankfort Sub & Unit	Romney Unit
Plainfield Unit	Lizton Unit
Ft. Harrison Unit	Bainbridge Unit
Lafayette Unit	Veedersburg Sub & Unit
Lebanon Unit	Bloomingdale Unit
	Newport Unit
	Cloverdale Sub & Unit
Fort Wayne	
Fort Wayne District	New Paris Unit
Fort Wayne Sub & Unit	Markle Unit
Goshen Sub	N. Manchester Unit
Elkhart Sub & Unit	Waterloos Unit
Wabash Sub & Unit	Orland Unit
Angola Sub	Monroe Unit
New Haven Unit	Warsaw Unit
U.S. 27 South Unit	Laud Unit
	Brimfield Unit
	Shipshewanna Unit
	Peru Unit
	Bluffton Sub
	Warren Unit
	Gas City Unit
Greenfield	
Greenfield District	Fortville Unit
Greenfield Sub	Rushville Unit
Unit 2 (Tibbs)	Rushville Unit
Unit 4 (65th St.)	Centerville Sub
Unit 5 (Madison)	Cambridge City Unit
Anderson Unit	New Castle Unit
Shelbyville Unit	Liberty Unit
Richmond Unit	Trenton Unit
Alexandria Unit	Portland Unit
Muncie Unit	Westchester Unit

List of Facilities, by District, Within and Outside MS4 Areas (continued)

Inside MS4	Outside MS4
Greenfield District (continued)	
Indianapolis Sub & 2 Units	Alexandria Unit
Unit 3 (71st St.)	Albany Sub
Kokomo Unit	Tipton Sub
Westfield Unit	
LaPorte	
LaPorte District	Monticello Salt Dome
LaPorte Sub & Unit	Flora Unit
New Gary Sub	Medaryville Unit
Valparaiso Unit (closed)	Monticello Sub
Chesterton	Hanna Unit (near closure)
Logansport Unit	Roselawn Unit
South Bend Unit	Kentland Unit
Mishawaka Unit	Rochester Unit
Old Gary Sub	Plymouth Unit
Crown Point Unit	Wanatah Unit
Miller Unit	Rensselaer Sub
Michigan City Unit	Winamac Sub
Seymour	
Seymour District	Amity Unit
Bloomington Sub & Unit	North Vernon Unit
Columbus Sub & Unit	Versailles Unit
Sellersburg Sub & Unit	Salem Unit
New Albany Unit	Brookville Unit
Greensburg Unit	Spencer Unit
Madison Sub	Brookville Unit
	Aberdeen Unit
	Penntown Unit
	Martinsville Unit
	Beanblossom Unit
	Brownstown
	Aurora Sub
	Scottsburg Unit
	Corydon Unit
	New Madison sub (JPG)

List of Facilities, by District, Within and Outside MS4 (continued)

Within MS4	Outside MS4
Vincennes	
Jasper Unit	Shoals Unit
Evansville Sub & Unit 2	Grantsburg Unit
Evansville Unit 1	Paxton Unit
Chandler Unit	Birdseye Unit
Washington Unit	Linton Sub
Bedford Unit	Bloomfield Unit
	Dale Sub & Unit
	Chrisney Unit
	Poseyville Unit
	New Paoli Sub & Unit
	Tell City Sub
	Derby Unit
	Vincennes District
	Vincennes Sub & Unit
	Petersburg Unit
	Princeton Unit
Toll Road	
Lake Maintenance	LaGrange Maintenance
Porter Maintenance	Steuben Maintenance
Elkhart Maintenance	LaPorte Maintenance
Toll Road District	

APPENDIX E

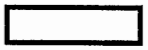
APPENDIX F

(www.ecn.purdue.edu/CMTI/INDOT/Citywwt.xls)

KEY

MS4 with Combined Sewer POTW

MS4 without Combined Sewer POTW



Non-MS4 POTWs

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From EPA file: www.epa.gov/enviro/html/pcs/adhoc.html
IDEM file: www.in.gov/idem/water/fasb/datamgmt/npdesfac/actmunfactable.xls

Facility Name	Mailing Name	Mailing Street 1	Mailing Street 2	Mailing City	ZIP Code	Latitude	Longitude	Official Representative	Official Representative Telephone Number	Pop (2000)	CS	Q Design	% San	% Ind	County
ADAMS LAKE RSD	ADAMS LAKE RSD	P.O. BOX 376		WOLCOTTVILLE	46795	4132259	-8519594	LINDA KEISTER	(219) 244-6446	-		0.069	100		LAGRANGE
ADVANCE WWTP	ADVANCE MUNICIPAL STP	112 N. MAIN ST.	P.O. BOX 67	ADVANCE	46102	3958514	-8636460	MR. MARK C. LANDRUM	(765) 676-6611	562		0.06	100		BOONE
AKRON MUNICIPAL WWTP	AKRON WWTP	TOWN OF AKRON	P.O. BOX 218	AKRON	46910	4102424	-8602076	MR. CHARLES MILLER	(219) 893-4123	1,076	*	0.25	70	30	FULTON
ALBANY WWTP	ALBANY SEWAGE TREATMENT PLANT	210 EAST STATE ST.		ALBANY	47320	4017451	-8514522	MR. DEWAYNE STEVENS, SUPT.	(765) 789-6541	2,368		0.3	100	5	DELAWARE
ALBION MUNICIPAL WWTP	ALBION SEWAGE TREATMENT PLANT	P.O. BOX 27	110 S. ORANGE ST.	ALBION	46701	4122519	-8526096	MR. JOHN D. FORKER	(219) 636-2246	2,284	*	0.34	25	20	NOBLE
ALEXANDRIA WWTP	ALEXANDRIA WWTP	125 N. WAYNE ST.		ALEXANDRIA	46001	4015483	-8542165	HON. STEVEN SKAGGS	(765) 724-4733	6,260	*	1.2	75		MADISON
ALLEN CNTY RSD	ALLEN CNTY REGNAL SWR DIS.	BOARD OF TRUSTEES	3535 HARRIS ROAD	FORT WAYNE	46808	410989	-851757	MR. KEN HILLGEMAN	(219) 623-3592	-		0.052	100		ALLEN
AMO COATSVILLE MUNICIPAL SEWAG	AMO-COATSVILLE MUNICIPAL STP	P. O. BOX 59		AMO	46103	3941162	-8638234	MR. RON LAMB, SUPT.	(317) 539-5168	414		0.1	100		HENDRICKS
ANDERSON	ANDERSON S.T.P.	2801 GENE GUSTIN WAY		ANDERSON	46011	4006460	-8542590	MR. TOM L. BENNINGTON	(765) 646-5738	59,734	*	21.25	24	17	MADISON
ANDERSON TOWNSHIP RSD	ANDERSON TOWNSHIP R.S.D.	MILR0Y UTILITIES CORP	P.O. BOX 188	MILROY	46156	3929136	-8528148	MR. JOE CHRISTMAN, CERT. OP.	(765) 629-2913	-		0.08	100	>10	RUSH
ANDREWS MUNICIPAL WWTP	ANDREWS MUNICIPAL WWTP	800 NORTH MAIN STREET		ANDREWS	46702	4052000	-8536000	MR. SHADY ALLEN	(219) 786-3848	1,290		0.35	100		HUNTINGTON
ANGOLA WWTP	ANGOLA WWTP	270 EAST REDDING ROAD		ANGOLA	46703	4137400	-8459050	MICHAEL KELEMAN	(219) 665-6806	7,344	*	1.4	35	15	STEUBEN
ARCADIA WWTP	TOWN OF ARCADIA STP	P.O. BOX 578	208 WEST MAIN STREET	ARCADIA	46030	4010249	-8600270	MR. JEFFREY FISH	(317) 984-2202	1,747		0.304	70		HAMILTON
ARGOS MUNICIPAL WWTP	TOWN OF ARGOS STP	101 S. FIRST STREET		ARGOS	46501	4114048	-8615465	MR. JERRY L. BECKER	(219) 892-5878	1,613		0.2			MARSHALL
ASHLEY MUNICIPAL WWTP	ASHLEY MUNICIPAL STP	P.O. BOX 70		ASHLEY	46705	4131496	-8503412	MR. TERRY BENNETT	(219) 587-9526	1,010		0.188			STEUBEN
ATLANTA WWTP	ATLANTA MUNICIPAL WWTP	C/O KENNETH KEESEE	P.O. BOX 133	ATLANTA	46031	4013314	-8600468	RICK MATLOCK	(765) 292-2626	761		0.08			HAMILTON
ATTICA MUNICIPAL WWTP	ATTICA WWTP	305 E. MAIN ST.		ATTICA	47918	4017286	-8715199	MR. LARRY R. SIBLE	(765) 762-3664	3,491	*	0.665	95		FOUNTAIN
AUBURN WWTP	AUBURN WWTP	BOX 506	9TH & CEDAR ST.	AUBURN	46706	4120545	-8503394	MR. DAVID LOCHNER	(219) 925-1714	12,074	*	4.5	40	30	DE KALB
AURORA CITY	AURORA UTILITIES	218 THRID ST.		AURORA	47001	3903256	-8453585	HON. LEON KELLY	(812) 926-1777	3,965	*				DEARBORN
AUSTIN WWTP	AUSTIN MUNICIPAL WWTP	SOUTH 7TH STREET		AUSTIN	47102	3844002	-8548422	MR. HOWARD WATTS, SUPT.	(812) 794-3107	4,724		1	100		SCOTT
AVILLA MUNICIPAL WWTP	TOWN OF AVILLA WWTP	P.O. BOX 49	117 S. MAIN_STREET	AVILLA	46710	4121291	-8514015	MR. WILLIAM LEY	(219) 897-3000	2,049	*	0.16	75	17	NOBLE

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BAINBRIDGE MUNICIPAL WWTP	BAINBRIDGE MUNICIPAL STP	P. O. BOX 343		BAINBRIDGE	46105	3945147	-8647548	MR. JEFFERY S. KIGER, PRES.	(765) 522-6238	743		0.057	100		PUTNAM
BARGERSVILLE MUNICIPAL WWTP	BARGERSVILLE MUNICIPAL STP	5711 W. SMITH VALLEY ROAD		BARGERSVILLE	47106	3931174	-8610394	MR. JOHN SCOTT	(317) 422-5115	2,120		0.144	100		JOHNSON
BASS LAKE CD	BASS LAKE CD	P.O. BOX 461		KNOX	46534	4114147	-8636157	MR. TOM JORDAN		-		0.2916			STARKE
BATESVILLE WWTP	BATESVILLE WWTP	200 SOUTH MAIN ST		BATESVILLE	47006	3917496	-8514272	MR. RANDY GIBBS, SUPT.	(812) 934-5338	6,033		1.23	100	50	RIPLEY
BATTLE GROUND MUNICIPAL WWTP	BATTLEGROUND STP	P.O. BOX 303		BATTLEGROUND	47920	4030259	-8650492	MR. JAY MCMILLIN	(765) 567-2603	1,323		0.26	100		TIPPECANOE
BEDFORD WWTP	BEDFORD CITY UTILITIES	WWTP	919 14TH STREET	BEDFORD	47421	3850208	-8631188	MR. JEFFERY L. KENDALL, SUPT.	(812) 275-4901	13,768		3	90	25	LAWRENCE
BELLEVILLE CD	BELLEVILLE CD	P. O. BOX 209		CLAYTON	46118	3940259	-8627084	MR. ROBERT CHRISTIAN, CHAIRMAN	(317) 745-4928	-		0.095	100		HENDRICKS
BERNE MUNICIPAL WWTP SITE 1	BERNE MUNICIPAL WWTP	343 EAST 550 SOUTH		BERNE	46711	4040047	-8456489	MR. RON CRIDER, SUPT.	(219) 589-3425	4,150	*	0.6	0	20	ADAMS
BICKNELL MUNICIPAL WWTP	BICKNELL MUNICIPAL STP	P.O. BOX 127	119 E. 2ND ST.	BICKNELL	47512	3845547	-8718393	HON. GORDON STINEBAUGH, MAYOR	(812) 735-4636	3,378		0.5	100		KNOX
BIRDSEYE MUNICIPAL WWTP	BIRDSEYE MUNICIPAL STP	P.O. BOX 93 (TOWN HALL)		BIRDSEYE	47513	3817550	-8641219	MR. RON GROESCHEN	(812) 482-3277	465		0.08	100		DUBOIS
BLOOMFIELD MUNICIPAL WWTP	BLOOMFIELD MUNICIPAL STP	P. O. BOX 411		BLOOMFIELD	47424	3901000	-8658000	MR. GARY BRADFIELD	(812) 384-8013	2,542		0.22	100		GREENE
BLOOMINGTON, BLUCHER POOLE	BLOOMINGTON - NORTH PLANT	BLUCHER POOLE STP	P.O. BOX 1216	BLOOMINGTON	47402	3914468	-8632549	MR. TED E. FLYNN, SUPT.	(812) 876-4875	34,646		6	100		MONROE
BLOOMINGTON, DILLMAN ROAD	BLOOMINGTON - SOUTH PLANT	DILLMAN ROAD STP	P.O. BPX 100	BLOOMINGTON	47402	3905366	-8632578	MR. BILL BARDES, PLT. MGN.	(812) 824-4900	34,646		15	100	25	MONROE
BLUFFTON MUNICIPAL STP	BLUFFTON MUNICIPAL STP	702 NORTH MAIN STREET		BLUFFTON	46714	4044514	-8510196	MR. ROBERT MOHLER	(219) 824-5430	9,536	*	2.6	94	10	WELLS
BOONVILLE MUNICIPAL STP	BOONVILLE MUNICIPAL WWTP	CITY HALL P.O. BOX 585		BOONVILLE	47601	3802541	-8717207	MR. RANDALL ALLEN, CERT. OPER.	(812) 897-2118	6,834	*	1.44			WARRICK
BORDEN MUNICIPAL WWTP	NEW PROVIDENCE MUNICIPAL WWTP	P. O. BOX 125	BORDEN TOWN HALL	BORDEN	47106	3827431	-8555443	MR. PAT KELLY	(812) 967-3014	818		0.14	100		CLARK
BOSWELL MUNICIPAL WWTP	BOSWELL MUNICIPAL STP	106 N. ADAMS, P.O. BOX 223		BOSWELL	47921	4030497	-8722307	MR. JAMES WITT, CERT. OPER.	(765) 869-5020	827		0.13	100		BENTON
BOURBON MUNICIPAL WWTP	TOWN OF BOURBON STP	104 EAST PARK AVE.		BOURBON	46504	4117540	-8607000	MR. MARVIN MARTIN	(219) 342-2574	1,691		0.28	100		MARSHALL
BRAZIL MUNICIPAL STP	BRAZIL MUNICIPAL STP	203 EAST NATIONAL AVE		BRAZIL	47834	3928591	-8706185	SHIRLEY JOLLY	(812) 448-8146	8,188	*	1.1	90		CLAY
BREMEN WWTP	BREMEN WWTP	104 WEST PLYMOUTH ST.		BREMEN	46506	4127070	-8610190	MR. WILLIAM REED	(219) 546-3829	4,486	*	1.3	75	20	MARSHALL

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BRISTOL MUNICIPAL WWTP	BRISTOL MUNICIPAL STP	P.O. BOX 305	1300 WEST VISTULA ST	BRISTOL	46507	4143078	-8549551	JOHN SUPPER, CERT. OP.	(219) 848-7931	1,382		0.5	100		ELKHART
BROOK MUNICIPAL WWTP	BROOK MUNICIPAL WWTP	P. O. BOX 182	223 W. MAIN ST.	BROOK	47922	4051500	-8721400	MR. TOM CARROLL	(219) 275-6181	1,062		0.1	100		NEWTON
BROOKLYN WWTP	BROOKLYN MUNICIPAL STP	10 N. MAIN ST.		BROOKLYN	46111	3932180	-8622060	MR. KIERAN F. TANSY	(317) 831-7781	1,545		0.24	100		MORGAN
BROOKSTON MUNICIPAL WWTP	BROOKSTON WWTP	P. O. BOX 238	205 E. THIRD ST.	BROOKSTON	47923	4035340	-8651516	MR. MAX L. ELDRIDGE	(765) 563-6412	1,717		0.2			WHITE
BROOKVILLE TOWN HALL	BROOKVILLE MUNICIPAL STP	634 MAIN ST.		BROOKVILLE	47012	3925000	-8501000	MR. JOHN M. GINDLING	(765) 647-5224	2,652		0.71	0.95		FRANKLIN
BROWNSBURG WWTP	BROWNSBURG WWTP	80 E. VERMONT ST.		BROWNSBURG	46112	3950321	-8624297	KATHLEEN DILLON	(317) 852-1114	14,520	*	2.4	75	1	HENDRICKS
BROWNSTOWN WASTEWATER T.P.	BROWNSTOWN WASTEWATER T.P.	200 W. WALNUT ST.		BROWNSTOWN	47220	3852561	-8603451	MR. SCOTT HUNSUCKER	(812) 358-4274	2,978		0.892	100	6	JACKSON
BRYANT MUNICIPAL WWTP	BRYANT MUNICIPAL WWTP	P.O. BOX 115		BRYANT	47326	4031437	-8457228	DAVID L. MCGRAW	(765) 369-2064	272		0.03			JAY
BUNKER HILL MUNICIPAL WWTP	BUNKER HILL MUNICIPAL WWTP	P.O. BOX 565	144 W. BROADWAY	BUNKER HILL	46914	4040016	-8606018	MR. DAN JABERG, PRESIDENT	(765) 689-9096	987		0.2	100		MIAMI
BURLINGTON MUNICIPAL WWTP	BURLINGTON MUNICIPAL STP	P.O. BOX 399		BURLINGTON	46915	4028500	-8623500	MR. TED KELLER, CERT. OPER.	(765) 566-3611	444		0.1	100	>10	CARROLL
BURNETTSVILLE WWTP	BURNETTSVILLE MUNICIPAL STP	P. O. BOX 7		BURNETTSVILLE	47926	4045032	-8636333	MR. JIM SAYLOR	(219) 826-4114	373		0.0455	100		WHITE
BURNS HARBOR POTW	BURNS HARBOR & BETHLEHEM STEEL	WWTP		BURNS HARBOR	46304	416139	-870454	R. A. MACIEL	(219) 787-2712	766		0.25			PORTER
BUTLER MUNICIPAL WWTP	CITY OF BUTLER STP	201 SOUTH BROADWAY ST		BUTLER	46721	4125596	-8451320	MR. WM TED MILLER, SUPT.	(219) 868-2805	2,725	*	0.4	20	5	DE KALB
CAMBRIDGE CITY WWTP	WESTERN WAYNE REG SEWER DIST	P.O. BOX 303	200 SOUTH PLUM STREET	CAMBRIDGE CITY	47327	3948370	-8509590	MS. DARLENE DRULEY, SUPT.	(765) 478-3788	2,121		0.804	100	50	WAYNE
CAMDEN MUNICIPAL WWTP	TOWN OF CAMDEN STP	P.O. BOX 105		CAMDEN	46917	4036000	-8632000	MR. JERRY SNAVELY	(219) 686-2121	582		0.09	100	>10	CARROLL
CAMPBELLSBURG MUNICIPAL WWTP	CAMPBELLSBURG WWTP	P.O. BOX 207		CAMPBELLSBURG	47108	3839239	-8616245	MR. JACK HEDRICK, PRES.	(812) 755-4878	578		0.08	100		WASHINGTON
CARBON MUNICIPAL STP	CARBON MUNICIPAL_STP	P.O. BOX 338	TOWN HALL	CARBON	47837	3936179	-8705586	MR. ERNEST F. EGLOFF	(812) 448-8235	334		0.025	100		CLAY
CARLISLE MUNICIPAL WWTP	CARLISLE MUNICIPAL STP	P.O. BOX 277		CARLISLE	47838	3857400	-8724000	MR. JOHN MONTGOMERY	(812) 398-2341	2,660		0.351			SULLIVAN
CARMEL WWTP	CARMEL MUNICIPAL WWTP	CITY OF CARMEL	ONE CIVIC SQUARE	CARMEL	46032	3955384	-8604426	MR. JOHN DUFFY	(317) 571-2634	37,733		8.88	100	5	HAMILTON
CARTHAGE MUNICIPAL WWTP	CARTHAGE WWTP	P.O. BOX 26.	WEST FIRST STREET	CARTHAGE	46115	3943390	-8534547	JAY POWER	(317) 565-6580	928		0.15	100		RUSH
CENTER POINT TOWN OF	CENTER POINT WASTEWATER PLANT	C/O BROWN ENGINEERING SERVICES	RR #2, BOX 4	CENTER POINT	47480	3924500	-8703490	MR. ROGER CAMPBELL/DAVID BROWN	(812) 835-5151	292		0.055	100		CLAY

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CENTERVILLE MUNICIPAL WWTP	TOWN OF CENTERVILLE STP	P. O. BOX 125	204 E. MAIN ST.	CENTERVILLE	47330	3949090	-8500257	MR. JAY WERKING	(765) 855-5515	2,427		0.5	100	>1	WAYNE
CHALMERS MUNICIPAL STP	CHALMERS MUNICIPAL STP	P.O. BOX 827		CHALMERS	47929	4038096	-8652056	MR. PERRY HUGHES	(219) 984-5494	513		0.09	100		WHITE
CHANDLER MUNICIPAL WWTP	CHANDLER MUNICIPAL STP	101 CONSTITUTION COURT		CHANDLER	47610	3802025	-8723025	MR. RAY WILKEY, CERT. OPER.	(812) 925-6916	3,094		0.7	100		WARRICK
CHARLESTOWN MUNICIPAL WWTP	CHARLESTOWN MUNICIPAL WWTP	CITY OF CHARLESTOWN	304 MAIN CROSS ST	CHARLESTOWN	47111	3826101	-8539218	BOB HALL, MAYOR	(812) 256-7131	5,993		0.689	100		CLARK
CHESTERFIELD MUNICIPAL WWTP	CHESTERFIELD MUNICIPAL STP	P. O. BOX 95		CHESTERFIELD	46017	4007000	-8536000	MR. DON CARPENTER		2,969	*				MADISON
CHESTERTON STP	CHESTERTON UTILITIES	300 LEAGUE LANE		PORTER	46304	4137090	-8703500	CHERYL SCULLY, CERT. OPER.	(219) 926-1032	10,488	*	2.75	86	>1	PORTER
CHRISNEY MUNICIPAL WWTP	TOWN OF CHRISNEY WWTP	P.O. BOX 26	CHESTNUT STREET	CHRISNEY	47611	3801037	-8702267	MR. JOHN C. GRAHAM	(812) 362-8668	544		0.07	100		SPENCER
CHURUBUSCO MUNICIPAL WWTP	CHURUBUSCO WWTP	9380 E. STATE ROAD 205		CHURUBUSCO	46723	4113597	-8518407	MR. JAMES HORNE	(219) 693-2943	1,666		0.25	100	21	WHITLEY
CICERO MUNICIPAL WWTP	CICERO MUNICIPAL STP	P. O. BOX 391	150 W. CASS	CICERO	46034	4007169	-8601076	MR. PATRICK A. COMER SUPT.	(317) 984-5696	4,303		0.5	75		HAMILTON
CLARKS HILL MUNICIPAL WWTP	CLARKS HILL MUNICIPAL WWTP	P. O. BOX 146		CLARKS HILL	47930	4014480	-8643180	MR. ALOYISIUS THOMPSON	(765) 523-2215	680		0.15	100		TIPPECANOE
CLARKSVILLE WWTP	CLARKSVILLE MUNICIPAL STP	230 E. MONTGOMERY AVE.		CLARKSVILLE	47129	3817484	-8546247	MR. TIMOTHY CRAWFORD	(812) 283-1529	21,400		3.1	100	10	CLARK
CLAY CITY MUNICIPAL WWTP	CLAY CITY MUNICIPAL WWTP	PRESIDENT OF TOWN BOARD	P.O. BOX 87	CLAY CITY	47841	3916388	-8707185	MR. RICK SWEARINGEN, PRESIDENT	(812) 232-6564	1,019		0.12	100		CLAY
CLAYPOOL MUNICIPAL WWTP	CLAYPOOL MUNICIPAL STP	TOWN HALL (FIRE STATION)	P.O. BOX 6	CLAYPOOL	46510	4107400	-8552500	MR. DONALD MILLER, PRES.	(219) 566-2322	311		0.05	100		KOSCIUSKO
CLAYTON MUNICIPAL WWTP	CLAYTON MUNICIPAL WWTP	P.O. BOX 23		CLAYTON	46118	3940541	-8630489	MR. GEORGE BURNETT, JR.	(317) 539-2333	693		0.15	100		HENDRICKS
CLEAR CREEK CD	CLEAR CREEK CD	P.O. BOX 134		COATESVILLE	46121	3942553	-8643362	MR. DOUG CLODFELTER	(765) 246-6752	-		0.14			PUTNAM
CLINTON	CITY OF CLINTON	259 VINE ST.		CLINTON	47842	3939142	-8723519	MR. LARRY BEARD	(765) 832-8891	5,126	*	1	94		VERMILLION
CLOVERDALE MUNICIPAL WWTP	CLOVERDALE MUNICIPAL WWTP	P.O. BOX 222		CLOVERDALE	46120	3930360	-8647360	MR. THOMAS TERRY	(765) 795-3350	2,243		0.7	100		PUTNAM
COLFAX MUNICIPAL WWTP	COLFAX MUNICIPAL WWTP	P. O. 264		COLFAX	46035	4011236	-8639379	MR. BOB STAMBAUGH, VICE PRES.	(765) 324-2195	768		0.11	60		CLINTON
COLUMBIA CITY WWTP	COLUMBIA CITY MUNICIPAL WWTP	CITY HALL		COLUMBIA CITY	46725	4108416	-8529247	MR. HOWARD E. LOWEN, JR.	(219) 244-4511	7,077	*	1.9	5		WHITLEY

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COLUMBUS WWTP	COLUMBUS CITY UTILITIES-WWTP	P.O. BOX 1987		COLUMBUS	47202	3911521	-8555131	MR. HAROLD M DYER	(812) 376-3725	39,059	*	12.4	63		BARTHOLOMEW
CONNERSVILLE MUNICIPAL STP	CONNERSVILLE UTILITIES	P.O. BOX 325		CONNERSVILLE	47331	3937383	-8508301	MR. HAROLD J. ELLISON	(317) 825-9411	15,411	*	10.8	50	32	FAYETTE
CONVERSE MUNICIPAL WWTP	CONVERSE MUNICIPAL STP	P. O. 473		CONVERSE	46919	4035000	-8552300	MR. BUD CARTWRIGHT	(765) 395-5244	1,137		0.25	100		GRANT
CORUNNA TOWN OF	CORUNNA MUNICIPAL WWTP	TOWN OF CORUNNA	TOWN HALL P.O.BOX 62	CORUNNA	46730	4126052	-8509216	MR. JEFF BARTELS	(219) 357-5449	254		0.024	100		DE KALB
CORYDON MUNICIPAL STP	CORYDON MUNICIPAL STP	113 N. OAK ST.		CORYDON	47112	3812320	-8607478	MR. FRED K. CAMMACK	(812) 738-4234	2,715		2	100	50	HARRISON
COVINGTON MUNICIPAL WWTP	COVINGTON MUNICIPAL STP	1329 2ND STREET	P.O. BOX 248	COVINGTON	47932	4008300	-8723420	MR. TOM EDWARDS	(765) 793-4955	2,565		0.35	100		FOUNTAIN
CRAWFORDSVILLE WWTP	CRAWFORDSVILLE MUNICIPAL WWTP	CITY BLDG.	300 E. PIKE	CRAWFORDSVILLE	47933	4002460	-8654440	HON. PHILIP Q. MICHAL	(317) 364-5170	15,243	*	3.4	99	20	MONTGOMERY
CROMWELL MUNICIPAL WWTP	CROMWELL MUNICIPAL WWTP	P.O. BOX 574, 200 WATER ST.		CROMWELL	46732	4124469	-8536033	MR. CLARK REED	(219) 856-3766	452		0.15	100	33	NOBLE
CROTHERSVILLE MUNICIPAL WWTP	CROTHERSVILLE MUNICIPAL STP	101 W. HOWARD ST.		CROTHERSVILLE	47229	3847255	-8550564	MR. BILLY DEATON	(812) 793-2540	1,570	*	0.47	20		JACKSON
CROWN POINT WWTP	CROWN POINT MUNICIPAL WWTP	101 NORTH EAST ST.		CROWN POINT	46307	4126060	-8721304	RON HENLEY	(219) 662-3255	19,806	*	0.6		1	LAKE
CULVER MUNICIPAL WWTP	TOWN OF CULVER STP	200 E. WASHINGTON		CULVER	46511	4113060	-8625180	MR. JOE SHEPPARD	(219) 842-2412	1,539		0.38	100		MARSHALL
CUMBERLAND SEWAGE UTILITY	TOWN OF CUMBERLAND STP	P. O. BOX 29155	11501 E. WASHINGTON	CUMBERLAND	46229	3946300	-8557000	RON SULLIVAN, TOWN COUNCIL PRES.	(317) 894-4600	5,500		0.538	90	5	MARION
DALE MUNICIPAL WWTP	TOWN OF DALE WWTP	P.O. BOX 117	103 S. WALLACE ST	DALE	47523	3809046	-8659023	FREDERICK WEBER, PRES.	(812) 937-2040	1,568		0.444	100		SPENCER
DANVILLE MUNICIPAL WWTP	DANVILLE WATER POLL CTRL FACIL	147 WEST MAIN STREET	77 NORTH KENTUCKY ST.	DANVILLE	46122	3945178	-8630357	KIERAN TANSY, CERT. OPER.	(317) 745-4928	1,658		1.2	100		HENDRICKS
DARLINGTON MUNICIPAL WWTP	DARLINTON MUNICIPAL WWTP	P. O. BOX 578		DARLINGTON	47940	4006247	-8646038	MR. RICHARD SMITH	(765) 764-4496	854		0.09	75		MONTGOMERY
DARMSTADT WWTP	DARMSTADT WWTP	P. O. 386	559 HOING ROAD	EVANSVILLE	47711	3805391	-8734084	MR. BERNHARDT KAHRE, PRES.	(812) 867-1413	1,313		0			VANDERBURGH
DECATUR WWTP	CITY OF DECATUR STP	CITY HALL	225 WEST MONROE ST	DECATUR	46733	4050530	-8455467	HON. FRED R. ISCH	(219) 724-4218	9,528	*	2.8	70		ADAMS
DELPHI WWTP	DELPHI MUNICIPAL WWTP	P. O. BOX 8B	RR 2	DELPHI	46923	4034496	-8640506	MR. RICHARD W. VAN SICKLE	(765) 564-2313	3,015		1.5	95		CARROLL
DEMOTTE MUNICIPAL WWTP	DEMOTTE MUNICIPAL WWTP	P.O. BOX 368	13390 N. 900 W.	DEMOTTE	46310	4112322	-8713072	MR. RICHARD HIGGINS	(219) 987-5350	3,234		0.4	100		JASPER
DENVER MUNICIPAL STP	DENVER MUNICIPAL STP	P.O. BOX 45		DENVER	46926	4051366	-8604549	MR. BRUCE MURPHY	(765) 985-2765	541		0.05	100		MIAMI
DILLSBORO MUNICIPAL WWTP	TOWN OF DILLSBORO STP	P. O. BOX 127		DILLSBORO	47018	3901080	-8504322	MR. WILLIAM R. SCHMATZ	(812) 432-3243	1,436		0.17	100		DEARBORN

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DUGGER MUNICIPAL WWTP	DUGGER MUNICIPAL STP	P.O. BOX 146		DUGGER	47848	3904324	-8716572	MR. MARK VAUGHN	(812) 648-2173	955		0.125	100		SULLIVAN
DUNKIRK MUNICIPAL WWTP	DUNKIRK WASTE WATER DEPT.	131 S. MAIN ST.		DUNKIRK	47336	4022478	-8513070	MR. GREG BUCKNER	(765) 768-6401	2,646		0.7	100		JAY
DUPONT WWTP	DUPONT WWTP	P. O. BOX 116		DUPONT	47231	3853139	-8532087	JOSEPH HOLTGREWE, CERT. OPER.	(812) 265-8328	392		0.07	100		JEFFERSON
DYER WWTP	TOWN OF DYER MUNICIPAL STP	ONE TOWN SQUARE		DYER	46311	4129586	-8730571	MR. JEFF DZUROVCAK	(219) 865-4224	13,895		1.5	100		LAKE
EAST CHICAGO SANITARY DISTRICT	EAST CHICAGO MUNICIPAL WWTP	BOARD OF SANITARY COMM.	4525 INDIANAPOLIS BLVD.	EAST CHICAGO	46312	4137050	-8728440	HON. ROBERT PASTRICK	(219) 391-8466	32,414	*	15	40	25	LAKE
EAST ENTERPRISE REG. SEW. DIS.	EAST ENTERPRISE REG. SEW. DIS.	TOWN OF EAST ENTERPRISE	P.O. BOX 91	EAST ENTERPRISE	47019	3853486	-8458418	MS. LINDA F. ELAM	(812) 534-3442	-		0.1			SWITZERLAND
EATON CITY OF	EATON MUNICIPAL STP	P.O. BOX 218	600 EAST HARRIS ST	EATON	47338	4020312	-8522077	MR. LARRY L. BELL	(765) 396-3941	1,603	*	0.3	60		DELAWARE
EDINBURGH WWTP	EDINBURGH MUNICIPAL WWTP	P.O.BOX 65		EDINBURGH	46124	3921120	-8558490	MR. BILL MEAD, CERT. OPER.	(812) 526-3530	4,505		2	65		JOHNSON
ELBERFELD MUNICIPAL WWTP	ELBERFELD MUNICIPAL WWTP	P.O. BOX 37		ELBERFELD	47613	3808148	-8727288	MR. PAUL FISCHER	(812) 983-4365	636		0.3	100		WARRICK
ELDEN KUEHL WWTP	VALPARAISO MUNICIPAL STP	166 LINCOLNWAY		VALPARAISO	46383	4128044	-8704346	MR. RICHARD E. CONDON	(219) 464-4973	27,428	*	6	100	7	PORTER
ELIZABETHTOWN MUNICIPAL STP	ELIZABETHTOWN MUNICIPAL STP	P.O. BOX 192		ELIZABETHTOWN	47232	3908176	-8549021	MR. RONALD MIDDLETON	(812) 527-2908	391		0.08	100		BARTHOLOMEW
ELKHART WWTP	ELKHART WWTP	229 S. 2ND ST.		ELKHART	46516	4140357	-8600138	ARTHUR K. UMBLE	(219) 293-2572	51,874	*	20	88	50	ELKHART
ELLETTSVILLE MUNICIPAL WWTP	ELLETTSVILLE MUNICIPAL WWTP	221 NORTH SALE ST.		ELLETTSVILLE	47429	3915575	-8637416	MR. JEFF FARMER	(812) 876-1287	5,078		2.3	100		MONROE
ELNORA WWTP	ELNORA MUNICIPAL WWTP	P.O. BOX 336		ELNORA	47529	3852152	-8704466	MR. DAN EMMONS	(812) 692-5780	721		0.1	100		DAVIESS
ELWOOD WWTP	ELWOOD CITY UTILITIES	1601 MAIN STREET		ELWOOD	46036	4016043	-8550594	MR. C. M. WASHBURN	(765) 552-5512	9,737	*	3.22	5	15	MADISON
ENGLISH MUNICIPAL WWTP	ENGLISH MUNICIPAL WWTP	P.O. BOX 258		ENGLISH	47118	3820084	-8628158	MR. MICHAEL BENHAM, PRES.	(812) 338-2654	673		0.0532	100		CRAWFORD
ETNA GREEN MUNICIPAL WWTP	ETNA GREEN MUNICIPAL WWTP	TOWN HALL	P.O. BOX 183	ETNA GREEN	46524	4116487	-8603184	MR. BARRY BAKER	(219) 858-9076	663		0.0455	100		KOSCIUSKO
EVANSVILLE WWTP	EVANSVILLE WEST WWTP	1500 WATER WORKS ROAD		EVANSVILLE	47713	3757588	-8737036	MR. HARRY LAWSON	(812) 426-2820	60,791	*	18			VANDERBURGH
EVANSVILLE WWTP	EVANSVILLE EAST WWTP	1500 WATER WORKS ROAD		EVANSVILLE	47713	3757160	-8734057	MR. HARRY LAWSON	(812) 426-2820	60,791	*	20.6			VANDERBURGH
FAIRMOUNT MUNICIPAL WWTP	FAIRMOUNT MUNICIPAL WWTP	214 W. WASHINGTON		FAIRMOUNT	46928	4025242	-8538577	MR. STEVEN DEAL	(765) 948-4313	2,992	*	0.55	45	5	GRANT
FALL CREEK WWTP	FALL CREEK RWD	P.O. BOX 59		PENDLETON	46064	3958048	-8547431	MR. JERRY D. KELLY	(765) 778-7544	3,873		1.96	100		MADISON

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FARMERSBURG MUNICIPAL WWTP	FARMERSBURG MUNICIPAL WWTP	P.O. BOX 468		FARMERSBURG	47850	3914461	-8722034	MS. MARIE DAVIS	(812) 232-6564	1,180		0.15	100		SULLIVAN
FARMLAND WWTP	TOWN OF FARMLAND STP	P. O. BOX 336		FARMLAND	47340	4011104	-8507091	MR. DUANE L. COX	(765) 468-6701	1,456		0.165	100		RANDOLPH
FERDINAND MUNICIPAL WWTP	TOWN OF FERDINAND WWTP	TOWN OF FERDINAND	P.O. BOX 7, 543 W. 5TH ST.	FERDINAND	47532	3813163	-8652059	MR. ROGER SCHAEFER	(812) 367-2283	2,277		0.338	100	11	DUBOIS
FISHERS CHEENEY CREEK WWTP	FISHERS CHEENEY CREEK WWTP	FISHERS MUN. BLDG.	ONE MUNICIPAL DRIVE	FISHERS	46038	3956034	-8603544	MR. MIKE DAVIS	(317) 849-6260	18,918		1	100		HAMILTON
FISHERS WWTP	FISHERS WWTP	1 MUNICIPAL DRIVE		FISHERS	46038	3958000	-8602420	MR. MIKE DAVIS	(317) 849-6260	18,918		1.1	100	93	HAMILTON
FLORA MUNICIPAL WWTP	FLORA MUNICIPAL WWTP	507 NORTH DIVISION ST		FLORA	46929	4032480	-8631240	MR. WILLIAM L. MCCARTY	(219) 967-3005	2,227		0.428			CARROLL
FORT BRANCH SEWAGE DEP	TOWN OF FORT BRANCH STP	P.O. BOX 40	210 WEST LOCUST ST.	FORT BRANCH	47648	3814155	-8734519	MR. DONALD GRIES, PRES.	(812) 753-3538	2,320		0.655	100		GIBSON
FORT WAYNE WWTP	FT. WAYNE CITY UTILITIES	WPC PLANT	2601 DWENGER AVE	FORT WAYNE	46803	4104466	-8506158	CHERYL CRONIN	(219) 427-1243	205,727	*	60	70	6	ALLEN
FORTVILLE MUNICIPAL WWTP	TOWN OF FORTVILLE STP	714 EAST BROADWAY		FORTVILLE	46040	3956006	-8551417	MR. ROBERT LANE, CERT. OP.	(317) 485-5432	3,444	*	0.7	50	10	HANCOCK
FOUNTAIN CITY MUNICIPAL WWTP	FOUNTAIN CITY MUNICIPAL WWTP	P.O. BOX 312		FOUNTAIN CITY	47341	3957200	-8455200	MR. BOBBY SHAFFER	(765) 847-2251	735		0.108	100		WAYNE
FOWLER WWTP	FOWLER MUNICIPAL STP	307 E. 5TH ST.		FOWLER	47944	4036317	-8719133	MR. ALAN LEUCK	(765) 884-0680	2,415		0.75	100		BENTON
FRANCESVILLE MUNICIPAL WWTP	FRANCESVILLE MUNICIPAL STP	P.O. BOX 616		FRANCESVILLE	47946	4059100	-8652500	MR. DOUG GUTWEIN	(219) 567-9521	905		0.12			PULASKI
FRANKFORT WWTP	FRANKFORT MUNICIPAL WWTP	16 N. MAIN ST.		FRANKFORT	46041	4017557	-8630245	MR. DENNIS SHIRAR	(765) 659-4741	16,662	*	4.68	20	20	CLINTON
FRANKLIN WWTP	FRANKLIN MUNICIPAL WWTP	796 SOUTH STATE STREET		FRANKLIN	46131	3928062	-8602265	MR. RICK LITTLETON	(317) 736-3640	19,463		4	80	30	JOHNSON
FRANKTON MUNICIPAL WWTP	FRANKTON MUNICIPAL STP	P.O. BOX 286	105 CHURCH STREET	FRANKTON	46044	4013332	-8546584	MR. JERRY HEATH	(317) 754-7013	1,905		0.286	100		MADISON
FREMONT WWTP	FREMONT MUNICIPAL STP	P.O. BOX 602	205 N. TOLFORD	FREMONT	46737	4143500	-8455500	JAMES HUMBARGER, CERT. OPER.	(219) 495-9933	1,696		0.3	100		STEUBEN
FRENCH LICK MUNICIPAL WWTP	TOWN OF FRENCH LICK STP	P. O. BOX 10		FRENCH LICK	47432	3834243	-8636572	MR. TONY WILLOUGHBY	(812) 936-4513	1,941		0.7	30	10	ORANGE
FULTON WWTP	FULTON WWTP	TOWN COUNCIL OF FULTON	P.O. BOX 155	FULTON	46931	4057424	-8615528	MR. ELWYN E. BECKER		326		0.033			FULTON
GALVESTON MUNICIPAL WWTP	GALVESTON MUNICIPAL WWTP	P.O. BOX 597	302 E. JACKSON ST	GALVESTON	46932	4034480	-8611060	MR. JOHN ROBERSON	(219) 699-6440	1,532		0.418	100		CASS
GARRETT WWTP	GARRETT WWTP	P. O. BOX 120		GARRETT	46738	4120289	-8507465	MR. JEFF BARTELS	(219) 357-5449	5,803		0.8	100		DE KALB

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GARY SANITARY DISTRICT	GARY WWTP	401 BROADWAY		GARY	46402	4136235	-8723027	CHARLES PELLER, GSDB DIRECTOR	(219) 944-0595	102,746	*	60	98	20	LAKE
GAS CITY WATER POLLUTION CONTR	GAS CITY WWTP	500 SOUTH BROADWAY		GAS CITY	46933	4029008	-8537172	MR. JIM RICHARDS	(317) 677-3083	5,940		2	100	4	GRANT
GASTON MUNICIPAL WWTP	GASTON MUNICIPAL STP	P.O. BOX 186	107 N. SYCAMORE	GASTON	47342	4019009	-8530191	MR. RAY GILLESPIE	(765) 358-3244	1,010		0.2	100		DELAWARE
GENEVA MUNICIPAL WWTP	GENEVA MUNICIPAL WWTP	P. O. BOX 276	200 LINE STREET	GENEVA	46740	4035312	-8456518	MR. JIM TIMMONS	(219) 368-9179	1,368		0.3			ADAMS
GENTRYVILLE WWTP	GENTRYVILLE WWTP	MS. MARTHA DEWITT, PRES.	P.O. BOX 161	GENTRYVILLE	47537	3805573	-8704025	MS. MARTHA DEWITT		262		0.063			SPENCER
GOODLAND MUNICIPAL WWTP	GOODLAND MUNICIPAL WWTP	P. O. BOX 269		GOODLAND	47948	4047362	-8717536	MR. JOHN MILLER	(219) 297-3693	1,096		0.135			NEWTON
GOSHEN WWTP	GOSHEN UTILITIES	P.O. BOX 238		GOSHEN	46526	4135478	-8551114	MR. DOUGLAS D. PERRY, CERT OP	(219) 534-5701	29,383	*	5	45	9	ELKHART
GOSPORT MUNICIPAL STP	GOSPORT MUNICIPAL WWTP	P.O. BOX 146	4 SOUTH THIRD STREET	GOSPORT	47433	3920417	-8639398	MR. JEFF S. FARMER	(812) 332-8030	715		0.061	100		OWEN
GRANDVIEW MUNICIPAL WWTP	GRANDVIEW MUNICIPAL WWTP	GRANDVIEW TOWN HALL	P.O. BOX 638	GRANDVIEW	47615	3756353	-8700185	MR. BILL KEITH, TOWN MANAGER	(812) 649-2573	696		0.12			SPENCER
GREENCASTLE WWTP	GREENCASTLE MUNICIPAL STP	WEST COLUMBIA ST		GREENCASTLE	46135	3936460	-8652240	MS. CHARLENE NICHOLS	(765) 653-3394	9,880		1.8	100	20	PUTNAM
GREENDALE WWTP	TOWN OF GREENDALE	CONNECTED TO SOUTH DEARBORN	RSD	GREENDALE	47025	391597	-848764	RAY HALLER	(812) 537-0457	4,296					DEARBORN
GREENFIELD WWTP	GREENFIELD MUNICIPAL STP	809 S. STATE ST	P. O. BOX 456	GREENFIELD	46140	3946381	-8545467	MR. DAVID SCHEITER	(317) 462-8530	14,600	*	3.2	80	30	HANCOCK
GREENSBURG WWTP	GREENSBURG MUNICIPAL WWTP	CITY HALL, 314 N. MICHIGAN		GREENSBURG	47240	3919380	-8529080	MR. JEFFREY H. SMITH	(812) 663-2138	10,260	*	1.6	70	10	DECATUR
GREENTOWN MUNICIPAL WWTP	GREENTOWN WWTP	TOWN OF GREENTOWN	112 N. MERIDIAN ST	GREENTOWN	46936	4028420	-8557480	MR. BILL ROSS	(765) 628-3447	2,546		0.18	100	5	HOWARD
GREENWOOD SANITATION DEPT	GREENWOOD SANITATION DEPT	367 S. WASHINGTON		GREENWOOD	46143	3936349	-8606072	MR. KEITH MEIER	(317) 888-1254	36,037		1.5			JOHNSON
HAGERSTOWN MUNICIPAL WWTP	HAGERSTOWN MUNICIPAL STP	49 EAST MAIN STREET		HAGERSTOWN	47346	3954132	-8509404	MR. GREGORY OZBUN, CERT. OPER.	(765) 489-6171	1,768		0.75	100		WAYNE
HAMILTON LAKE CONSER. DIST	HAMILTON LAKE CONSER. DIST	P. O. BOX 331		HAMILTON	46742	4131597	-8453478	MR. PETER J. CROWL, SUPERINT.	(219) 488-3251	1,233		0.3	100		STEUBEN
HAMLET MUNICIPAL WWTP	HAMLET MUNICIPAL STP	10 SOUTH STARKE ST		HAMLET	46532	4122157	-8635304	MR. CURTIS SIMPKINS, PRES.	(219) 867-1755	820		0.1	100		STARKE
HAMMOND WWTP	HAMMOND WWTP	5143 COLUMBIA		HAMMOND	46327	4137110	-8729440	DR. MICHAEL UNGER	(219) 853-6413	83,048	*	37.8	35	10	LAKE
HANOVER WWTP	HANOVER MUNICIPAL STP	P. O. BOX 288	11 MADISON AVE.	HANOVER	47243	3842384	-8527278	MR. JOSEPH HOLTGREWE	(812) 866-2131	2,834		0.54	100		JEFFERSON

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HARTFORD CITY WWTP	HARTFORD CITY WWTP	700 N. WALNUT		HARTFORD CITY	47348	4026077	-8523078	MR. WAYNE RITENOUR	(765) 348-3855	6,928	*	2.2	15	20	BLACKFORD
HARTSVILLE WWTP	TOWN OF HARTSVILLE STP	P. O. BOX 812		HARTSVILLE	47244	3916273	-8541476	MR. CHUCK LUURTSEMA, PRES.	(812) 546-5658	376		0.078	100		BARTHOLOMEW
HAUBSTADT MUNICIPAL WWTP	HAUBSTADT MUNICIPAL WWTP	P.O. BOX 365	101 SOUTH MAIN ST.	HAUBSTADT	47639	3812335	-8734083	MR. BRYON S. WILL	(812) 768-5929	1,529		0.3	100		GIBSON
HEBRON MUNICIPAL WWTP	HEBRON MUNICIPAL STP	P.O. BOX 478	106 EAST SIGLER	HEBRON	46341	4118553	-8711176	MR. STEVE MARTIN	(219) 996-3021	3,596		0.52	100		PORTER
HENDRICKS COUNTY RSD	HENDRICKS COUNTY RSD	P.O. BOX 310		DANVILLE	46122	3945385	-8619564	MS. CATHY GRINDSTAFF	(317) 745-9217	-		0.31			HENDRICKS
HENRYVILLE WWTP	HENRYVILLE MEMBERSHIP	SANITATION CORPORATION	P.O. BOX 62	HENRYVILLE	47126	3830483	-8545572	MR. DENNIS REAFSNIDER	(812) 294-1070	1,545		0.2374	100		CLARK
HILLSBORO MUNICIPAL STP	TOWN COUNCIL OF HILLSBORO	HILLSBORO MUNICIPAL STP	2064 EAST U.S. 136	HILLSBORO	47949	4006200	-8709400	MR. PHILIP DOTSON	(765) 798-5055	489		0.065			FOUNTAIN
HOLLAND WWTP	HOLLAND MUNICIPAL WWTP	8825 COUNTY ROAD 750 W.		HOLLAND	47541	3814521	-8703071	MR. JERRY TISLOW	(812) 536-3641	695		0.1	100		DUBOIS
HOLTON MUNICIPAL WWTP	HOLTON MUNICIPAL WWTP	P.O. BOX 156	TOWN HALL	HOLTON	47023	3904479	-8524137	MRS. PEGGY FURST	(812) 689-3269	407		0.078			RIPLEY
HOPE WWTP	TOWN OF HOPE STP	404 JACKSON ST.		HOPE	47246	3917365	-8546541	JAY POWER	(812) 546-5469	2,140		0.316	100		BARTHOLOMEW
HUNTINGBURG MUNICIPAL WWTP	HUNTINGBURG MUNICIPAL WWTP	508 EAST FOURTH ST		HUNTINGBURG	47542	3817359	-8656315	MR. RON HALL	(812) 683-3203	5,598		1	100	1	DUBOIS
HUNTINGTON WATER POLL.	HUNTINGTON MUNICIPAL STP	CITY BLDG.	300 CHERRY STREET	HUNTINGTON	46750	4052246	-8530511	COLIN E. BULLOCK	(219) 358-2313	17,450	*	4.6	15	17	HUNTINGTON
HYMERA SEWAGE PLANT	HYMERA MUNICIPAL STP	P.O. BOX 421		HYMERA	47855	3911000	-8719000	MR. JIM MARKET	(812) 383-7333	833		0.25	100		SULLIVAN
INDPLS. DEPT. OF PUBLIC WORKS	INDPLS. DEPT. OF PUBLIC WORKS	BELMONT WWTP	2700 S. BELMONT	INDIANAPOLIS	46221	3939599	-8613429	MR. GEORGE RUSSELL	(317) 327-2455	786,898	*	120	65	28	MARION
INDPLS. DEPT. OF PUBLIC WORKS	INDPLS. DEPT. OF PUBLIC WORKS	SOUTHPORT WWTP	2700 S. BELMONT AVE.	INDIANAPOLIS	46221	3939599	-8613429	MR. GEORGE RUSSELL	(317) 327-0200	786,898	*	125	65	28	MARION
JACKSON COUNTY	JACKSON CO REG SEWAGE DIST	4241 COUNTY ROAD 675 N		FREETOWN	47235	3858245	-8607099	MR. DAN ROBERTSON	(812) 497-3072	-		0.09	100		JACKSON
JAMES B. GIFFORD WWTP	MICHIGAN CITY SANITARY DISTR.	1100 E. EIGHTH STREET	BOX 888	MICHIGAN CITY	46360	4143060	-8652540	JUDITH A. PAUL, VICE PRES.	(219) 874-7799	32,900	*	12	40	10	LA PORTE
JAMESTOWN MUNICIPAL WWTP	JAMESTOWN MUNICIPAL WWTP	606 LOWRY STREET		JAMESTOWN	46147	3955212	-8637268	MR. RICHARD A. BEAM, PRES.	(765) 676-6331	886		0.1	100		BOONE
JASONVILLE MUNICIPAL WWTP	JASONVILLE MUN. STP	304 WEST MAIN	CITY HALL	JASONVILLE	47438	3909082	-8711181	MR. JAMES F. MARKET		2,490		0.46	100		GREENE
JASPER WWTP	JASPER MUNICIPAL STP	P.O. BOX 150		JASPER	47547	3823065	-8656248	MR. THOMAS LENTS	(812) 482-3277	12,100		3.6	98	20	DUBOIS
JEFFERSON TOWNSHIP RSD	JEFFERSON TOWNSHIP RSD	P.O. BOX 86		OTWELL	47564	3827428	-8704591	MR. GARY PRIDE	(812) 354-2256	-		0.075	100		PIKE

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JEFFERSONVILLE WWTP	JEFFERSONVILLE MUNICIPAL WWTP	CITY COUNTY BLDG, RM. 400	501 EAST COURT AVE.	JEFFERSONVILLE	47131	3817102	-8544385	TIM L. CRAWFORD	(812) 285-6451	27,362	*	4	44		CLARK
KENDALLVILLE WWTP	KENDALLVILLE WWTP	501 WEST MAIN ST.		KENDALLVILLE	46755	4126450	-8516230	MR. RICHARD J. MCGEE, SUPT.	(219) 347-1362	9,616	*	2.68	95		NOBLE
KENNARD MUNICIPAL WWTP	KENNARD MUNICIPAL STP	P.O. BOX 114		KENNARD	47351	3953463	-8530536	MR. CHARLES MILLIS	(765) 785-2554	455		0.08	100		HENRY
KENTLAND MUNICIPAL WWTP	KENTLAND MUNICIPAL WWTP	P.O. BOX 218		KENTLAND	47951	4047031	-8726561	MR. TERRY D. HAFSTROM	(219) 474-3233	182		0.46	100		NEWTON
KINGMAN MUNICIPAL WWTP	TOWN OF KINGMAN STP	P.O. BOX 25	STATE STREET	KINGMAN	47952	3959000	-8718000	MR. JOHN MCBRIDE	(217) 267-2331	538		0.07			FOUNTAIN
KINGSBURY UTILITY CORP	KINGSBURY UTILITY CORP.	P. O. BOX 254		KINGSBURY	46345	4129432	-8640089	MR. JEFF JOHNSON	(219) 393-3577	229		2.5	100		LA PORTE
KINGSFORD HEIGHTS WWTP	KINGSFORD HEIGHTS MUNI WWTP	504 GRAYTON ROAD		KINGSFORD HEIGHTS	46346	4128142	-8641216	MR. TIM VANCE	(219) 393-3304	1,453		0.422	100		LA PORTE
KIRKLIN MUNICIPAL WWTP	KIRKLIN MUNICIPAL WWTP	P. O. BOX 147	802 NORTH MAIN STREET	KIRKLIN	46050	4011585	-8621581	MR. WILBER D. BOWMAN	(765) 279-5251	766		0.14	100		CLINTON
KNIGHTSTOWN WWTP	KNIGHTSTOWN MUNICIPAL STP	26 SOUTH WASHINGTON	P. O. BOX 270	KNIGHTSTOWN	46148	3947117	-8531323	MR. MEL MATLOCK, TOWN WORKS MGR.	(765) 345-5804	2,148		0.31	100		HENRY
KNOX MUNICIPAL WWTP	CITY OF KNOX STP	101 W. WASHINGTON		KNOX	46534	4118211	-8637420	NANCY DEMBOWSKI, MAYOR	(219) 772-2961	3,721	*	0.51	80		STARKE
KOKOMO WWTP	KOKOMO MUNICIPAL STP	100 S. UNION ST.		KOKOMO	46901	4028340	-8609044	MR. GREGORY A. TAYLOR	(765) 457-5509	46,113	*	30	60	35	HOWARD
KOUTS MUNICIPAL WWTP	KOUTS MUNICIPAL WWTP	TOWN HALL	P.O. BOX 693	KOUTS	46347	4118396	-8702139	MR. BARRY LOBODY	(219) 766-2110	1,698		0.25	100	5	PORTER
LACROSSE MUNICIPAL WWTP	LACROSSE MUNICIPAL WWTP	TOWN HALL	P.O. BOX 246	LACROSSE	46348	4119000	-8653300	MR. DENNIS TURNER	(219) 754-2512	561		0.067			LA PORTE
LADOGA MUNICIPAL WWTP	TOWN OF LADOGA STP	P. O. BOX 187	121 E. MAIN ST.	LADOGA	47954	3954300	-8648000	MR. DARIN GARRET, CERT. OPER.	(317) 942-2531	1,047		0.25	100		MONTGOMERY
LAFAYETTE WWTP	LAFAYETTE MUNICIPAL WWTP	P.O. BOX 1688		LAFAYETTE	47902	4024043	-8654407	MR. BRAD W. TALLEY, SUPT.	(765) 742-1424	56,397	*	16	0.5	45	TIPPECANOE
LAFONTAINE MUNICIPAL WWTP	TOWN OF LAFONTAINE STP	P. O. BOX 207		LAFONTAINE	46940	4040266	-8543529	MR. DENNIS L. JONES	(765) 981-4591	900		0.1	100		WABASH
LAGRANGE MUNICIPAL WWTP	LAGRANGE MUNICIPAL WWTP	107 SOUTH HIGH STREET		LAGRANGE	46761	4139065	-8524493	MR. DAVID DONATHEN	(219) 463-2042	1,459	*	0.06			LAGRANGE
LAGRANGE REGION B WWTP	LAGRANGE REGION B WWTP	114 W. MICHIGAN ST		LAGRANGE	46761	416561	-853683	MR. STEVE WEIGEL, PRES.		1,460		0.388	60	1	LAGRANGE
LAKE ELIZA CD	LAKE ELIZA CD	C/O MR. MIKE NOVAK	101 UTILITY DRIVE	HEBRON	46341	4125240	-8709557	MR. DAN JONES	(219) 988-4482	-		0.412			PORTER

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LAKE MONROE RWD	LAKE MONROE RWD (STINESVILLE)	STINESVILLE PLANT	519 SOUTH SALE ST.	ELLETTSVILLE	47429	3903558	-8627227	MR. JOHN TROTTER	(812) 824-9005	194		0.036	100		MONROE
LAKE MONROE RWD (CASLON)	LAKE MONROE RWD (CASLON)	CASLON WASTEWATER TREAT. PLT.	519 SOUTH SALE	ELLETTSVILLE	47429	392791	-866141	MR. JOHN TROTTER	(812) 824-9005	375		0.3	100		MONROE
LAKE OF THE WOODS RSD	LAKE OF THE WOODS REG SEW DIST	P.O. BOX 455		BREMEN	46506	4126190	-8612250	MR. DENNIS WEAVER, PRESIDENT	(219) 546-2318	-		0.059	100		MARSHALL
LAKEVILLE MUNICIPAL WWTP	LAKEVILLE MUNICIPAL WWTP	P. O. BOX 137		LAKEVILLE	46536	4131389	-8615121	MR. DAN CASAD	(219) 784-8311	567		0.13			SAINT JOSEPH
LANESVILLE WWTP	LANESVILLE WWTP	P. O. BOX 6		LANESVILLE	47136	3814029	-8600075	MR. KENNETH BROWN	(812) 952-3037	614		0.105	100		HARRISON
LAPAZ MUNICIPAL WWTP	LAPAZ MUNICIPAL WWTP	P.O. BOX 820		LAPAZ	46537	4126273	-8617571	MR. WILLIAM D. REED	(219) 784-8129	489		0.129	100		MARSHALL
LAPEL MUNICIPAL WWTP	LAPEL MUNICIPAL STP	705 WEST PENDLETON		LAPEL	46051	4004153	-8551228	C.J. TAYLOR	(765) 534-3138	1,855		0.36	78	23	MADISON
LAPORTE MUNICIPAL STP	LAPORTE MUNICIPAL STP	801 MICHIGAN AVE.		LAPORTE	46350	4135100	-8641220	MR. JERRY P. JACKSON	(219) 362-2354	21,621	*	7	80	34	LA PORTE
LAUREL MUNICIPAL WWTP	LAUREL MUNICIPAL WWTP	P.O. BOX 232, PEARL STREET		LAUREL	47024	3929470	-8511168	MR. RON MIDDLETON	(317) 698-2723	579		0.15	100		FRANKLIN
LEAVENWORTH MUNICIPAL WWTP	LEAVENWORTH WWTP	R.R. 1, BOX 51		LEAVENWORTH	47137	3812109	-8620190	MR. JOHN STUTSMAN, PRES.	(812) 739-4850	353		0.07	100	75	CRAWFORD
LEBANON WWTP	LEBANON UTILITIES	201 E. MAIN STREET	P.O. BOX 479	LEBANON	46052	4003054	-8628564	MR. ROBERT E. WAPLES	(765) 482-8816	14,222		2.88	100	9	BOONE
LIBERTY MUNICIPAL WWTP	LIBERTY MUNICIPAL WWTP	P. O. BOX 7		LIBERTY	47353	3938184	-8456172	MR. DAVID WOESTE	(765) 458-6738	2,061		0.43	100		UNION
LIGONIER MUNICIPAL WWTP	CITY OF LIGONIER STP	103 WEST THIRD STREET		LIGONIER	46767	4128018	-8535553	MR. DON SKINNER	(219) 894-4233	4,357	*	0.52	25	50	NOBLE
LINDEN MUNICIPAL WWTP	LINDEN WWTP	P.O. BOX 352		LINDEN	47955	4011180	-8654120	MR. JAMES GOBLE	(765) 339-4746	700		0.1			MONTGOMERY
LINTON MUNICIPAL WWTP	LINTON MUNICIPAL STP	86 SOUTH MAIN STREET		LINTON	47441	3901552	-8708475	MR. DAVID FISH	(812) 847-9220	5,774		1.3	100	75	GREENE
LITTLE RACCOON RSD	LITTLE RACCOON RSD	P.O. BOX 14		WAVELAND	47989	3952300	-8702400	MR. DOUG CLODFELTER	(765) 435-2185	-		1	100		MONTGOMERY
LIZTON MUNICIPAL WWTP	TOWN OF LIZTON STP	P. O. BOX 136		LIZTON	46149	3952414	-8632409	MR. JOHN R. SEMENICK	(317) 994-5600	372		0.08	100		HENDRICKS
LOGANSPORT WWTP	LOGANSPORT MUNICIPAL WWTP	601 E. BROADWAY	ROOM 101	LOGANSPORT	46947	4044560	-8623190	MR. PAUL HARTMAN	(219) 753-6234	19,684	*	12	6	56	CASS
LOOGOOTEE WWTP	LOOGOOTEE MUNICIPAL STP	401 JFK AVE.		LOOGOOTEE	47553	3839535	-8654382	MR. JAMES E. WILSON	(812) 295-3060	2,741		0.586	100		MARTIN
LOWELL WWTP	TOWN OF LOWELL WWTP	P.O. BOX 157	501 E. MAIN STREET	LOWELL	46356	4115515	-8725030	MR. ROBERT HATCH	(219) 696-0343	7,505	*	4	90		LAKE

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LYNN MUNICIPAL WWTP	TOWN OF LYNN MUNICIPAL STP	1468 EAST C.R. 900 SOUTH		LYNN	47355	4002046	-8456598	MR. DAVE WEIST	(317) 874-1929	1,143		0.25	100	1	RANDOLPH
LYNNVILLE MUNICIPAL WWTP	LYNNVILLE WWTP	11455 SPURGEON RD		LYNNVILLE	47619	3812006	-8717268	JOSEPH POTTS, CERT. OPER.	(812) 922-5182	781		0.08	100		WARRICK
LYONS MUNICIPAL WWTP	LYONS MUNICIPAL WWTP	P.O. BOX 267	150 EAST BROAD ST	LYONS	47443	3858215	-8704456	MR. GREG STALLINGS	(812) 659-2521	748		0.09	100		GREENE
MADISON WWTP	MADISON MUNICIPAL WWTP	416 WEST STREET		MADISON	47250	3844141	-8523491	MR. DAVID HAWKINS	(812) 265-8328	12,004	*	3.6	72		JEFFERSON
MARENGO MUNICIPAL WWTP	MARENGO MUNICIPAL WWTP	P.O. BOX 253		MILLTOWN	47145	3822078	-8619517	TONY KAY	(812) 365-2156	829		0.11			CRAWFORD
MARION HEIGHTS CD	MARION HEIGHTS CD	P.O. BOX 29		ST. MARY-OF-THE-WOODS	47876	4046000	-8555000	MS. BECKY PITTMAN	(812) 533-1940	-		0			GRANT
MARKLE MUNICIPAL WWTP	MARKLE MUNICIPAL WWTP	P. O. BOX 367	155 SPARKS STREET	MARKLE	46770	4049336	-8520366	MR. SCOTT SPAHR	(219) 758-3192	1,102	*	0.151	90	3	HUNTINGTON
MARTINSVILLE WWTP	MARTINSVILLE MUNICIPAL STP	P. O. BOX 1415		MARTINSVILLE	46151	3924162	-8627061	MR. PAUL MOORE	(765) 342-2342	11,698		2.2	90	20	MORGAN
MATTHEWS MUNICIPAL WWTP	MATTHEWS MUNICIPAL STP	BOX 152		MATTHEWS	46957	4024022	-8530344	MR. WAYNE RITENOUR	(765) 998-7028	595		0.11	100		GRANT
MCCORDSVILLE MUNICIPAL WWTP	MCCORDSVILLE MUNICIPAL WWTP	5759 W. PENDLETON PIKE		MCCORDSVILLE	46055	3954071	-8555242	MR. RONALD D. CRIDER		1,134		0.311			HANCOCK
MEDARYVILLE MUNICIPAL STP	MEDARYVILLE MUNICIPAL STP	NORTH MAPLE STREET	P.O. BOX 10	MEDARYVILLE	47957	410851	-868729	JERRY BEISWANGER	(219) 843-2101	565		0.067			PULASKI
MEDORA WWTP	MEDORA WWTP	P. O. BOX 247		MEDORA	47260	3849070	-8610501	MR. MELVIN HUNSUCKER	(812) 966-2281	565		0.18	100		JACKSON
MENTONE MUNICIPAL WWTP	MENTONE MUNICIPAL WWTP	TOWN OF MENTONE	P.O. BOX 562	MENTONE	46539	4110546	-8603144	MR. BRIAN REED, CERT. OPER.	(219) 353-7554	898		0.12	100		KOSCIUSKO
MEROM MUNICIPAL WWTP	MEROM MUNICIPAL WWTP	P.O. BOX 165		MEROM	47861	390138	-875230	MR. DEAN E. SPRINGER	(812) 356-4601	294					SULLIVAN
MERRILLVILLE C.D. WWTP (SSO)	MERRILLVILLE C.D. WWTP	6250 BROADWAY		MERRILLVILLE	46410	4130148	-8720118	MS. CHRISTINE SAVARESE	(219) 980-5220	30,560					LAKE
MICHIGANTOWN MUNICIPAL WWTP	MICHIGANTOWN MUNICIPAL STP	MAIN STREET	P.O. BOX 27	MICHIGANTOWN	46057	4019419	-8624083	MR. JEFF STRONG	(765) 249-2948	406		0.06	100		CLINTON
MIDDLEBURY WWTP	TOWN OF MIDDLEBURY STP	P. O. BOX 812	117 N. MAIN STREET	MIDDLEBURY	46540	4141022	-8542244	MR. BRAD CLARK	(219) 825-1499	2,956		0.5	100		ELKHART
MIDDLETOWN MUNICIPAL WWTP	MIDDLETOWN MUNICIPAL WWTP	653 LOCUST STREET		MIDDLETOWN	47357	4003000	-8532000	MR. JAMES HANSON, PRES.	(765) 354-4441	2,488	*	0.5	0		HENRY
MILAN WWTP	MILAN MUNICIPAL WWTP	P. O. BOX 86		MILAN	47031	3907074	-8507398	MR. JOHN INGRAM, TOWN MGR.	(812) 654-2710	1,816		0.195	40		RIPLEY
MILFORD WWTP	MILFORD JUNCTION MUNICIPAL STP	901 WEST 1250 NORTH		MILFORD	46542	4124480	-8551562	DALLAS L. WINCHESTER	(219) 658-4614	1,550	*	0.225	85	15	KOSCIUSKO
MILLERSBURG WWTP	MILLERSBURG MUNICIPAL STP	P.O. BOX 278		MILLERSBURG	46543	4131363	-8541068	MR. JEFF TAYLOR	(219) 642-3670	868		0.12	100		ELKHART

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MILLTOWN MUNICIPAL WWTP	MILLTOWN MUNICIPAL WWTP	RT. #1		MILLTOWN	47145	3820106	-8615581	MR. TONY KAY	(812) 633-4848	932		0.15	100		CRAWFORD
MISHAWAKA WWTP	MISHAWAKA MUNICIPAL WWTP	600 E. THIRD ST.		MISHAWAKA	46544	4139398	-8611327	HON. ROBERT C. BEUTTER	(219) 258-1655	46,557	*	12	20	22	SAINT JOSEPH
MITCHELL MUNICIPAL WWTP	MITCHELL MUNICIPAL STP	407 SOUTH 6TH STREET		MITCHELL	47446	3844267	-8627394	MR. RUSSELL EDMONDSON	(812) 849-4130	4,567		0.565	90		LAWRENCE
MONON WWTP	MONON MUNICIPAL STP	522 N. MARKET STREET	P.O. BOX 657	MONON	47959	4051277	-8652301	MR. DAVE SCOTT	(219) 253-6275	1,733		0.2193	100	3	WHITE
MONROE CITY WWTP	MONROE CITY MUNICIPAL STP	P.O. BOX 163		MONROE CITY	47557	3836002	-8720509	MR. JEREMY T. MCCARTER	(812) 743-2976	548		0.12	100		KNOX
MONROEVILLE MUNICIPAL WWTP	MONROEVILLE MUNICIPAL STP	P. O. BOX 401		MONROEVILLE	46773	4058142	-8451258	MR. BARRY SCHERER	(219) 623-3197	1,236		0.144	100		ALLEN
MONROVIA POTW	TOWN OF MONROVIA	PO BOX 400		MONROVIA	46157	395716	-865193	SHAWN MASSINGALE		628		0.085			MORGAN
MONTGOMERY MUNICIPAL WWTP	MONTGOMERY MUNICIPAL STP	P. O. BOX 57		MONTGOMERY	47558	3840002	-8702012	MR. JAMES O'BRIEN, PRES.	(812) 486-3298	368		0.09	100		DAVIESS
MONTICELLO WWTP	MONTICELLO MUNICIPAL STP	120 WEST WASHINGTON		MONTICELLO	47960	4044096	-8645213	MR. ROGER M. REED	(219) 583-7847	5,723	*	0.95			WHITE
MONTPELIER MUNICIPAL WWTP	MONTPELIER MUNICIPAL STP	7611 NORTH 450 EAST		MONTPELIER	47359	4034020	-8517222	HON. THOMAS E. MCGEATH	(317) 728-5388	1,929	*	0.28	0	25	BLACKFORD
MOORELAND MUNICIPAL WWTP	MOORELAND MUNICIPAL STP	P. O. BOX 33	CHARLES STREET	MOORELAND	47360	3958361	-8514508	MR. RAYMOND PERDUE, PRES.	(765) 766-5196	393		0.055	100		HENRY
MOORES HILL WWTP	MOORES HILL MUNICIPAL WWTP	TOWN OF MOORES HILL	DURBIN RD.	MOORES HILL	47032	3906223	-8505398	MR. WILLIAM LOVINS	(812) 654-2766	635		0.1	100		DEARBORN
MOORESVILLE WWTP	MOORESVILLE MUNICIPAL WWTP	TOWN HALL, 26 S. INDIANA ST.		MOORESVILLE	46158	3936174	-8622040	MR. DAN TINGLE	(317) 831-0625	9,273		1.5	100	10	MORGAN
MORGANTOWN WWTP	TOWN OF MORGANTOWN	120 WEST WASHINGTON	P.O. BOX 416	MORGANTOWN	46160	3921496	-8616322	MS. EDNA VAUGHT, PRES.	(812) 597-4626	964		0.16	100		MORGAN
MORRISTOWN MUNICIPAL WWTP	MORRISTOWN MUNICIPAL STP	P.O. BOX 389	239 E. MAIN STREET	MORRISTOWN	46161	3940143	-8542265	MR. DAVID BENEFIEL, PRES.	(765) 763-6748	1,133		0.255	100		SHELBY
MOUNT VERNON WWTP	MOUNT VERNON MUNICIPAL STP	410 S. OLD HIGHWAY 69		MOUNT VERNON	47620	3755267	-8754383	MR. MIKE STUCKI	(812) 838-8721	7,478	*	1.8	90		POSEY
MULBERRY MUNICIPAL WWTP	MULBERRY MUNICIPAL STP	3689 WEST C.R. 350 NORTH		MULBERRY	46058	4020103	-8639403	MR. RANDY COOPER	(765) 296-2455	1,387		0.165	100		CLINTON
MUNCIE WWTP	MUNCIE MUNICIPAL STP	5150 KILGORE AVE.		MUNCIE	47304	4011030	-8526310	MR. MICHAEL K. ROST	(765) 747-4863	67,430	*	24	20	12.5	DELAWARE
NAPOLEON MUNICIPAL STP	NAPOLEON MUNICIPAL STP	P.O. BOX 47		NAPOLEON	47034	3912438	-8519448	MR. JAMES R. EATON	(812) 852-4552	238		0.04	100		RIPLEY
NAPPANEE MUNICIPAL STP	NAPPANEE MUNICIPAL STP	P.O. BOX 29	300 W. LINCOLN ST	NAPPANEE	46550	4126480	-8559210	MR. PHILLIP HOCHSTETLER	(219) 773-3033	6,710	*	1.9		15	ELKHART
NASHVILLE MUNICIPAL WWTP	NASHVILLE MUNICIPAL STP	P.O. BOX 446		NASHVILLE	47448	3912156	-8615095	MR. ROGER KELSO	(812) 988-5326	825		0.575	100		BROWN
NEW ALBANY WWTP	NEW ALBANY MUNICIPAL WWTP	HAUSS SQUARE	CITY-COUNTY BLDG.	NEW ALBANY	47150	3816407	-8549548	MR. TERRY PENNINGTON	(812) 948-5320	37,603		6.878	50	10	FLOYD

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NEW CASTLE WWTP	NEW CASTLE MUNICIPAL STP	CITY HALL	321 S. MAIN STREET	NEW CASTLE	47362	3954510	-8523320	MR. CHRIS MAINES	(317) 521-6836	17,780	*	8	100	5	HENRY
NEW HARMONY MUNICIPAL WWTP	NEW HARMONY MUNICIPAL WWTP	P. O. BOX 275		NEW HARMONY	47631	3807438	-8756285	JOHN W. WILKERSON	(812) 682-4109	916		0.14	100		POSEY
NEW HAVEN WWTP	NEW HAVEN	1235 LINCOLN HIGHWAY E.	P.O.BOX 570	NEW HAVEN	46774	4105100	-8500500	TERRY MCDONALD, MAYOR	(219) 799-1911	12,406	*	0.75			ALLEN
NEW LONDON C.D.	NEW LONDON C.D.	P.O. BOX 207		WEST MIDDLETON	46995	4026467	-8616300	MR. JOE HILLIS		-		0.02			HOWARD
NEW MARKET WWTP	NEW MARKET MUNICIPAL STP	P.O9. BOX 311		NEW MARKET	47965	3957060	-8655120	MR. DON ALLEN YOUNT	(765) 866-0111	659		0.14	100		MONTGOMERY
NEW PALESTINE MUNICIPAL WWTP	NEW PALESTINE MUNICIPAL STP	TOWN OF NEW PALESTINE	P.O. BOX 315	NEW PALESTINE	46163	3942489	-8553193	MR. DAVID E. BOOK	(317) 861-4099	1,264		0.15	100		HANCOCK
NEW PARIS CD	NEW PARIS CD	BOARD OF TRUSTEES	P.O. BOX 91	NEW PARIS	46553	414787	-858489	MR. RAYMOND DAUSMAN		-		0.21			ELKHART
NEW PEKIN MUNICIPAL WWTP	NEW PEKIN MUNICIPAL STP	TOWN OF NEW PEKIN	P.O. BOX 315	NEW PEKIN	47165	3829548	-8601259	MR. TIMOTHY SMITH	(812) 967-4106	1,334		0.06	100	2	WASHINGTON
NEW RICHMOND MUNICIPAL WWTP	NEW RICHMOND MUNICIPAL WWTP	TOWN OF NEW RICHMOND	P.O. BOX 210	NEW RICHMOND	47967	401815	-869845	MR. KEITH SCOTT		349		0.04			MONTGOMERY
NEW ROSS WWTP	NEW ROSS TOWN COUNCIL	105 WEST STATE STREET		NEW ROSS	47968	399956	-867506	MR. TOM TERRY		334		0.033			MONTGOMERY
NEW WHITELAND MUNICIPAL WWTP	NEW WHITELAND MUNICIPAL STP	324 WEST 500 NORTH		NEW WHITELAND	46184	3933034	-8606252	MR. RICHARD ABBOTT	(317) 535-4664	4,579		0.45	100		JOHNSON
NEWBURGH WWTP	NEWBURGH MUNICIPAL STP	6366 VANADA ROAD		NEWBURGH	47630	3756311	-8720566	MR. LEON KEY	(812) 853-6412	3,088		2.5	100		WARRICK
NOBLESVILLE WW POLL. CONTROL P	NOBLESVILLE MUNICIPAL STP	CITY HALL	16 SOUTH 10TH STREET	NOBLESVILLE	46060	4002168	-8601170	DONALD ANTHIS	(317) 776-6353	28,590	*	5	0.6	3	HAMILTON
NORTH JUDSON MUNICIPAL WWTP	NORTH JUDSON MUNICIPAL STP	P.O. BOX 56	204 KELLER AVE.	NORTH JUDSON	46366	4113231	-8646327	MR. L. JAMES SALLEE, PRES.	(219) 896-3340	1,675	*	0.95		4	STARKE
NORTH LIBERTY WWTP	NORTH LIBERTY MUNICIPAL STP	118 NORTH MAIN STREET	P.O. BOX 515	NORTH LIBERTY	46554	4132076	-8626114	MR. DENNIS WEAVER	(219) 656-3121	1,402		0.18		39	SAINT JOSEPH
NORTH MANCHESTER MUNICIPAL STP	NORTH MANCHESTER MUNICIPAL STP	407 EAST MAIN STREET		NORTH MANCHESTER	46962	4059380	-8546240	MR. CHRIS HARRISON	(219) 982-4070	6,260	*	1.25	5	10	WABASH
NORTH SALEM MUNICIPAL WWTP	NORTH SALEM MUNICIPAL STP	P.O. BOX 417		NORTH SALEM	46165	3951209	-8638226	MR. DOUG CLODFELTER	(765) 522-1165	591		0.08	100		HENDRICKS
NORTH VERNON WWTP	NORTH VERNON STP	725 NORTH GREENSBURG ROAD		NORTH VERNON	47265	3900155	-8536479	MR. THOMAS SCHWING	(812) 346-5493	6,515	*	1.75			JENNINGS
NORTH WEBSTER MUNICIPAL WWTP	NORTH WEBSTER MUNICIPAL STP	P.O. BOX 95	7203 EAST 650 NORTH	NORTH WEBSTER	46555	4119405	-8542220	CHRISTIAN F. FRANCE	(219) 834-7241	1,067		0.3	100		KOSCIUSKO
OAK PARK CD	OAK PARK CD	4230 PORTAGE PLACE		JEFFERSONVILLE	47130	3818403	-8540253	MR. WILLIAM BIZER	(812) 283-3960	-		0.8	100		CLARK
OAKLAND CITY WWTP	OAKLAND CITY MUNICIPAL STP	210 EAST WASHINGTON		OAKLAND CITY	47660	3820141	-8720139		(812) 749-3081	2,588		0.55	100		GIBSON

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ODON MUNICIPAL WWTP	ODON MUNICIPAL STP	109 SOUTH SPRING STREET		ODON	47562	3850285	-8700065	MR. KEVIN BYRER	(812) 636-7755	1,376		0.24	100		DAVIESS
OLDENBURG STP	OLDENBURG MUNICIPAL WWTP	C/O RON MIDDLETON	9097 HARNBURG RD	LAUREL	47024	393907	-852453	MR. RON MIDDLETON	(812) 934-2728	647		0.144	100		FRANKLIN
OOLITIC MUNICIPAL WWTP	OOLITIC MUNICIPAL STP	109 MAIN STREET	P.O. BOX 7	OOLITIC	47451	3853252	-8631434	MR. DELVIN NIKIRK, PRES.	(812) 279-2456	1,152		0.18	100		LAWRENCE
ORLEANS MUNICIPAL WWTP	ORLEANS WWTP	P.O. BOX 146	161 EAST MONROE ST	ORLEANS	47452	3839062	-8627126	MR. DONALD JENKINS	(812) 865-2858	2,273		0.25	100		ORANGE
OSGOOD WWTP	OSGOOD STP	160 NORTH BUCKEYE ST		OSGOOD	47037	3908176	-8516523	MR. ANTHONY J. WOOD	(812) 689-4441	1,669		0.35	100		RIPLEY
OSSIAN MUNICIPAL WWTP	OSSIAN MUNICIPAL STP	P.O. BOX 558	507 N. JEFFERSON	OSSIAN	46777	4052383	-8510204	MR. PHILIP YAGER	(219) 622-4253	2,943	*	0.3	70		WELLS
OTTERBEIN WWTP	OTTERBIEN MUNICIPAL STP	TOWN BOARD PRESIDENT	P. O. BOX 212	OTTERBIEN	47970	4029168	-8705215	MR. DAN BROCK, CERT. OPER.	(765) 583-0340	1,312		0.17	100		BENTON
OWENSVILLE MUNICIPAL WWTP	OWENSVILLE MUNICIPAL STP	SOUTH MILL STREET	P.O. BOX 296	OWENSVILLE	47665	3815556	-8741383	MR. RANDY ROSS	(812) 724-3909	1,322		0.14	100	>5	GIBSON
OXFORD MUNICIPAL WWTP SITE 1	OXFORD MUNICIPAL WWTP	107 N. HOWARD	P.O. BOX 54	OXFORD	47971	4031060	-8714480	MR. ED MORRIS	(765) 385-2455	1,271	*	0.15	40		BENTON
PALMYRA MUNICIPAL WWTP	PALMYRA MUNICIPAL STP	P.O. BOX 332		PALMYRA	47164	3824554	-8607197	MR. DAVID WILLIAMS	(812) 364-4853	633		0.191	100		HARRISON
PAOLI MUNICIPAL WWTP	PAOLI WWTP	MUNICIPAL BUILDING	110 NORTH GOSPEL ST	PAOLI	47454	3833265	-8629262	MR. KEITH CONDRA	(812) 723-3479	3,844	*	0.52	0.85		ORANGE
PARAGON MUNICIPAL WWTP	PARAGON MUNICIPAL STP	P. O. BOX 66		PARAGON	46166	3923002	-8633513	MR. JOHN S. TROTTER	(317) 537-2597	663		0.067	100		MORGAN
PARKER CITY MUNICIPAL WWTP	PARKER CITY MUNICIPAL STP	610 SOUTH MAIN STREET		PARKER CITY	47368	4009436	-8512472	MR. M. E. DECKMAN	(765) 468-7949	1,416		0.24	100		RANDOLPH
PATOKA LK RSD	PATOKA LK RSD	EDWIN PIEPER, PRESIDENT	P.O. BOX 308	DUBOIS	47527	3825552	-8646013	MR. BRUCE A HEEKE	(812) 678-5171	749		0.7	100	35	DUBOIS
PATRIOT WWTP	PATRIOT MUNICIPAL WWTP	P.O. BOX 146		PATRIOT	47038	3850056	-8449527	MR. DAVIS THOMAS	(812) 594-2757	202		0.03	100		SWITZERLAND
PENNVILLE MUNICIPAL WWTP	PENNVILLE MUNICIPAL STP	P.O. BOX 227	330 WEST RIVER ROAD	PENNVILLE	47369	4029381	-8509074	MR. GREG BUCKNER	(765) 768-6401	706		0.16	100		JAY
PERU WWTP	PERU WWTP	335 EAST CANAL STREET		PERU	46970	4044427	-8604199	MR. RICHARD TARDY	(765) 473-7651	12,994	*	4	20	5	MIAMI
PETERSBURG MUNICIPAL WWTP	PETERSBURG MUNICIPAL STP	CITY HALL	704 MAIN ST.	PETERSBURG	47567	3829348	-8717314	MR. JERRY L. BURTON	(812) 354-6691	2,570		0.6	100		PIKE
PIERCETON WWTP	PIERCETON MUNICIPAL STP	P. O. BOX 496		PIERCETON	46562	4111268	-8542115	MR. BRET AKER	(219) 594-5882	695		0.4	100		KOSCIUSKO
PITTSBORO WWTP	PITTSBORO MUNICIPAL WWTP	P.O. BOX 185	80 NORTH MERIDIAN ST.	PITTSBORO	46167	3952201	-8627224	MR. BRUCE PENCE	(317) 892-3328	1,586		0.16	100		HENDRICKS
PLAINFIELD POL CONTROL FACIL	PLAINFIELD MUNICIPAL STP	986 SOUTH CENTER ST		PLAINFIELD	46168	3941283	-8623427	MR. GEORGE SAWYER, CERT. OPER.	(317) 839-3883	18,396	*	2.5	15	15	HENDRICKS

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PLAINVILLE MUNICIPAL WWTP	PLAINVILLE MUNICIPAL WWTP	P.O. BOX 65	NORTH BLOOMFIELD RD.	PLAINVILLE	47168	3848509	-8708580	MR. LARRY BRYANT, CERT. OPER.	(812) 687-7374	513		0.08	100		DAVIESS
PLYMOUTH WW FACILITY	PLYMOUTH MUNICIPAL STP	124 N. MICHIGAN ST.		PLYMOUTH	46563	4119570	-8619200	MR. DONNIE DAVIDSON	(219) 936-3017	9,840	*	3.5	80	65	MARSHALL
PONETO MUNICIPAL STP	PONETO MUNICIPAL STP	TOWN COUNCIL	P.O. BOX 61	PONETO	46781	4039387	-8513254	MR. STEVE RUSH	(765) 728-5760	240		0.024			WELLS
PORTAGE MUNICIPAL WWTP	PORTAGE MUNICIPAL STP	5500 OLD PORTER ROAD		PORTAGE	46368	4135480	-8712070	RICKY D. DODD	(219) 762-1301	33,496		3.5	100	5	PORTER
PORTER WWTP	PORTER WWTP	TOWN COUNCIL OF PORTER	303 FRANKLNI ROAD	PORTER	46304	416139	-870454	ART POWELL	(219) 926-4212	4,972					PORTER
PORTLAND WWTP	PORTLAND MUNICIPAL STP	321 N. MERIDIAN ST.		PORTLAND	47371	4025016	-8459344	DAVID L. MCGRAW	(219) 726-7969	6,437	*	2.35	50	5	JAY
POSEYVILLE MUNICIPAL WWTP	POSEYVILLE MUNICIPAL WWTP	P. O. BOX 194	20 SOUTH CALE STREET	POSEYVILLE	47633	3811194	-8745483	MR. LARRY D. THOMPSON	(812) 874-3548	1,187		0.42	100		POSEY
PRINCES LAKE MUNICIPAL WWTP	PRINCES LAKES MUNICIPAL STP	P.O. BOX 218		NINEVEH	46164	3920241	-8559560	MR. RICK PIERCEFIELD	(812) 526-5908	1,506		3.5	100		JOHNSON
PRINCETON WWTP	PRINCETON MUNICIPAL STP	P.O. BOX 15		PRINCETON	47670	3821055	-8735305	MR. CHARLES L. WOODRUFF	(812) 385-3343	8,175		2	100	5	GIBSON
RAY H. STRICKLAND WWTP	CITY OF MARION	UTILITY SERVICE BOARD	P.O. BOX 718	MARION	46952	4034481	-8539353	MR. JOHN C. BINKERD	(765) 664-9056	31,320	*	12	10	30	GRANT
REDKEY MUNICIPAL WWTP	REDKEY MUNICIPAL STP	C/O GIVENS & ASSOCIATES	12010 EAST WASHINGTON	CUMBERLAND	46229	4020418	-8509140	CHARLES GIVENS	(317) 369-2811	1,427	*	0.3	100		JAY
REMINGTON WWTP	REMINGTON MUNICIPAL STP	P.O. BOX 70	16197 SOUTH 630 WEST	REMINGTON	47977	4046000	-8709000	MR. MARVIN K. SUTTER	(219) 261-2389	1,323	*	0.275	80		JASPER
RENSSELAER WWTP	RENSSELAER MUNICIPAL STP	P. O. BOX 280	122 N. VAN RENSSELAER STREET	RENSSELAER	47978	4055250	-8710340	MR. TONY A. CARROLL	(219) 866-5699	5,294	*	1.2		15	JASPER
REYNOLDS MUNICIPAL WWTP	REYNOLDS MUNICIPAL STP	P.O. BOX 214		REYNOLDS	47980	4045189	-8653021	MR. ROGER M. REED	(219) 583-7847	547		0.08	100		WHITE
RICHMOND SANITARY DISTRICT	RICHMOND SANITARY DISTRICT	WILLIAM EDMOND ROSS WWTP	2380 LIBERTY AVENUE	RICHMOND	47374	3948050	-8454390	STEVEN J. SWOVELAND, OPER.	(765) 983-7474	39,124	*	18	80	20	WAYNE
RIDGEVILLE MUNICIPAL WWTP	RIDGEVILLE MUNICIPAL STP	P. O. BOX 43		RIDGEVILLE	47380	4017102	-8501229	MR. MARK RAMSEY	(765) 857-2711	843	*	0.15	100		RANDOLPH
RILEY WWTP	RILEY MUNICIPAL STP	TOWN OF RILEY	P.O. BOX 158	RILEY	47871	3924095	-8717439	MR. BOB FLESHER	(812) 894-2410	160		0.11	100		VIGO
RISING SUN WWTP	RISING SUN MUNICIPAL STP	301 S. POPLAR ST		RISING SUN	47040	3856302	-8451301	MR. RICK DILTS	(812) 438-2449	2,470		0.36	100	25	OHIO
ROACHDALE WWTP	ROACHDALE MUNICIPAL STP	P. O. BOX 198		ROACHDALE	46172	3950510	-8648195	MR. CHARLES V. HUBBLE	(317) 522-1424	975		0.14	100		PUTNAM
ROANN WWTP	ROANN MUNICIPAL WWTP	P.O. BOX 276		ROANN	46974	4054562	-8555365	MR. BRUCE SHAW	(765) 833-2341	400		0.075	100		WABASH

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SHERIDAN WWTP	SHERIDAN MUNICIPAL STP	506 S. MAIN ST.		SHERIDAN	46069	4008140	-8612374	MS. REBECCA A. SIMS	(317) 758-5233	2,520		0.5	100		HAMILTON
SHIPSHEWANA WWTP	SHIPSHEWANA MUNICIPAL STP	P.O. BOX 486		SHIPSHEWANA	46565	4140583	-8533553	THOMAS COOK	(219) 768-7317	536		0.15	100	10	LAGRANGE
SHIRLEY WWTP	SHIRLEY MUNICIPAL STP	212 MAIN	P.O. BOX 90	SHIRLEY	47384	3952552	-8535539	MR. DAVID RESLER	(317) 737-6561	806		0.16	85		HENRY
SHOALS MUNICIPAL WWTP	SHOALS WWTP	TOWN HALL	PO BOX 1078	SHOALS	47581	3838548	-8646282	MR. MARK FRANKLIN		807		0.12	100		MARTIN
SILVER LAKE MUNICIPAL WWTP	SILVER LAKE MUNICIPAL STP	P.O. BOX 176		SILVER LAKE	46982	4104019	-8554168	MR. PHIL SHALLEY	(219) 352-2120	546		0.1	100		KOSCIUSKO
SOUTH BEND MUNICIPAL STP	SOUTH BEND MUNICIPAL STP	227 W. JEFFERSON	CITY-CNTY BLDG	SOUTH BEND	46601	4141483	-8626528	MR. KEN SZMUDZINSKI	(219) 277-8515	107,789	*	58.3	30	5	SAINT JOSEPH
SOUTH DEARBORN RSD	SOUTH DEARBORN R.S.D.	370 WEST EADS PARKWAY		LAWRENCEBURG	47205	3905390	-8451500	MR. DENNIS FEICHTNER	(812) 537-0457	-		3.5	50	50	DEARBORN
SOUTH HENRY RSD	SOUTH HENRY RSD	P.O. BOX 147		LEWISVILLE,	47352	3948157	-8521203	MR. JERRY LIBBY, SUPT.	(765) 332-2828	-		0.23	100		HENRY
SOUTH WHITLEY MUNICIPAL WWTP	SOUTH WHITLEY MUNICIPAL STP	118 E. FRONT STREET	P.O. BOX 372	SOUTH WHITLEY	46787	4104476	-8537437	MR. THOMAS RUDD, PRES.	(219) 723-4020	1,782	*	0.45	40	21	WHITLEY
SPEEDWAY WWTP	SPEEDWAY MUNICIPAL STP	1450 NORTH LYNDHURST DR		SPEEDWAY	46224	3946130	-8613530	MR. NORMAN BERRY	(317) 248-1446	12,881	*	7.5	85	25	MARION
SPENCER MUNICIPAL WWTP	SPENCER WWTP	90 NORTH WEST STREET		SPENCER	47460	3917006	-8646142	MRS. SHELLEY EDWARDS	(812) 829-2195	2,508		0.5	100	35	OWEN
ST. LEON MUNICIPAL STP	ST. LEON MUNICIPAL STP	3059 STATE HWY 46		WEST HARRISON	47060	3916437	-8452361	MR. RODNEY W. LAKE	(812) 637-2150	387		0.3			DEARBORN
STAUNTON	STAUNTON MUNICIPAL WWTP	P.O. BOX 98	W. COLUMBUS STREET	STAUNTON	47881	3929231	-8712115	MR. WILLIAM C. CULTICE	(812) 448-1487	550		0.1	100		CLAY
STILESVILLE WWTP	STILESVILLE WWTP	TOWN HALL, P.O. BOX 59		STILESVILLE	46180	3937555	-8638208	MR. GARRET REITZEL, PRES.		261		0.035			HENDRICKS
SULLIVAN WWTP	SULLIVAN MUNICIPAL STP	P.O. BOX 307	361 EAST S.R. 54	SULLIVAN	47882	3906000	-8725000	MR. TIM MEIER	(812) 268-5483	4,617	*	0.46	70		SULLIVAN
SUMMIT SPRINGS RSD	SUMMIT SPRINGS REG. WASTE DIST	P.O. BOX 63		MT. SUMMIT	47361	4000328	-8525389	MR. MALCOM J. FADELY, PRES.	(765) 836-4349	-		0.18	100	25	HENRY
SUMMITVILLE SEWAGE SYS	SUMMITVILLE MUNICIPAL STP	P.O. BOX 368		SUMMITVILLE	46070	4019078	-8539522	MR. THOMAS F. MARSHALL	(765) 536-4353	1,090	*	0.11	80		MADISON
SUNMAN WWTP	SUNMAN MUNICIPAL STP	P.O. BOX 147		SUNMAN	47041	3913428	-8506329	MR. RON ROACH	(812) 623-3720	805		0.225	100	70	RIPLEY
SWAYZEE WWTP	SWAYZEE MUNICIPAL STP	P. O. BOX 85		SWAYZEE	46986	4030451	-8549496	MR. DEREK PATTERSON, PRES.	(765) 922-7880	1,011		0.18			GRANT
SWITZ CITY MUNICIPAL STP	SWITZ CITY MUNICIPAL STP	P.O. BOX 191		SWITZ CITY	47465	3902454	-8702345	MR. DAVID FISH	(812) 847-6717	311		0.036			GREENE

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SYRACUSE WWTP	SYRACUSE MUNICIPAL STP	310 NORTH HUNTINGTON		SYRACUSE	46567	4125369	-8545328	CLINTON HOUSEWORTH, UTIL. DIR.	(219) 457-3229	3,038		1.05	100	10	KOSCIUSKO
TELL CITY WWTP	TELL CITY MUNICIPAL WWTP	P.O. BOX 217		TELL CITY	47586	3757140	-8646330	MR. PATRICK BEAMON	(812) 547-4151	7,845	*	2.06			PERRY
TENNYSON WWTP	TENNYSON WWTP	TOWN BOARD OF TENNYSON	P.O. BOX 116	TENNYSON	47637	3804500	-8707000	MR. DON PHILLIPS	(812) 567-8816	290		0.045	100		WARRICK
TERRE HAUTE WWTP	TERRE HAUTE WWTP		17 HARDING AVENUE	TERRE HAUTE	47807	3925410	-8726510	MR. WILLIAM W. GOODRICH	(812) 232-6564	59,614	*	24	40	10	VIGO
THORNTOWN UTILITIES	THORNTOWN UTILITIES	109 WEST MAIN STREET		THORNTOWN	46071	4008226	-8636433	MR. JACK HUTCHENS	(765) 436-2627	1,562		0.16	100		BOONE
TIPTON MUNICIPAL STP	TIPTON MUNICIPAL STP	113 COURT STREET	P.O. BOX 288	TIPTON	46072	4016533	-8601370	MR. HENRY HOELSCHER	(765) 675-2234	5,251	*	2	20	15	TIPTON
TOPEKA MUNICIPAL WWTP	TOPEKA MUNICIPAL STP	P. O. BOX 127	101 SOUTH MAIN STREET	TOPEKA	46571	4132180	-8532240	MR. LARRY SCHROCK	(219) 593-2300	1,159		0.15	100		LAGRANGE
TRAFALGAR MUNICIPAL WWTP	TRAFALGAR MUNICIPAL STP	P.O. BOX 57		TRAFALGAR	46181	3925221	-8609069	KENNETH MATTHEWS, PRES.	(317) 878-4591	798		0.11	100		JOHNSON
TRI LAKES RSD	TRI LAKES RSD	R.R. #8, WILCHERN RD	P.O. BOX 667	COLUMBIA CITY	46725	4113448	-8525440	MR. GEORGE BRUCE, PRES.	(218) 248-3112	-		0.188	100		WHITLEY
TURKEY CREEK RSD	TURKEY CREEK REGIONAL SWR. D.	4852 N. 1200 W.		CROMWELL	46732	4125194	-8539121	MR. DALE ALLEN, PRES.	(219) 856-4341	-		0.37	100		KOSCIUSKO
TURKEY RUN RSD	TURKEY RUN RSD	P.O. BOX 288		MARSHALL	47859	399120	-871832	MR. KEVIN STEWART		-		0.17			PARKE
UNION CITY WWTP	UNION CITY MUNICIPAL STP	115 NORTH COLUMBIA ST		UNION CITY	47390	4012410	-8449251	MR. RONALD S. THOMPSON	(765) 964-5544	3,622		1.5		10	RANDOLPH
UNIONDALE MUNICIPAL STP	UNIONDALE MUNICIPAL STP	TOWN OF UNIONDALE	P.O. BOX 125	UNIONDALE	46791	4049144	-8514291	MR. RON SLIGER, PRES.	(219) 543-2266	277		0.0223			WELLS
UPLAND MUNICIPAL WWTP	UPLAND MUNICIPAL WWTP	P.O. BOX 428		UPLAND	46989	4027484	-8529158	MR. FRANK LEIST, CERT. OPER.	(765) 998-7287	3,803		0.7	100	10	GRANT
VAN BUREN MUNICIPAL WWTP	VAN BUREN MUNICIPAL WWTP	P. O. BOX 392	201 NORTH FIRST STREET	VAN BUREN	46991	4036394	-8529526	MR. TONY MANRY, PRES.	(765) 934-4665	935		0.14	100		GRANT
VEEDERSBURG MUNICIPAL WWTP	VEEDERSBURG MUNICIPAL STP	100 S. MAIN STREET		VEEDERSBURG	47987	4005502	-8715498	MR. CARL HOAGLAND, PRES.	(765) 294-2728	2,299	*	0.3	75		FOUNTAIN
VERSAILLES WWTP	VERSAILLES SEWER WORKS #2	TOWN OF VERSAILLES	P.O.BOX 436	VERSAILLES	47042	3902585	-8516248	MR. KEVIN HENSLEY	(812) 689-5130	1,784		0.25	100		RIPLEY
VEVAY WWTP	VEVAY MUNICIPAL STP	P.O. BOX 52	210 FERRY STREET	VEVAY	47043	3844468	-8504373	MR. TERRY BINDLEY	(812) 427-2472	1,735		0.4	100		SWITZERLAND
VINCENNESWWTP	VINCENNES MUNICIPAL STP	P.O. BOX233	1118 RIVER ROAD	VINCENNES	47591	3840348	-8732307	MR. TODD D. CHIMEL	(812) 886-5011	18,701		4.56	95		KNOX
WABASH WWTP	WABASH MUNICIPAL STP	202 SOUTH WABASH ST		WABASH	46992	4047316	-8549318	MR. RICK PRICE	(219) 563-2941	11,743	*	6	30	2.5	WABASH

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Purdue University
West Lafayette, Indiana
(Updated 1/13/04)

Facility Name	Mailing Name	Mailing Street 1	Mailing Street 2	Mailing City	ZIP Code	Latitude	Longitude	Official Representative	Official Representative Telephone Number	Pop (2000)	CS	Q Design	% San	% Ind	County
WAKARUSA WWTP	WAKARUSA MUNICIPAL STP	P. O. BOX 474		WAKARUSA	46573	4132000	-8601120	MR. DOUGLAS D. PURDUE	(219) 862-4632	1,618	*	0.49		30	ELKHART
WALDRON CD	WALDRON CD	P. O. BOX 242		WALDRON	46182	3927358	-8540385	MR. RONALD FUCHS	(765) 525-9696	-		0.12			SHELBY
WALKERTON WWTP	WALKERTON MUNICIPAL STP	510 ROOSEVELT RD		WALKERTON	46574	4128189	-8629133	MR. JEFF ZEHNER	(219) 586-3796	2,274		0.364	0.3	2	SAINT JOSEPH
WALTON WWTP	WALTON MUNICIPAL STP	P.O. BOX 322	100 SOUTH DEPOT	WALTON	46994	4039480	-8614300	MR. JOHN DAVID RUSH	(219) 626-2941	1,069		0.15	100		CASS
WANATAH WWTP	WANATAH MUNICIPAL WWTP	P.O. BOX 185		WANATAH	46390	4125102	-8654214	MR. CHARLES A. MACK	(219) 733-2340	1,013		0.078			LA PORTE
WARREN WWTP	WARREN MUNICIPAL STP	P. O. BOX 477		WARREN	46792	4041036	-8525518	MR. LEE POULSON	(219) 875-3424	1,272	*	0.25	30	10	HUNTINGTON
WARSAW WWTP	WARSAW MUNICIPAL STP	P.O. BOX 557	794 WEST CENTER ST	WARSAW	46580	4114166	-8552083	MR. DAVID VAN DYKE	(219) 372-9563	12,415	*	4	60	50	KOSCIUSKO
WASHINGTON MUNICIPAL STP	WASHINGTON MUNICIPAL STP	101 NE THIRD STREET		WASHINGTON	47501	3839104	-8712180	HON. THOMAS BAUMERT	(812) 254-2730	11,380	*	1.9	82		DAVIESS
WASHINGTON TOWNSHIP RSD	WASHINGTON TOWNSHIP RSD	P.O. BOX 121		NEW WASHINGTON	47162	3833290	-8534099	MR. RON REPPE, PRES.	(812) 293-3352	-		0.09	100		CLARK
WATERLOO MUNICIPAL STP	WATERLOO MUNICIPAL STP	P.O. BOX 96		WATERLOO	46793	4125493	-8500374	MS. LYNN W. CARPER	(219) 837-7428	2,200	*	0.24	40	75	DE KALB
WAYNETOWN MUNICIPAL WWTP	WAYNETOWN MUNICIPAL STP	P. O. BOX 215	106 WEST WASHINGTON	WAYNETOWN	47990	4005180	-8704000	MR. GREGORY GAYLER	(765) 234-2154	909		0.1	100		MONTGOMERY
WEST COLLEGE CORNER POTW	WEST COLLEGE CORNER STP	P.O. BOX 177		W COLLEGE CORNER	47003	3933326	-8448583	MR. RONALD MIDDLETON	(317) 647-5224	634		0.24	100		UNION
WEST LAFAYETTE POTW	WEST LAFAYETTE MUNICIPAL STP	609 WEST NAVAJO ST		WEST LAFAYETTE	47906	4025044	-8654162	HON. JAN MILLS	(765) 743-2302	28,778	*	7.8			TIPPECANOE
WEST LEBANON TOWN OF	WEST LEBANON	P. O. BOX 201	201 HIGH STREET	WEST LEBANON	47991	4016200	-8723000	MIDDLETON J. BROOKSHIRE	(765) 893-4014	793		0.078	100		WARREN
WEST TERRE HAUTE SANITARY	WEST TERRE HAUTE SANITARY	SEWER DEPARTMENT	525 WEST RATCLIFF AVE	WEST TERRE HAUTE,	47885	3927262	-8726511	MR. JERRY LEITGABEL	(812) 533-2991	2,330		0.345			VIGO
WESTFIELD MUNICIPAL STP	WESTFIELD MUNICIPAL STP	WESTFIELD TOWN COUNCIL	130 EAST PENN STREET	WESTFIELD	46074	4001212	-8613120	MR. MICHAEL MCDONALD, PRES.		9,293		1			HAMILTON
WESTPORT MUNICIPAL WWTP	WESTPORT MUNICIPAL STP	P.O. BOX 579		WESTPORT	47283	3909454	-8534505	MR. MARK A. TAYLOR	(812) 591-3500	1,515		0.17	100		DECATUR
WESTVILLE WWTP	WESTVILLE MUNICIPAL STP	P.O. BOX 275		WESTVILLE	46391	4132300	-8653300	MR. BART FRANK	(219) 785-2413	2,116		0.35	100	10	LA PORTE
WHEATFIELD MUNICIPAL WWTP	TOWN OF WHEATFIELD	SEWER WORKS	P.O. BOX 9	WHEATFIELD	46392	4111300	-8702450	JAMES BACHMAN	(219) 956-3365	772		0.077			JASPER
WHITELAND MUNICIPAL WWTP	WHITELAND MUNICIPAL STP	500 SOUTH U.S. 31		WHITELAND	46184	3932351	-8605223	MR. DAN CSIKOS, PRES.	(317) 535-7627	3,958		0.42	100		JOHNSON
WHITESTOWN MUNICIPAL WWTP	WHITESTOWN WWTP	P. O. BOX 25		WHITESTOWN	46075	3959398	-8620279	MR. MARK BENNINGTON	(317) 501-9866	471		0.08	100		BOONE

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Facility Name	Mailing Name	Mailing Street 1	Mailing Street 2	Mailing City	ZIP Code	Latitude	Longitude	Official Representative	Official Representative Telephone Number	Pop (2000)	CS	Q Design	% San	% Ind	County
WILLIAMSPORT MUNICIPAL WWTP	WILLIAMSPORT MUNICIPAL STP	29 NORTH MONROE		WILLIAMSPORT	47993	4017177	-8717010	MR. MARK HUTSON	(765) 762-3570	1,935		0.22	100	>1	WARREN
WINAMAC MUNICIPAL WWTP	WINAMAC MUNICIPAL STP	120 WEST MAIN STREET		WINAMAC	46996	4103060	-8636240	MR. BRADLEY ZELLERS	(219) 946-3494	2,418	*	0.434			PULASKI
WINCHESTER WWTP	WINCHESTER MUNICIPAL STP	113 EAST WASHINGTON		WINCHESTER	47394	4011084	-8459114	MR. GARY A ANDERSON	(765) 584-1331	5,037		1.324	95	10	RANDOLPH
WINDFALL MUNICIPAL WWTP	WINDFALL CITY MUNICIPAL STP	P.O. BOX 486		WINDFALL CITY	46076	4021211	-8557073	MR. TERRY COOPER, SUPT.	(765) 945-8118	712		0.13	100		TIPTON
WINGATE MUNICIPAL WWTP	WINGATE MUNICIPAL STP	P. O. BOX 253		WINGATE	47994	4010200	-8704200	MR. MORRIS MCCULLOCH, PRES.	(765) 275-2407	299		0.035	100		MONTGOMERY
WINSLOW MUNICIPAL WWTP	WINSLOW MUNICIPAL STP	P.O. BOX 69		WINSLOW	47598	3823215	-8713516	MR. DAVID A TISDALE, PRES.	(812) 789-2620	881		0.074			PIKE
WOLCOTT MUNICIPAL WWTP	WOLCOTT MUNICIPAL STP	P.O. BOX 38		WOLCOTT	47995	4045266	-8702058	MR. DENNIS CRANDALL	(765) 474-1193	989		0.2	100		WHITE
WOLCOTTVILLE MUNICIPAL WWTP	WOLCOTTVILLE MUNICIPAL STP	P.O. BOX 325	104 WEST RACE STREET	WOLCOTTVILLE	46795	4131350	-8522326	MR. MATT JORDAN	(219) 854-3316	933		0.25	100		LAGRANGE
WOODBURN MUNICIPAL WWTP	WOODBURN MUNICIPAL STP	P. O. BOX 75		WOODBURN	46797	4107589	-8450207	MR. MICHAEL A. MCCONNELL	(219) 632-5318	1,579		0.15	100		ALLEN
WORTHINGTON MUNICIPAL WWTP	WORTHINGTON MUNICIPAL STP	P.O. BOX 82	20 S COMMERCIAL ST., SUITE 2	WORTHINGTON	47471	3905513	-8658441	MR. JAMES F. MARKET	(812) 875-2641	1,481		0.16	100		GREENE
YORKTOWN WWTP	YORKTOWN MUNICIPAL STP	P.O. BOX 518	720 WEST SMITH STREET	YORKTOWN	47396	4010262	-8530115	MR. ALLEN NEFF, SUPT.	(765) 759-9698	4,785		2	99	10	DELAWARE
ZANESVILLE MUNICIPLE STP	ZANESVILLE MUNICIPAL STP			ZANESVILLE	46799	409123	-852852			602		0.101			WELLS
ZIONSVILLE MUNICIPAL STP (CLARKSTON SUBDIVISION)	ZIONSVILLE MUNICIPAL STP	TOWN HALL	110 S. 4TH ST.	ZIONSVILLE	46077	399781	-862873	MR. DENNIS MACKEY	(317) 873-2332	4,387		0.05	100		BOONE
ZIONSVILLE TOWN OF	ZIONSVILLE MUNICIPAL STP	TOWN OF ZIONSVILLE	110 S. 4TH ST	ZIONSVILLE	46077	3956432	-8616135	MR. DENNIS MACKEY	(317) 873-2332	4,387		0.95	100		BOONE

KEY

MS4 with Combined Sewer POTW

MS4 without Combined Sewer POTW

Non-MS4 POTWs

APPENDIX G

State Maintained Highway Segments Discharging Storm Water to
Municipal Combined Sanitary/Storm Sewer Collection Systems

A Summary of 31 Responses from an August 12, 2003 Survey of Indiana's 106
Combined Sanitary/Storm Sewer POTWs

City	State Route	Local Name	from	to	Approx. Length (miles)
Fort Wayne	US 27 (Southbound)	Clinton St.	Penn Ave.	McKinnie Ave.	4.4
	US 27 (Northbound)	Lafayette St. & Spy Run Ave.	Brook St.	Pettit Ave.	4.3
	SR 930	Coliseum Blvd. East	Crescent Ave.	Glen Hurst Ave.	0.2
	SR 930	Coliseum Blvd. North	Vance Ave.	State Blvd.	0.6
	SR 930	Lincoln Hwy.	Coliseum Blvd. North (@ Cloverleaf)	(±) Ft. Wayne RR	0.1
Speedway	U.S. 136 @ I-74				-
Oxford	SR 55	Michigan St.	Wilson (on Michigan)	Benton	0.2
	SR 352	McConnell St.	Michigan	Benton	0.3
	SR 352	West Benton	Justus (on Benton)	Fifth	0.1
Tipton	SR 28E	Jefferson St.	Kentucky St. East	900 E. Jefferson St.	1.1
	SR 19 S	Main Street	Jefferson St. South	Jackson St.	0.3
	SR 19 N	Ash Street	Hill Street South	Jefferson St.	0.8
Akron	SR 14	West Rochester St.	SR 19 & SR 14 Junction	West Walnut	0.02
	SR 14	East Rochester St.	SR 19 & SR 14 Junction	SR 14 turns N	0.1
	SR 19	N. Mishawaka	SR 19 & SR 14	2 block N on SR 19	0.02
	SR 19	S. Mishawaka	SR 19 & SR 14	1 block S on SR 19	0.02

City	State Route	Local Name	from	to	Approx. Length (miles)
Richmond	SR 227	North J St.	US 27 & SR 227 Junction	200' E US 27 & SR 227 Junction	0.04
	US 27	S. 9th & S. 8th	South A St.	South L St.	0.6
LaPorte	SR 4	Monroe St.	Maple Ave.	Kingsbury Ave.	2.0
	US 35	Indiana Ave.	Maple Ave.	Kingsbury Ave.	1.2
	SR 2	Lincolnway & J St.	K Street	Tyler St.	0.8
	SR 2	Lincolnway E	Detroit	Boyd Blvd.	1.3
Seymour	SR 11	North Broadway	3rd St.	Rock Sewer (catch basin)	0.04
	SR 11	North Broadway	2nd St.	Rock Sewer (catch basin)	0.04
Royal Center	SR 35	Chicago St.	High School	700 N	2.0
	SR 16	Black Lane	Market St.	600 W	1.5
Goshen	US 33	Main & Lincolnway E	-	-	-
	US 33	Elkhart Rd. & Pike St.	-	-	-
	US 15	N. Main St. & Pike & S. Main	N of overpass	Wilden Ave.	0.3
	US 15	N. Main St. & Pike & S. Main	S of Pike St.	Westwood Dr.	1.9
	SR 4	E. Lincoln Ave.	Main St. E	City Limits	1.6
Washington	SR 57	N is 5th St. - S is S IN 57	SR 57 & Crestview Dr. S	SR 57 & Highland Ave.	2.5
	Bus Rt 50	National Hwy.	Bus Rt 50 & SW 5th E	Bus Rt 50 & SR 257	1.2
Hartford City	SR 3	Walnut St.	Park Ave.	Ritter Rd.	2.0
	SR 26	Washington St.	Center Pike (CR 100 W)	CR 075 E	1.8

City	State Route	Local Name	from	to	Approx. Length (miles)
Huntington	SR 5	Jefferson St.	Evergreen Rd.	Frontage Rd.	2.7
Kendallville	US 6	North St.	Donaldson Dr.	Fair St.	1.25
	SR 3	Lima Rd.	Veterans Way	North St.	0.2
Frankfort	SR 39	Jackson St.	Kelly Rd./150 S	Magnolia Ave.	3.0
	SR 28	Walnut St.	E. Meadow Dr.	Prairie Ave./130 W	2.9
	SR 75	Delphi Ave.	Kyger St.	Avery St.	0.5
Elkhart	SR 19	Nappanee St.	Lusher Ave.	Beardsley Ave.	1.5
	SR 19	S. Nappanee St.	Mishawaka Rd.	Lusher Ave.	0.8
	SR 19	Cassopolis St.	Bristol Ave.	US 80/90 (Toll)	2.0
	US 33	S. Main St.	Mishawaka Rd.	US 20 ByPass	1.2
Hammond	SR 912	Cline Ave.	I 80/94	US 20 Michigan Rd.	2.5
	US 20	Michigan Ave.	Cline Ave.	Indianapolis Blvd.	2.5
	US 20 & Rt 12	Indianapolis Blvd.	Atchison Ave.	State Line	2.1
	US I 80/94	Borman Expressway	Cline Ave.	State Line	4.8
	SR 312	Chicago Ave. to Sheffield, then N to Gostlin	White Oak Ave.	State Line	2.0
	SR 152	Indianapolis Blvd.	Little Calumet River	Michigan St.	3.0
	SR 912	Cline Ave. Extension	White Oak	I 90	1.6
	US 41	Indianapolis Blvd N to I 80/94, W to Calumet Ave, then N to Indianapolis Blvd.	Little Calumet River	State Line	11.1
	US 90	Indiana Toll Road	State Line (approx .7 mile in E. Chicago)	Cline Ave.	9.0
Tell City	SR 66	12th Street	Payne	William Tell Blvd.	3.5

City	State Route	Local Name	from	to	Approx. Length (miles)
Monticello	US 421-SR 39	Main St.	South St.	Broadway St.	0.6
	US 421-US 24	Broadway St.	3rd St.	Main St.	0.4
Rensselaer	SR 231	Washington/College/McKinley	Merritt	Charles	3.0
	SR 114	Grace/Cullen/Clark	Melville	College	2.0
Angola	US 20W	W. Maumee St.	Public Square W	West St.	0.1
	US 20E	E. Maumee St.	Public Square E	Euclid St.	0.2
	US 20E	E. Maumee St.	Euclid St.	345' E of Clyde Ave	0.5
Decatur	US 224	Monroe St.	lst Street	10th Street	0.6
Wabash	SR 13	Southwood Dr., Wabash St., Manchester Ave.	US 24 (ByPass)	¼ mile N of France Rd.	4.9
	SR 15	Wabash St., Canal St., Market St. & Cass St.	Storey Rd.	¼ mile N of France Rd.	5.0
	US 24 Bus. Rte.	Stitt St. & Manchester Ave.	US 24 ByPass & Stitt St. (US 24 Bus. Rte)	US 24 Bypass & SR 13 (US 24 Bus. Rte)	4.1
	US 24 ByPass	-	US 24 ByPass & Stitt St. (US 24 Bus. Rte)	US 24 ByPass & SR 13 (US 24 Bus. Rte)	3.7
Noblesville	SR 32	Conner St.	9th St.	16th St.	0.5
Berne	US 27	-	Poplar Ave.	Center St.	0.6
	SR 218	Main Street	Reusser St.	Schug St.	0.9
Auburn	SR 8	7th St.	Auburn Port Authority Railroad East	Duesenburg Dr.	1.3

City	State Route	Local Name	from	to	Approx. Length (miles)
Ligonier	SR 5	Cavin St., Lincolnway S, Northwood	US 6 & SR 5 Intersection	SR 5 & Johnson St. Inter.	1.8
	US 6 & US 33	-	700 E of SR 5	Town Line Rd	1.1
Brownsburg	SR 136	Main St.	SR 267 (Green St.)	Eastern Ave.	0.3
	SR 267	Green St.	Twin St.	Washington Ave.	0.5
Logansport	SR 17	N 3rd St.	Market St.	North Hillcrest	1.2
	SR 25	S. Cicott St. & Michigan Rd.	S. Cicott St.	Chase Rd.	3.1
East Chicago	US 41	Indianapolis Blvd.	151st Street	Columbus Drive	1.0
	US 12 & 20	Columbus Dr.	Euclid	Hemlock	0.3
	SR 912	Chicago Ave.	White Oak	Parrish	1.0
New Haven	SR 930	-	Doyle Rd.	Meyer Rd.	5.5
	I 469	-	SR 930	US 24	2.0
				Total Miles	**137.73**

APPENDIX H

APPENDIX I

The DNR Endangered, Threatened, Rare Species and High Quality Natural Communities (ETR)

Theme Name:	indotetr.shp
Location:	..\Land
Source:	DNR
Extent:	Statewide
Scale:	
Type of Coverage:	point
Source Date:	2000
Projection:	UTM
Datum:	NAD83
Units:	meters

Data Layer Description:

This database contains the Endangered, Threatened, Rare (ETR) Species and High Quality Natural Communities (ETR) of Indiana. Purdue University received this data in 2002. The database is not available except by special arrangement with the Indiana Department of Natural Resources, Natural Heritage Data Center (Contact Ronald P. Hellmich, 317-232-8059; Contact J. Osadczuk, Environment, Planning, and Engineering Division). The following are the field descriptions of the ETR database.

Indiana Natural Heritage Data Center: Field Definitions

Longitude:	Longitude in decimal degrees
Latitude:	Latitude in decimal degrees
Elcode:	Heritage Species code
Eocode:	Heritage species code plus 3 digit occurrence number
Type:	Generic descriptor of species, i.e. bird, mammal, etc.
Sprot:	State status

SE = state endangered. Any animal species whose prospects for survival or recruitment within the state are in immediate jeopardy and are in danger of disappearing from the state. This includes all species classified as endangered by the federal government which occur in Indiana. Plants known to occur currently on five ore fewer sites in the state are considered endangered.

ST = state threatened. Any animal species likely to become endangered within the foreseeable future. This includes all species classified as threatened by the federal government which occur in Indiana. Plants

GH = historical
GX = extinct

Subrank
T = Taxonomic subdivision (e.g. subspecies_ follows numerical ranks as with ranks above (T1, T2, etc.) for total rank like G3T3 etc.

Qualifiers
? = inexact numeric rank
Q = questionable taxonomy

Srank:	Heritage State Rank S1 = critically imperiled in state (fewer than 5 occurrences) S2 = imperiled in state (6-20 occurrences in state) S3 = rare (typically 21-100 occurrences in state) S3 = apparently secure (many occurrences) S4 = apparently secure (many occurrences) S5 = demonstrably secure SA = accidental in state SH = of historical occurrence in state SX = extirpated from state SU = possibly imperiled, need more information SRE = reintroduced in state SZ = birds – migrant through state; or present in state but with no identifiable location SRF = reported falsely in state
	Qualifiers N = nonbreeding status (generally for birds) B = breeding status (generally for birds)
Trs1	Public land survey location Township Range Section information
Trs2	Public land survey location field 2
Trs3	Public land survey location field 3
Date	date when occurrence documented
Misccommen	Miscellaneous comments, used mostly for mussel species info on the condition occurrence documented as: live, fresh dead, weathered shells, subfossil
County1	County of occurrence
County2	County of occurrence field 2
Quadname	USGS 7.5min quadrangle map of occurrence
Maname	Conservation area of occurrence
Watershed	USGS HUC code, 8-digit (computer takes off first digit, a zero)

Recreational Facilities with Waterbodies (Federal, state, county, municipal and township parks with waterbodies)

Theme Name:	Recre_fedstcnmutw_lakep_river.shp
Location:	..\Land
Source:	USGS
Extent:	Statewide
Scale:	
Type of Coverage:	point
Source Date:	2001
Projection:	UTM
Datum:	NAD83
Units:	meters

Data Layer Description:

This database consists of the Indiana recreation facilities inventory, a statewide point coverage of sites that offer facilities for public outdoor recreation. The point was usually recorded at the entrance or parking lot to the facility, which may be in a corner of the property. Purdue University received this data from DNR in 2001. Information for the Facilities inventory was collected iniatially by visiting each site, filling out a survey instrument for each site and collecting a GPS location data point. Information is updated as available using organizations master plan. In this database, based on the 'Areatype', only federal , state, county, municipal and township parks are chosen which have water bodies in them (fields 'Lakepond' and 'River') for swimming, fishing , boating etc.

Exceptional Use and High Quality Waters

Theme Name:	exceph2o.shp
Location:	..\Water
Source:	DNR Division of Water
Extent:	Statewide
Scale:	1:24,000
Type of Coverage:	line
Source Date:	
Projection:	UTM
Datum:	NAD83
Units:	meters

Data Layer Description:

The line coverage contains exceptional use streams and high quality waters. Purdue University received this data from IDEM in 2002 . The field 'Pname' gives the names of the waterbodies and the field 'Designatio' indicates the exceptional use waters and high quality waters as defined by IDEM's 327 IAC 2-1-2(3) and 327 IAC 2-1-11(b) rules. There are four High Quality Waters: Cedar Creek, Blue River, North Fork Wildcat, and South Fork Wildcat; and eleven Exceptional Use Waters: Big Pine Creek, Mud Pine Creek, Fall Creek, Indian Creek, Clifty Creek, Bear Creek, Rattlesnake Creek, tributary to Bear Creek in Fountain County, Blue River in Washington County to Ohio River, South Fork of Blue River, and Lost River.

Scenic Rivers

Theme Name:	scenic_rivers.shp
Location:	..\Water
Source:	DNR outdoor recreation
Extent:	Statewide
Scale:	1:24,000
Type of Coverage:	line
Source Date:	1985
Projection:	UTM
Datum:	NAD83
Units:	meters

Data Layer Description:

The line coverage contains rivers meeting natural or scenic classifications as defined by the Division of Outdoor Recreation in its 1985 Natural and Scenic Rivers reports. Purdue University received this data from DNR in ARC coverage in NAD27 format and later converted it to NAD83, shape file. The following rivers are the scenic rivers (given by field 'River_name') some of which are already designated and some of which are proposed (given by field 'Status'):

1. South Branch Elkhart River (Upper and lower)
2. Tippecanoe River (Upper and lower)
3. Cedar Creek (Upper and lower)
4. Wildcat Creek North Fork (Upper, middle, middle and lower)
5. Wildcat Creek South Fork
6. Wildcat Creek (Main)
7. Big Pine Creek
8. Sugar Creek (Upper, Middle M, Middle U, Middle L, lower)
9. Big Walnut Creek
10. Whitewater River (Upper and lower)
11. Sand Creek
12. Blue River (Upper and lower)

Scenic Rivers: Designated

Theme Name:	designdrivrs83.shp
Location:	..\Water
Source:	DNR outdoor recreation
Extent:	Statewide
Scale:	
Type of Coverage:	line
Source Date:	
Projection:	UTM
Datum:	NAD83
Units:	meters

Data Layer Description:

This database contains a statewide line coverage of rivers which are designated in the State Natural and Scenic Rivers Program. It is a subset of the database of scenic rivers in the previous page (p:50). Purdue University received this data from DNR in 2001. The following rivers are considered designated which are given under the field 'River_name':

1. Cedar Creek (Upper and lower)
2. Wildcat Creek North Fork (Upper , middle and lower)
3. Wildcat Creek South Fork
4. Wildcat Creek (Main)
5. Blue River (Upper and lower)

This database also includes the county names, quad names, mile length of the rivers, start and end locations of the rivers and many other attributes.

Surface Intakes

Theme Name:	surface_intakes.shp
Location:	..\WaterSupply
Source:	Indiana State University for IDEM
Extent:	Statewide
Scale:	1:24,000
Type of Coverage:	polygon
Source Date:	1997-98
Projection:	UTM
Datum:	NAD83
Units:	meters

Data Layer Description:

This database contains 55 public drinking surface water supplies that were GPS located in 1997-8 by Indiana State University for IDEM. The database contains information about system names, intake names, latitude and longitude data, comments about the intake, etc.

APPENDIX J

INDOT PRIORITY NO. 1
Rivers and Streams

River	Significance	County	GIS Database	Segment
Bear Creek	EUW	Fountain	EUS (IDEM)	C.R. 250W to confluence with the Wabash
Bear Creek Tributary	EUW	Fountain	EUS (IDEM)	Within Portland Arch Nature Preserve
Big Pine Creek	EUW	Warren	EUS (IDEM)	S.R. 18 to confluence with Wabash River
Big Walnut Creek	7	Putnam	N & S (IDNR)	Hendricks/Putnam Co. Line to S.R. 36
Blue River	HQW	Crawford, Harrison, Washington	N & S (IDNR)	U.S. 150 in Fredericksburg to S.F. 462
Blue River	EUW	Washington	EUS (IDEM)	Confluence of West & Middle Forks of Ohio River
Blue, South Fork	EUW	Washington	EUS (IDEM)	S.R. 135 to confluence with Blue River
Cedar Creek	HQW	Allen, DeKalb	N & S (IDNR)	DeKalb C.R. 68 to St. Joseph River
Clifty Creek	EUW	Montgomery	EUS (IDEM)	Headwaters to confluence with Indian Creek
Elkhart River, South Branch	7	Noble	N & S (IDNR)	C.R. 100N to U.S. 6
Fall Creek	EUW	Warren	EUS (IDEM)	U.S. 41 to confluence with Big Pine Creek
Indian Creek	EUW	Montgomery	EUS (IDEM)	C.R. 475W to confluence with Sugar Creek
Lost River	EUW	Martin, Orange	EUS (IDEM)	Potato Road to confluence with East Fork White River
Mud Pine Creek	EUW	Warren	EUS (IDEM)	S.R. 352 to confluence with Big Pine Creek

River	Significance	County	GIS Database	**Priority No. 1** Segment
Rattlesnake Creek	EUW	Fountain	EUS (IDEM)	C.R. 350W to confluence with Bear Creek
Sand Creek	17	Bartholomew, Decatur, Jackson, Jennings	N & S (IDNR)	Westport Covered Bridge to Brewersville Road
Sugar Creek	7	Montgomery, Parke	N & S (IDNR)	Darlington Covered Bridge to confluence with Wabash River
Tippecanoe River	See Notes	Kosciusko Marshall	N & S (IDNR)	Kosciusko Co. C.R. 700W to Marshall Co. Moores Ditch
Whitewater River	7	Dearborn, Fayette, Franklin	N & S (IDNR)	Laurel Feeder Dam to New Trenton Bridge
Wildcat Creek	HQW	Carroll, Tippecanoe	N & S (IDNR)	S.R. 29 to confluence with Wabash River
Wildcat Creek, South Fork	HQW	Clinton, Tippecanoe	N & S (IDNR)	S.R. 38 to confluence with Wildcat Creek,

Indiana portion of the open waters of Lake Michigan (HQW)

All waters incorporated in the Indiana Dunes National Lakeshore (HQW)

Rev. 5/7/02

Notes: "EUW" means "Exceptional Use Waters" (pursuant to 327 IAC 2-1-11(b). "HQW: means "High Quality Waters" (also referred to as "Outstanding State Resource Waters," pursuant to 327 IAC 2-1-2(3) and 327 IAC 2-1.5-19(b). As to numerical codes: 7 means "outstanding rivers from state inventories or assessments; i.e., rivers identified as having statewide or greater significance;" 17 means "miscellaneous rivers identified as having outstanding ecological, recreational or scenic importance. "EUS (IDEM)" means IDEM's Exceptional Use Streams database. "N & S (IDNR)" means DNR's Natural and Scenic Rivers database. The five segments coded 7 or 17 are included in the Priority No. 1 list because other segments on this list coded "EUW" and "HQW" are also coded 7 or 17 in the "Outstanding Rivers List for Indiana." The Tippecanoe River Segment is included in the state's Natural and Scenic Rivers inventory and is designated by the National Park Service as qualified for inclusion in the National Wild and Scenic Rivers System.
Source: "Outstanding Rivers List for Indiana," Indiana Natural Resources Commission, Indiana Register, March 1, 1993 and elsewhere, subsequently.

INDOT PRIORITY NO. 2
Rivers and Streams

River	Significance	County	GIS Database	Segment
Big Creek	17	Jefferson		East side of Jefferson Military Reservation boundary to Graham Creek
Deep River	17	Lake, Porter		1 mile south of U.S. 30 to Little Calumet River
Graham Creek	17	Jefferson, Jennings, Ripley		New Marion to confluence with Big Creek
Indian-Kentuck Creek	17	Jefferson, Ripley		Confluence with Vestal Branch to confluence with Ohio River
Kilmore Creek	17	Clinton		U.S. 421 to confluence with South Fork Wildcat Creek
Little Creek	17	Jefferson		Kent to Big Creek
Mississinewa	17	Miami		Mississinewa Reservoir to confluence with Wabash River
Otter Creek	17	Jennings, Ripley		Covered Bridge North of Holton to confluence with Vernon Fork Muscatatuck
Patoka River	17	Dubois, Gibson, Pike		Patoka Reservoir to confluence with Wabash River
Sugar Mill Creek	17	Fountain, Parke		Wallace to confluence with Sugar Creek
Wildcat Creek, Middle Fork	17	Clinton, Tippecanoe		S.R. 26 (Edna Mills) to confluence with Wildcat Creek, South Fork

Notes: Numerical code 17 means "miscellaneous rivers identified as having outstanding ecological, recreational or scenic importance."
Source: "Outstanding Rivers List for Indiana," Indiana Natural Resources Commission, Indiana Register, March 1, 1993 and elsewhere, subsequently. Rev. 5/702

INDOT PRIORITY NO. 3
Rivers and Streams

River	Significance	County	GIS Database	Segment
Big Blue	11	Johnson, Rush, Shelby		Flatrock River to Carthage
Black River	11	Posey		Confluence with Higginbotham Ditch to confluence with Wabash River
Buck Creek	11	Harrison		Headwaters to confluence with Ohio River
Cypress Slough Creek	11	Posey		Confluence with Castleberry Creek to Southwind Maritime Center
Driftwood	11	Bartholomew		Atterbury Fish and Wildlife Area to Columbus
Fawn	11	Lagrange, Steuben		Nevada Mills to Indiana/Michigan Line and Indiana/Michigan to Indiana/Michigan line
Fish Creek	11	Dekalb, Steuben		Ohio/Indiana line to Indiana/Ohio Line
Fourteen-Mile Creek	11	Clark		Confluence of East and West Forks to confluence with Ohio River
Indian Creek	11	Harrison		Floyd/Harrison Co. Line to confluence with Ohio River

Priority No. 3

River	Significance	County	GIS Database	Segment
Kankakee	11	LaPorte, Newton, Porter		Upstream boundary of Kingsbury Fish and Wildlife Area through LaSalle State Fish and Wildlife Area to Indiana/Illinois line
Laughery Creek	11	Dearborn, Ohio, Ripley		Source just east of Morris in Ripley Co. to confluence with Ohio River
Little Blue	11	Crawford		Town of English to confluence with Ohio
Little Indian Creek	11	Harrison		Pfrimmer Church to confluence with Indian Creek
Little Mosquito	11	Harrison		Headwaters to confluence with Mosquito Creek
Little Pine Creek	11	Warren		Bridge SW of Green Hill to confluence with Wabash River
Mosquito Creek	11	Harrison		Buena Vista to confluence with East Fork White River
Muscatatuck, Vernon Fork	11	Jackson, Jennings		Zenas to confluence with Muscatatuck Fork
Oil Creek	11	Perry		St. Croix to confluence with Ohio River
Pigeon	11	LaGrange		S.R. 327 to Indiana/ Michigan Line
Rattlesnake Creek	11	Parke		C.R. 400/450S to confluence with Sugar Creek

Priority No. 3

River	Significance	County	GIS Database	Segment
Roaring Creek	11	Parke		1 mile upstream of S.R. 41 to confluence with Sugar Creek
Stinking Fork	11	Crawford		Headwaters to confluence with Little Blue River
Sugar Creek	11	Johnson, Shelby		Inclusive within Johnson and Shelby Counties
Turkey Fork	11	Crawford		I-64 to confluence with Little Blue River
White River, East Fork	11	Bartholomew, Daviess, Dubois, Jackson, Lawrence, Martin, Pike		Columbus to confluence with West Fork
White River, West Fork	11	Daviess, Delaware, Gibson, Knox, Greene, Hamilton, Madison, Marion, Morgan, Owen, Randolph		Farmland to confluence with Wabash River

Rev. 5/7/02

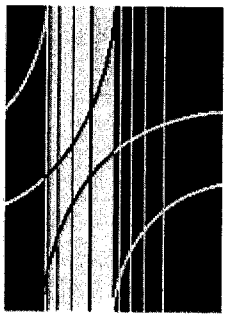
Notes: Numerical code 11 means "rivers identified by state natural heritage programs or similar state programs as having outstanding ecological importance."
Source: "Outstanding Rivers List for Indiana," Indiana Natural Resources Commission, Indiana Register, March 1, 1993 and elsewhere, subsequently.

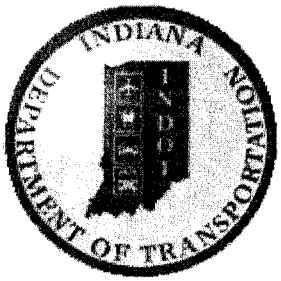
APPENDIX K

APPENDIX L

APPENDIX M

APPENDIX N





Technology Deployment Work Group

Innovative Environmental Management of Winter Salt Runoff Problems

Submitted to:

Indiana Department of Transportation
Executive Staff

August 1, 2003

Contents

Innovative Environmental Management of Winter Salt Runoff Problems

I. Introduction

A. Need Assessment & Problem Description

A survey of INDOT maintenance facilities, updated in 2001, found that 57% of the facilities do not have sewered wastewater connections to a publicly owned treatment plant (POTW) and that, as a result, many of the remaining facilities have off-site discharges to the environment. These sites will have to obtain NPDES permits with associated contaminant discharge limitations and liabilities for exceedance events and affiliated mitigation activities.

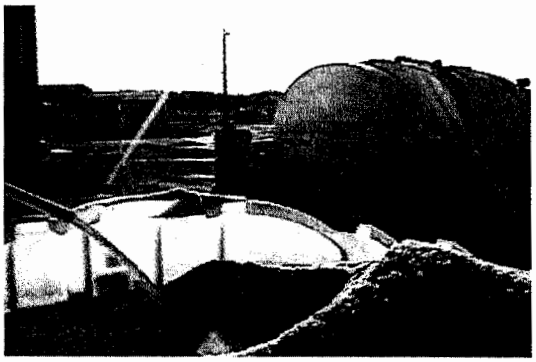
Furthermore, under the Stormwater Phase II regulations of NPDES, state transportation facilities fall under operators of MS4 areas and will be required to implement stormwater control measures. IDEM is currently establishing a total maximum daily load (TMDL) for chloride. In addition, as of 2002, IDEM has established a 250 mg/l limit (DWS) for chloride in groundwater. It has been indicated by INDOT personnel that INDOT may spend up to $20 million annually to ensure compliance to these new stormwater/groundwater regulations.

A recent INDOT/JTRP research and implementation project examined an innovative strategy for mitigating, and possibly obviating, the environmental impact of wintertime salt release within INDOT yard areas specifically associated with the generation and release of salt truck wash waters, whereby these waste streams may be beneficially reused in the manufacture of salt brine solutions suitable for subsequent pre-wetting and anti-icing applications. Consequently, statewide implementation of this technology will not only assist in compliance with environmental regulations, but also a materials savings through the capture and reuse of deicing materials, previously discharged into the waste stream.

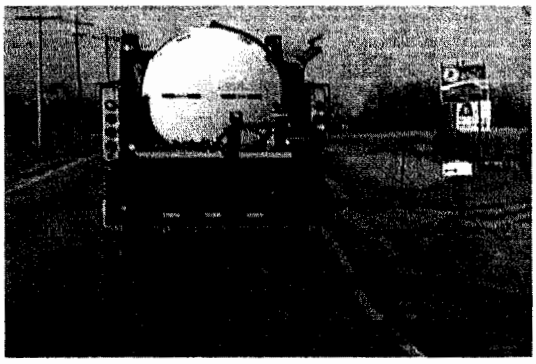
B. Technology Description

The capture of the salt laden waste streams and reuse of the brine solutions back onto the roadway is a proven concept which has been utilized by other DOTs as well as by some INDOT facilities. However, the use of brine makers by INDOT has been sporadic with some districts (e.g. LaPorte and Vincennes) more fully using the technology, largely because of local INDOT

'champions' of the technology in those districts. To facilitate implementation of this technology the INDOT/JTRP Research Program sponsored implementation projects in the Bainbridge (Crawfordsville District) and Bluffton (Fort Wayne District) sub-districts to assist district personnel. Furthermore, as the department upgrades district facilities, connection to POTWs or recovery/reuse options of the waste stream are included. However, at the current pace and funding level, it will be years before INDOT facilities can take full advantage of the brine making technology.



Both implementation projects were successful and this experience was captured and has been made available for statewide review and consideration in two formats, including both a virtual, Web-based presentation site (http://rebar.ecn.purdue.edu/Salt%20Wash%20Reuse/HTML_master_BEST.htm) as well as a CD-ROM. Upcoming distribution of this latter CD throughout all INDOT districts will subsequently provide hands-on information regarding processing schematics, specifications, vendors, costs, operating and maintenance procedures, etc.



Primarily, the technology includes an oil/water separator, sedimentation/retention tank for wash water, brine making tank, storage tank(s), and pumps. Information on sizes, costs, vendors, how to do-it-yourself and available commercial systems are available in the final research report and CD Rom. For comparison, a do-it-yourself brine making system in the Monticello sub-district cost an estimated $3,055.

II. Technology Analysis

A. Technology Background/Profile & Analysis

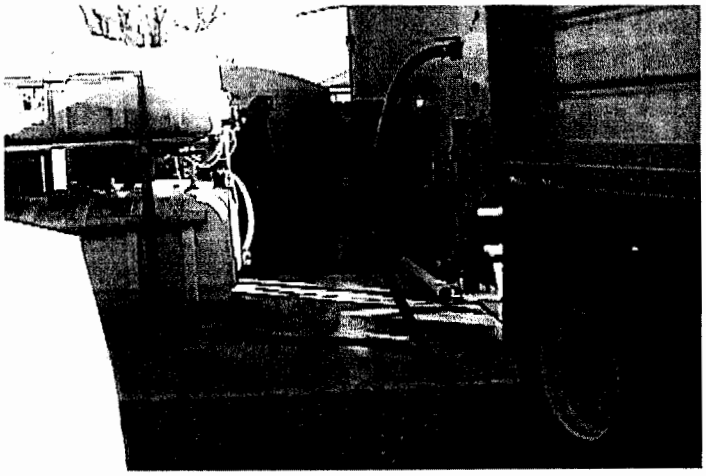
This proposal focuses on the resolution of a specific environmental problem (i.e., salt truck wash water management) while at the same time promoting the general use of brine for highway anti-icing and de-icing purposes. The latter concept (i.e., that of liquid brine manufacture and use in conjunction with winter operations...in lieu of a total reliance on dry salt) has, in fact, recently drawn considerable DOT interest throughout the Midwest over the past few years. For example, the State of Iowa has extensively invested in brine manufacture and spreading equipment with the clear intent of shifting significantly from dry salt use while extensively upgrading their alternative use of brine.

In retrospect, this shift towards brine use appears to offer several benefits, including:

a) potentially lower salt use levels and costs,
b) potentially improved salt distribution (i.e., using controlled liquid spray *versus* dry salt application)
c) possible use of surface pre-coating salt application strategies (e.g., via routine, or at least pre-storm, brine application to severe icing locations at bridge surfaces, etc.), and
c) improved highway safety via reduced icing.

INDOT has not, as yet, extensively pursued this adoption of liquid brine use, and has only a handful of facilities currently equipped to pursue liquid brine manufacture and spreading. Irrespective of this transition to brine use, though, the fact remains that salt-contaminated wash waters still represent an unresolved, and decidedly serious, environmental problem. Buying, installing, and then using brine manufacturing equipment, as recommended within this proposal, would consequently afford a unique 'win-win' situation, whereby contaminated wash water could be beneficially collected and reused in conjunction with brine manufacture and application.

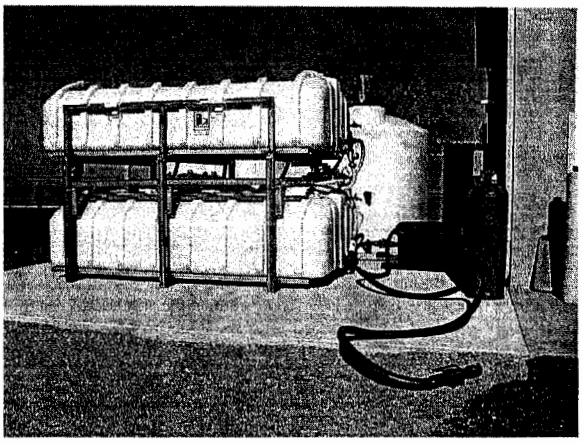
B. Current Practice in Indiana



Salt truck wash water collection and reuse, in relation to brine manufacture and application is currently practiced at, at least, six (6) known locations in the State of Indiana. In two instances (i.e., LaPorte and Monticello), the involved brine manufacturing equipment was constructed on a do-it-yourself basis, while in the remaining four locations (i.e., Princeton, Bluffton, Gary and Bainbridge) commercial equipment for brine manufacture was used. Given that all six of these 'proof-of-concept' operations can be considered successful in regard to solving their wash water problems, it would quite likely be that a conservative approach to broadening this concept using commercially-available hardware would be similarly successful at any INDOT site.

C. **Market Profile and Segments**

While all of the existing five (5) sites mentioned above who are currently using this 'wash water brine reuse' concept are all INDOT facilities, it is nonetheless apparent that county and city road management operations are realizing an increased level of brine use for both deicing and anti-icing purposes either by applying purchased or locally-generated brine solutions. In turn, it would certainly appear that INDOT's initiative to resolve their environmental problem of salt truck wash water disposal through collection and reuse as brine would likely yield a trickle-down stimulus for further dissemination of this technology into country and city operation.



D. **Technology Support**

The following individuals have provided, and can be expected to provide, technical support for developing and then implementing this concept, with representation collectively covering not only INDOT and FHWA but also Purdue University:

INDOT Personnel

Dennis Belter, the INDOT Winter Operations Team (WOT) Chairman; the WOT is in support of implementing this technology statewide. A decision that this is the direction the department will pursue needs to be made for statewide and consistent application. Funding will need to be identified as noted below. The WOT will be the point of contact for districts and sub-districts requiring technical support.

Purdue University

The WOT will be able to draw upon the expertise of Purdue faculty and staff (e.g. Prof. Alleman, Dr. Corson, and Dr. Bob McCullouch) for technical assistance, as well as INDOT Research Division support and vendor support. In addition, comparable implementation efforts at the county and city level could also promoted and catalyzed by way of the annual Purdue-JTRP 'Road School' program, as well as through regional workshops and "on-site" technical assistance provided via Purdue's LTAP group (i.e., Local Technical Assistance Program).

Federal Highways Administration

FHWA also supports this technology effort and will provide support, including financial support and funding approval where possible.

E. **Cost/Benefit Evaluation**

1. **Cost/Benefit Ratio**

Option #1: Sewer Installation and POTW Discharge - Given that on-site discharge is no longer an 'option' with salt truck wash water, one possible waste management option for INDOT facilities

lacking sewer connections to a local POTW would be to install a sewer, assuming of course that this POTW can be convinced to accept this intermittent, high-strength waste stream. This 'assumption' has significant implications, however, and current indications suggest that some POTW's may not be all that willing to accept such wastes. Not only does the wash water have a high-salt content, but these streams also tend to contain cyanide-bearing chemicals originally added to the salt as anti-caking agents. INDOT-supported research via the JTRP program is currently underway to resolve these latter underlying environmental issues, and hopefully these findings will have a positive outcome which pro-actively facilitates this 'willingness' should this option prove necessary. In terms of cost/benefit, however, this option of installing a new sewer will undoubtedly be costly. This strategy, and its associated cost/benefit aspects, has indeed been documented by Dr. Lynn Corson with Purdue University's Clean Manufacturing and Technology Institute within their report entitled, "SPR-2458: Comparative Cost: Connecting to POTW vs. Pump and Haul to Dispose of Washbay Effluent" (see the following Web site: http://www.ecn.purdue.edu/CMTI/INDOT). For example, with a connection length of only 1.0 mile (real case example), the sewer's installation would cost was ~$400,000, at which point this option does not appear to have an acceptable cost/benefit ratio.

Option #2: Pump-and-Haul-to-POTW - A second possible option would be that of a 'pump-and-haul' disposal process, where waste is pumped into a transport truck and hauled to a local POTW. Cost/benefit figures given in the aforementioned report indicate an estimated pump-and-haul fee plus discharge fee of approximately $7,200 for a 25,000 gallon washbay waste volume hauled 30 miles...which would roughly correspond to 80-90 truck wash events (i.e., at an estimated per-truck wash water volume of 250-300 gallons). For a typical sub-district yard, therefore, with 4 to 6 trucks whose cumulative washing events on a 'per-year' basis might well reach this 80 to 100 figure, this would then equate to an annual, recurring operating cost.

Option #3: Collection-and-Reuse-with-Brine-Manufacture – The installed capital cost of a new, commercial brine-manufacturing unit and associated sprayer would be approximately $10,000 to $12,000, and an additional expenditure of approximately $4,000 might be required to site-specific plumbing and pumping fixtures. In turn, the apparent 'payback' on these costs, as compared to pump-and-haul costs would be approximately two years.

Option #4: Centralized Approach to Option #3 - As compared to installing wash water recovery and brine making equipment at all INDOT facilities, though, consideration might also be given to centralizing truck washing operations. Based on an assumption that INDOT trucks could be driven 20 miles to such a central operation, the previously cited report lists a projected cost of $539/unit/season...which suggests that this implementation strategy warrants further consideration and deliberation amongst INDOT district operations personnel.

2. Implementation Cost

The estimated hardware and installation costs for each on-site implementation of this technology would be as follows:

- Estimated wiring and plumbing installation costs - $2000/site

(NOTE: in many instances, INDOT personnel could likely handle these tasks)
- Estimated brine manufacturing hardware - $6000 to $8000
(this cost varies in relation to various vendor options)
- Estimated brine storage and transfer (pumping) hardware - $2800 to $3500
(this cost depends upon storage volume, but 2000 gal would typically be adequate)
- Estimated brine sprayer hardware - $6000 to $8000
(here again, this cost varies depending upon vendor options)

Total Installation and Capital Cost Range @ approximately $15,000 - $18,000
(NOTE: use of local INDOT personnel for wiring, plumbing, etc., is feasible, and may reduce costs by ~$3000)

3. Maintenance and Other Costs

Maintenance and operating costs will inevitably be incurred with this new hardware. Although only nominal personnel time will be required for wash water collection and passage through an oil-water separator (i.e., this hardware is largely automated), personnel time will be required to run the brine maker, brine storage, and brine pumping equipment.

However, all of these latter 'costs' would be the same for brine production, irrespective of the wash water input. Furthermore, the most significant maintenance activities with brine making is that of flushing out inert debris at the end of the winter season, and here again this commitment in personnel time would not change whether the brine was made with a fresh or wash water source.

F. Suggested Funding Sources (FHWA, INDOT, reprogramming of funds, etc)

As noted, INDOT personnel has indicated funding levels of up to $20 million annually will be require for compliance to the recently promulgated stormwater/groundwater regulations. It is conceivable some of this funding could be directed towards statewide implementation of brine making systems. It is possible this could be staged whereby those facilities without access to sanitary sewers would install brine making facilities first. FHWA is also investigating the availability of implementation funding or redirection of existing funding.

III. Goals and Objectives

Final decisions on goals and objectives should be established by INDOT's WOT, Districts, and Environment, Planning, and Engineering Division in consultation with Steve McAvoy, relative to a number of key variables (e.g., sewer and haul distances to area POTWs, willingness of local POTW to accept INDOT wash water waste flows, regional decisions regarding centralized truck wash and waste reuse installations, etc.). The following synopsis, however, provides a broad perspective of the likely short- and long-term goals and objectives for this proposed implementation effort:

A. Short-Term Goals and Objectives for Implementation *(first 3 month timeframe)*
The following four (4) short-term goals and their associated objectives will facilitate an initial kickoff of this concept to be completed within the first three months, as follows:

1) Executive Resolution

The first step in this entire process is to receive formal approval for future implementation of this concept via INDOT Executive Staff resolution.

2) Establish Funding Initiatives

Having been authorized to proceed with full implementation, an organized strategy to secure necessary funding will need to be laid out and initiated.

3) Develop WOT and District Consensus

WOT and District consensus at an early and formative stage with this implementation concept will be critical to its success. Therefore, an organized plan for this process must be developed and launched, with consistent follow-through and updates for all key parties.

4) Development of District Implementation Plans

After having secured WOT, Operations Support and District consensus, it would be highly beneficial if these Districts, in consultation with INDOT, assumed ownership of all subsequent tasks and established 'action teams' to carry out these plans, with their efforts guided and optimized in consultation with assigned INDOT and Purdue 'champions' (e.g., INDOT's Dennis Belter plus Dr. Barry Partridge, as well as Drs. Jim Alleman and Bob McCullouch with Purdue's JTRP program).

B. Long-Term Goals and Objectives for Implementation *(subsequent 24 month timeframe)*
The following six (6) long-term goals and their associated objectives will carry the project through sequential procurement, installation, training, and assessment phases over a 24 month period:

1) Hardware Selection and Procurement

Once funding has been resolved, and after due consideration and selection by the involved INDOT district 'action team' the necessary hardware should then be purchased. Given that there are various commercial options presently available, it might be wise at this point...or at least early on in the project...to procure at least two options such that their relative characteristics could be duly calibrated (e.g., ease of use, ease of cleaning, hardware performance, etc.). Here again, specific guidance relative to the overall concept, hardware

options, and even 'do-it-yourself' strategies has already been prepared and made available via the following Web hotlink location:
http://rebar.ecn.purdue.edu/Salt%20Wash%20Reuse/HTML_master_BEST.htm
CD copies of the technical materials provided at this Web location can be secured via Dr. Bob McCullouch with JTRP (Note: contact information, including address, email, and phone, for Dr. McCullouch is given on the opening page of this Web hotlink).

2) Hardware Installation

Once the hardware has been bought and shipped, the INDOT district 'action team' will then have to establish a working plan for installing the equipment...perhaps using a roving, assigned group of INDOT technicians whose skill set has been refined through successive installations.

3) Operational Training

Aside from hardware installation, the 'action team,' with any needed assistance from the WOT and research personnel, will also have to provide hands-on training for all involved INDOT personnel, which could be done during and immediately after hardware installation.

4) Startup and Optimization

The last on-site task for the 'action team,' following hardware setup and operator training, would then be to work with the local INDOT facility personnel during a startup and debugging period, such that these local personnel develop a hands-on familiarity and confidence with the involved equipment.

5) Performance Assessment

In order to calibrate the ongoing effectiveness of this effort, and to gauge whether any corrective actions need be taken to insure final success of the project, routine performance assessments should be conducted on a joint basis by the WOT in conjunction with 'action team' members.

6) Project Closure and National DOT Dissemination

As the last step in what is likely to be a highly successful closure of this project, national dissemination of a report covering this effort would then be warranted...in a forum such as the Transportation Research Board program. FHWA can also assist in disseminating the results of this effort to other state DOTs via existing FHWA technology transfer programs.

IV. Recommended Implementation Strategies and Requirements

A. Action Items

Recommended Implementation Strategy Action Items and Timeframes		
Short- Term Implementation Action Items and Timeframes		
1	Executive Resolution	Immediate (~1 day timeframe)
2	Establish Funding Initiatives	Start immediately after Executive Resolution...with ongoing activity (~3 week timeframe)
3	Develop District Consensus	Start immediately after Executive Resolution (~1 month startup...with routine follow-up)
4	Development of District Implementation Plans	Start after District consensus activity (~2 months, with ongoing follow-up via 'action team' assignments)
Long-Term Goals and Objectives for Implementation		
1	Hardware Selection and Procurement	Start after resolving funding...and pursuant to District consensus and 'action team' formation (~2 month effort)
2	Hardware Installation	Start immediately once equipment arrives (~1 week per site)
3	Operational Training	Start during equipment installation (~3 days per site)
4	Startup and Optimization	Start following site installation wrapup (~2 days per site)
5	Performance Assessment	~2 month 'action team' effort to wrap up project
6	Project Closure and National DOT Dissemination	~2 months preparation and presentation effort

B. INDOT/Partner - Personnel involvement, Task, and Responsibilities

INDOT Personnel

Dennis Belter and WOT - estimated time commitment ~1 month total time over 24 month project period

Purdue University

Drs Jim Alleman, Bob McCullouch, and Lynn Corson – estimate time commitment ~2 month each over 24 month project period

Federal Highways Administration

Direct personnel time commitment not projected, but supplemental guidance and assistance with dissemination of results might be beneficial to all parties

V. Success Measurements

A. Milestones

The following eight (8) step 'milestone calibration process' is recommended in terms of qualifying the obtained level of 'success' with this implementation effort:

1.	District Consensus Assessment Calibration	Step #1
2.	District 'Action Team' Formations	Step #2
3.	'Action Team' Planning Assessment	Step #3
4.	'Action Team' Hardware Selection & Procurement	Step #4
5.	'Action Team' Hardware Installation Assessment	Step #5
6.	Full Equipment Startup and Operation Assessment	Step #6
7.	Full Equipment Usage Assessment	Step #7
8.	Post-Implementation Closure Assessment	Step #8

VI. Summary Statement

Brine making systems involve a proven technology which is currently used by other DOTs, albeit sporadically, by INDOT. Use within INDOT appears to be dependent on having knowledgeable 'champions' of the technology in a district, rather than problems with the technology itself. There is an effort by INDOT to construct new facilities with brine making capabilities as funding becomes available.

With the advent of new stormwater/groundwater regulations, and the successful research effort indicating the viability of brine making, a more determined and uniform approach to introduce brine making statewide appears needed. To facilitate this effort, implementation projects at the Bainbridge (Crawfordsville district) and Bluffton (Fort Wayne district) sub-districts were undertaken to assist district personnel, demonstrate the viability of the technology and to document information related to schematics, specifications, vendors, costs, operating & maintenance procedures, etc. for future use in statewide implementation. Both implementation projects were successful and a CD Rom will shortly be available documenting these projects and information gathered.

In addition to deciding to implement brine making statewide, funding will need to be identified. However, INDOT personnel have noted that compliance with new stormwater/groundwater environmental regulations may cost the department up to $20 million dollars annually. If brine making systems can help satisfy environmental regulations (either by removing a contaminant from a waste stream or by reducing the concentration to an acceptable level), as well as result in a materials savings through the capture and reuse of deicing materials, which were previously discharged into the waste stream, it would be timely to consider brine making as a 'best management practice' (i.e., BMP) towards compliance with the environmental regulations and direct funding towards statewide implementation. Furthermore, FHWA is investigating the availability of implementation funding and redirection of current funding.

Lastly, a more uniform approach to implementing brine making statewide has the support of INDOT's Winter Operations Team, which is willing to serve as a leader and point of contact in this endeavor. Additional support is available through the INDOT/JTRP Research Program as well as technical support typically provided by vendors.

The bottom line to this proposal is that this technology is being recommended to the INDOT Executive Staff for adoption.

APPENDIX O

Crawfordsville District

Avon	23
Battle Ground	4
Brownsburg	76
Crawfordsville	350
Danville	30
Dayton	2
Frankfort	166
Lebanon	145
Lafayette & West Lafayette	600
Pittsboro	36
Plainfield	270
Seelyville	5
Shadeland	0
Terre Haute & North Terre Haute	385
West Terre Haute	99
Zionsville	64
TOTAL	**2,255**

Fort Wayne District

Allen County	1,400
Angola	55
Auburn	96
Bristol	70
Columbia City	68
Decatur	212
Dunlap	71
Elkhart City	513
Elkhart County	127
Fort Wayne	906
Goshen	493
Huntington City	161
Huntertown	32
Kendallville	23
Leo/Cedarville	35
Marion	459
New Haven	435
New Paris	2
Peru	82
Simonton Lake Corp.	53
Wabash City	143
Warsaw	194
TOTAL	**5,630**

LaPorte District

Burns Harbor	95
Cedar Lake	16
Chesterton	79
Crown Point	30
Dyer	53
East Chicago	398
Gary	1114
Georgetown	0
Granger CDP	7
Gullivoire Park	79
Griffith	115
Hammond	930
Highland	341
Hobart	140
Lake County	347
Lake Dalecarlia CDP	0
Lake Station	176
Lakes of the Four Seasons CDP	0
LaPorte	341
LaPorte County	1020
Logansport	135
Long Beach	0
Lowell	14
Merrillville	453
Michigan City	528
Mishawaka	255
Munster	0
New Chicago	0
Ogden Dunes	0
Osceola	2
Plymouth	48
Portage	252
Porter	8
Porter County	475
Roseland	72
St. Joseph County	361
St. John	9
Schererville	340
South Bend	467
South Haven CDP	6
Trail Creek	81
Valparaiso	11
Whiting	113
TOTAL	**8,911**

Greenfield District

Indianapolis Subdistrict	
Beech Grove	0
Cumberland	36
Lawrence	44
McCordsville	22
Southport	0
Speedway	0
Greenfield Subdistrict	
Anderson	552
Chesterfield	31
Edgewood	18
Greenfield	144
New Palestine	23
Shelbyville	141
Centerville Subdistrict	
Connersville	263
New Castle	373
Richmond	496
Tipton Subdistrict	
Arcadia	4
Carmel	48
Cicero	32
Clarksville	0
Fishers	24
Fortville	38
Ingalls	1
Kokomo	157
Noblesville	181
Pendleton	27
Westfield	377
Ridgeville Subdistrict	
Alexandria	3
Daleville	3
Georgetown	0
Muncie	4
Parker City	2
Yorktown	2
TOTAL	**3,046**

Vincennes District

Linton	600
Evansville	2200
Paoli	800
Tell City	1360
Vincennes	800
TOTAL	**5,760**

Seymour District

Falls City Subdistrict

SR 111 Grantline Road, Floyd Co.	117
SR 111 New Albany, Floyd Co.	181
US 150 Galena, Floyd Co.	13
SR 311 Sellersburg, Clark Co.	14
SR 64 Georgetown, Floyd Co.	22
US 31 Sellersburg, Floyd Co.	33

Columbus Subdistrict

Columbus	SR 46	143
	US 31	36
Greensburg	SR 46	35
	US 421	16
Seymour	US 50	158
	SR 11	52
	SR 258	7
Bargersville	SR 135	4
	SR 144	2
Edinburgh	SR 252	5
Franklin	SR 44	23
	US 31	13
Greenwood	US 31	140
	SR 135	138
Whiteland	US 31	0
New Whiteland	US 31	0

Aurora Subdistrict

Aurora & Lawrenceburg	US 50	138
(of which 28 are catch basins)		

Bloomington Subdistrict	* **NO inlets or catch basins** in this Subdistrict drain to an MS4 system	
Bloomington SR 46	*288	
(of which 12 are catch basins)		
SR 45	*84	
(of which 20 are catch basins)		
SR 48	*33	
(of which 6 are catch basins)		
Madison Subdistrict		
Madison, Jefferson Co.	111	
TOTAL	**1,806**	
Toll Road		
Hammond System	168	
Gary System	193	
Wolf Lake	10	
Grand Calumet River	84	
Subtotal	455	
TOTAL to municipal systems	**361**	
GRAND TOTAL to municipal systems		**27,364**
GRAND TOTAL INLETS		**27,769**

APPENDIX P

MEMORANDUM OF UNDERSTANDING

(Reprinted for clarity, original on file)

THIS MEMORANDUM OF UNDERSTANDING IS MADE AND ENTERED INTO THIS THIRTEENTH DAY OF OCTOBER, 1993 BETWEEN THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT), THE INDIANA DEPARTMENT OF NATURAL RESOURCES (IDNR), THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (IDEM), AND THE U.S. FISH AND WILDLIFE SERVICE (USFWS) FOR THE PURPOSE OF DELINEATING GUIDELINES FOR CONSTRUCTION OF TRANSPORTATION PROJECTS IN KARST REGIONS OF THE STATE.

WHEREAS, INDOT, IDNR, IDEM AND THE USFWS WISH TO COOPERATE IN THE IDENTIFICATION, STUDY AND TREATMENT OF DRAINAGE IN KARST REGIONS RELATED TO THE CONSTRUCTION OF TRANSPORTATION PROJECTS AND,

WHEREAS, INDOT, IDNR, IDEM AND THE USFWS ACCEPT RESPONSIBILITY TO ENSURE THE TRANSPORTATION NEEDS OF INDIANA ARE MET IN AN ENVIRONMENTALLY SENSITIVE MANNER THAT PROTECTS THE HABITAT OF ALL SPECIES AND,

WHEREAS, DESIGN AND CONSTRUCTION PRACTICES MUST PROTECT GROUND WATER QUALITY, PUBLIC HEALTH AND SAFETY, AND THE ENVIRONMENT.

WHEREAS, IDNR WILL CONFORM TO THE TERMS AND CONDITIONS OF THIS MOU ON THEIR TRANSPORTATION PROJECTS. LIKEWISE, IT WILL BE IDNR'S RESPONSIBILITY TO PROVIDE STANDARD BIOLOGICAL REVIEW FOR PROJECTS IN THE KARST REGION.

THEREFORE, IN CONSIDERATION OF THE TERMS AND CONDITIONS SET FORTH HEREIN THE INDOT, IDNR, IDEM AND USFWS AGREE AS FOLLOWS:

1. INDOT IN COOPERATION WITH THE IDNR, IDEM AND USFWS SHALL DETERMINE THE LOCATION OF SINKHOLES, CAVES, UNDERGROUND STREAMS, AND OTHER RELATED KARST FEATURES AND THEIR RELATIONSHIP PRIOR TO PROPOSED ALTERATIONS OR CONSTRUCTION IN KARST REGIONS OF THE STATE. A CONSULTANT WITH EXPERTISE IN KARST GEOLOGY/HYDROLOGY MAY ASSIST IN THE IDENTIFICATION AND CHARACTERIZATION OF THE KARST FEATURES. THE CHOICE OF THE CONSULTANT RETAINED BY INDOT WILL BE SUBJECT TO THE REVIEW OF IDNR, USFWS AND IDEM.

2. TASKS TO ACCOMPLISH THIS WORK WILL INCLUDE:

RESEARCH AVAILABLE FROM PUBLIC AND PRIVATE SOURCES FOR INFORMATION RELATIVE TO KARST FEATURES.

FIELD CHECK KARST AND CAVE FEATURES THAT APPEAR FROM THE FIRST TASK AND IDENTIFY ANY ADDITIONAL KARST FEATURES.

PREPARE A DRAFT REPORT, WITH PHOTOGRAPHS AND MAPS, DRAINAGE AREAS, AND LAND USE OF THAT DRAINAGE AREA FOR EACH SINKHOLE OR KARST FEATURE. DYE-TRACING AND/OR OTHER GEOTECHNICAL INFORMATION TO DETERMINE SUBSURFACE FLOW OF WATER IN THE PROJECT AREA AND SURFACE WATER DRAINAGE PATTERNS OF THE AREA. CALCULATIONS OF ESTIMATES OF ANNUAL POLLUTANT LOADS FROM THE HIGHWAY AND DRAINAGE WITHIN THE RIGHT-OF-WAY WILL BE MADE, INCLUDING PRIOR TO, DURING AND POST CONSTRUCTION ESTIMATES. THE DESIGN OF THE TREATMENT OF THE KARST FEATURES WILL TAKE INTO CONSIDERATION TREATMENTS NECESSARY TO MEET THE STANDARDS OF THE MONITORING AND MAINTENANCE PLAN.

THAT REPORT WILL BE USED AS A TOOL TO ASSIST IN DETERMINING THE PROPOSED HIGHWAY ALIGNMENT. THE INTENT OF INDOT IS TO AVOID KARST AREAS AND USE ALTERNATE DRAINAGE WHERE POSSIBLE.

3. IDNR, IDEM AND USFWS WILL BE REQUESTED TO REVIEW AND COMMENT ON THE FINDINGS AT THE EARLY COORDINATION PHASE OF PROJECT DEVELOPMENT.

4. INDOT, USING THE INPUT FROM IDNR, IDEM, AND USFWS WILL BEGIN TO FORMULATE APPROPRIATE MEASURES TO OFFSET UNAVOIDABLE IMPACTS TO THE KARST FEATURES. IT IS UNDERSTOOD BY ALL PARTIES THAT SOME OF THE METHODS PROPOSED AT THIS TIME WILL BE GENERIC AND COULD BE APPLIED THROUGHOUT THE LENGTH OF THE CORRIDOR. OTHER METHODS MAY BE SPECIFIC TO A PARTICULAR CAVE OR KARST FEATURE. SOME OF THE APPROACHES MAY REQUIRE ADDITIONAL INVESTIGATIONS TO DETERMINE THEIR NECESSITY AND/OR THEIR FEASIBILITY. A REVISED DRAFT REPORT WILL BE PREPARED BY INDOT'S CONSULTANT AND PROVIDED TO THE IDNR, IDEM, AND THE USFWS AS PART OF THE DESIGN REVIEW PROCESS.

5. DRAINAGE ENTERING FROM BEYOND THE RIGHT-OF-WAY WILL BE TREATED ACCORDING TO THE SAME PROCESS AS DRAINAGE GENERATED BY THE PROJECT.

6. AS THE PROJECT PROGRESSES FURTHER INTO THE DESIGN PHASE, THE IDNR, IDEM AND USFWS WILL BE INVITED AND WILL ATTEND FIELD CHECKS AND MEETINGS DEALING WITH EFFORTS TO NEGATE OR MINIMIZE ADVERSE IMPACTS.

7. HAZARDOUS MATERIALS TRAPS (HMT'S) WILL BE CONSTRUCTED AT STORMWATER OUTFALLS AND OTHER LOCATIONS THAT WILL PROTECT KARST FEATURES FROM SPILL CONTAMINATION.

8. INDOT AGREES TO DEVELOP A MONITORING AND MAINTENANCE PLAN FOR THE AFFECTED KARST FEATURES. IDNR, IDEM AND USFWS WILL BE PROVIDED AN OPPORTUNITY TO REVIEW THIS PLAN. THE ESTABLISHMENT OF WATER QUALITY AND A POINT AT WHICH A STANDARD IS ESTABLISHED FOR REMEDIATION WILL BE A PART OF EACH MONITORING PLAN. THE RESULTS OF THE MONITORING WILL BE SUBMITTED TO IDNR, USFWS, AND IDEM ON A REGULAR BASIS.

9. A LOW SALT, AND NO SPRAY STRATEGY WILL BE DEVELOPED FOR EACH FUTURE PROJECT. A SIGNING STRATEGY FOR THESE ITEMS WILL ALSO BE DEVELOPED FOR EACH PROJECT.

10. PRIOR TO ACCEPTANCE OF THE FINAL DESIGN PLANS AN AGREEMENT WILL BE DEVELOPED WHICH WILL SET OUT THE APPROPRIATE AND PRACTICABLE MEASURES TO OFFSET UNAVOIDABLE IMPACTS TO KARST FEATURES. THIS AGREEMENT WILL BE SIGNED BY THE DEPARTMENT DIRECTOR OF IDNR. THE COMMISSIONER OF THE IDEM, THE COMMISSIONER OF INDOT AND THE SUPERVISOR OF THE USFWS BLOOMINGTON, INDIANA FIELD OFFICE. THE AGREEMENT WILL BECOME A PART OF THE CONTRACT DOCUMENTS FOR THE PROJECT, WILL BE DISCUSSED AT THE PRE-CONSTRUCTION CONFERENCE AND WILL BE ON FILE AT THE OFFICE OF THE PROJECT ADMINISTRATOR.

11. INDOT WILL ASSURE THAT THE TERMS OF THE AGREEMENT WILL BE COMPLETED WITH ALL SAFEGUARDS GIVEN TO THE KARST AREA. SPECIAL PROVISIONS, WHICH ARE BINDING PROVISIONS THAT ARE A PART OF THE CONTRACT, WILL BE INCLUDED OUTLINING THE PRECAUTIONS TO BE TAKEN. CONSTRUCTION AND DESIGN STRATEGIES FOR HANDLING KARST FEATURE WILL BE DISCUSSED WITH THE CONTRACTOR(S) AND PROJECT ADMINISTRATOR DURING THE PRE-CONSTRUCTION CONFERENCE. PROJECT ADMINISTRATOR SHALL ENSURE THAT THE CONTRACTOR IS FOLLOWING THE NEW EROSION CONTROL STANDARDS THAT MEET RULE 5 OF 327 IAC 15 AND ANY SPECIAL PRECAUTIONS OUTLINED IN THE DESIGN PLANS THAT THE SINKHOLE TREATMENT IS BEING HANDLED CORRECTLY. THE EROSION CONTROL PLAN MUST BE AVAILABLE AT THE PROJECT ADMINISTRATOR'S OFFICE. AN EMERGENCY RESPONSE PLAN WILL BE MADE A PART OF THE

CONTRACT DOCUMENTS. IN ADDITION, THE CONTRACT DOCUMENTS WILL CONTAIN A STRATEGY FOR SIGNING TO ALERT THE PUBLIC TO THE FACT THAT ALL TYPES OF SPILLS ARE POTENTIALLY HAZARDOUS TO THE KARST ENVIRONMENT. FOR INDOT, THIS PLAN WOULD BE PROCEDURE 20 OF THE FIELD OPERATIONS MANUAL DATED 6/24/92 (ATTACHED).

12. THE LOCATION AND NATURE OF THE SINKHOLES AND DRAINAGE SCHEMATIC WILL BE PROVIDED TO THE IDEM. THEY WILL PROVIDE THE INFORMATION TO THE APPROPRIATE LOCAL AUTHORITIES AND THE HAZMAT TEAMS. AN EMERGENCY RESPONSE PLAN WILL BE FOLLOWED. THIS CONSTITUTES PROCEDURE 20. INCLUDED IN THIS INFORMATION IS AN UNDERSTANDING THAT ALL TYPES OF SPILLS ARE POTENTIALLY HAZARDOUS TO KARST REGIONS.

13. IDNR, IDEM AND USFWS PERSONNEL WILL MONITOR CONSTRUCTION AND MAINTENANCE TO THE AGREED UPON TERMS, AS DEEMED NECESSARY.

14. IF DURING CONSTRUCTION IT IS FOUND THAT THE MITIGATION AGREEMENT MUST BE ALTERED, ALL OF THE AGENCIES WILL BE CONTACTED AND AGREEMENT REACHED PRIOR TO WORK CONTINUING IN THAT SPECIFIC AREA OF THE PROJECT. IN ORDER TO NOT UNDULY DELAY PROJECTS, A TWO WORKING DAYS RESPONSE TIME IS NEEDED FROM THE RESOURCE AGENCIES.

15. TREATMENTS WILL BE MAINTAINED DURING CONSTRUCTION BY MEANS OF A VISUAL INSPECTION ON A WEEKLY BASIS OR AFTER EVERY RAIN. CORRECTIVE ACTION WILL BE TAKEN AS NEEDED.

16. IF AFTER THE ABOVE PROCEDURE IS FOLLOWED AND A STATE/FEDERAL ENDANGERED/THREATENED SPECIES IS FOUND DURING CONSTRUCTION, WORK IN THAT AREA OF THE PROJECT WILL STOP. THE IDNR, AND USFWS WILL BE IMMEDIATELY NOTIFIED. THE IDNR AND USFWS WILL PROMPTLY INVESTIGATE THE SITUATION, ADVISE THE PROJECT ADMINISTRATOR AND ASSUME RESPONSIBILITY FOR PROTECTING THE ENDANGERED SPECIES AND TAKING THE APPROPRIATE ACTION.

17. THIS DOCUMENT WILL BE REVIEWED ANNUALLY OR MORE FREQUENTLY AT THE REQUEST OF ANY OF THE FOREGOING AGENCIES.

(SIGNED)
MR. FREDERICK C. P'POOL, COMMISSIONER
Indiana Department of Transportation

(SIGNED)
MR. PATRICK R. RALSTON, DIRECTOR
INDIANA DEPARTMENT OF NATURAL RESOURCES

(SIGNED)
MS. KATHY PROSSER, COMMISSIONER
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

(SIGNED)
MR. DAVID C. HUDAK, FIELD SUPERVISOR, BLOOMINGTON FIELD OFFICE
U.S. FISH AND WILDLIFE SERVICE