

INDIANA DEPARTMENT OF TRANSPORTATION
National Pollutant Discharge Elimination System (NPDES)
Individual Storm Water Discharge Permit

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I. HISTORY

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act, CWA) was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the CWA added section 402(p) which directs that storm water discharges are point source discharges and establishes a framework for regulating municipal and industrial storm water discharges under the NPDES program. On November 16, 1990, the U.S. Environmental Protection Agency (EPA) promulgated final regulations that established the storm water permit requirements and the Federal Phase I Storm Water program was implemented. Phase I included municipalities that served a population of 100,000 or more. The City of Indianapolis was the only Phase I city in the State of Indiana, at that time.

In 1992 the EPA delegated authority to the States to regulate this program. The Indiana Department of Environmental Management (IDEM), is the regulatory agency in charge of the NPDES Storm Water program for the State of Indiana. In 1999 EPA issued final regulations for the Federal Phase II Storm Water program, covering municipalities that served populations of 10,000 or greater and specific entities, such as Departments of Transportation. To allow for future growth, IDEM has defined a Phase II municipality as serving a population of 7,000 or more. Municipalities in this program are referred to as a Municipal Separate Storm Sewer System (MS4). Based on 2000 Census data, IDEM has identified approximately 170 MS4's in Indiana.

II. APPROACH to DEVELOPING a STORM WATER QUALITY MANAGEMENT PLAN

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, in all designated MS4's in Indiana, and could include as much as 23,000 miles of ditches. To avoid being a co-permittee with hundreds of MS4's, INDOT proposes permit action for an individual storm water discharge permit, under **327 IAC 5-4-6 Storm Water Discharges**. 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). An Urbanized Area is defined as an area with a population density equal to, or greater than 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, and bridges will not be subject to any monetary assessment, taxes, or fees, imposed by the MS4's.

III. 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, through a Joint Transportation Research Project (JTRP), has tasked Dr. Lynn Corson of Purdue with prioritizing 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”.

Initial characterization will be developed by sampling and testing selected receiving waters. Periodic follow-up sampling and testing will be accomplished for annual reporting. Laboratory tests will be run to determine pollutants of concern, such as:

- Total Suspended Solids (TSS)
- Total Dissolved Solids (TDS)
- Biological Oxygen Demand (BOD)
- Chloride
- pH
- Total Nitrogen
- Benzene (particularly for Northwest Indiana)
- Temperature
-

INDOT Priority System

Indiana’s 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. A river or stream is included on the list if it qualifies under one or more of twenty-two (22) categories.

“INDOT Priority No. 1” list includes 23 segments or water bodies that have been identified using two IDEM GIS databases, one IDNR GIS database, and the Outstanding Rivers list.

“INDOT Priority No. 2” list includes 11 segments of rivers and streams that have outstanding ecological, recreational, or scenic importance.

“INDOT Priority No. 3” list includes 26 river and stream segments identified by state natural heritage programs or similar state programs as having outstanding ecological importance.

These lists have been proposed by Dr. Corson, but have not been officially adopted by the INDOT Executive Office.

IV. INDOT 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 will continue implementation through annual reports for the five (5) year duration of the permit. The SWQMP will include the following components, that are referred to as minimum control measures (MCM):

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

Each of these six (6) MCM's is framed by the following four (4) components in the SWQMP:

1. **Benefits** (that will be realized) for the measure
2. Program **Requirements** for the measure
3. **Guidelines** for Developing and Implementing the measure
4. Measurable **Goals** for the measure

A. PUBLIC EDUCATION AND OUTREACH

1. 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 streets and 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 street and 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, as vehicle owners and operators, to protect and improve the quality of waters in their area of the State.

2. **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 develop measurable goals for 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 with information materials appropriate to them on the potential storm water impacts of improper waste disposal and illegal discharges from their operations.
- 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.

3. **Guidelines for Developing and Implementing This Measure**

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

a. **Forming Partnerships**

Currently INDOT sponsors the "**Adopt-A-Highway Program**", wherein community-based organizations, corporations, schools, clubs, 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. 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. Tons of trash and debris are collected and 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. A storm water quality management component can be easily incorporated into this Partnering Program. This continuous Partnering Program will be an asset to keeping construction sites clean and prevent excess runoff to enter 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.

b. 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 will be distributed annually at the State Fair, State Parks, 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, free of charge.

INDOT website will be used extensively 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 may be installed as a part of INDOT construction projects.

Provide spill clean-up materials and information at Rest Areas and Welcome Centers.

c. Reaching a Broad and Diverse Audience

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 streets and highways, where these materials will be washed into the streams as pollutants.

4. **Measurable Goals**

Although the outcomes of this minimum control measure are focused on the improvement of storm water quality, INDOT recognizes that such improvements would be difficult to assess directly. One appropriate measure of the outreach in the initial permit period could be individual contact hours. For example, a brochure that takes 5 minutes to read, sent to 3,000 households, assuming a 10% readership, might gain $(5 \text{ min.}) \times (2 \text{ persons per household}) \times (3,000 \text{ households}) \times 0.10 / (60 \text{ min./hr.}) = 50$ contact hours. An event at the State Fair could take 5 minutes and reach 1,000 children, this would translate into $5 \times 1,000 / 60 = 83$ contact hours. Using this measure reinforces the actual contact INDOT has with the citizens of Indiana, and allow maximum flexibility with the message and BMP's used.

INDOT will conduct a survey at the State Fair in the 3rd, 4th, and 5th years of the permit to ascertain how many people have gained knowledge about storm water runoff from streets and highways over the years.

The following is the measurable goals for INDOT's Public Education and Outreach Program for the initial permit period.

<u>Target Date</u>	<u>Activity</u>
(end of) Year 1	Develop brochures to be placed at Rest Areas and State Parks and distributed at the State Fair. Install brochure on INDOT website. Develop message for the State Map. Provide spill clean-up materials and information at Rest Areas and Welcome Centers.

Year 2	Distribute brochures at Rest Areas, Welcome Centers, and State Parks. Distribute brochures and maps at State Fair. Develop signs for Rest Areas and Roadways. Maintain spill clean-up kits and information.
Year 3	Develop target audience-based programs with construction contractors. Develop a partnership with IDNR Programs. Conduct survey at State Fair. Distribute brochures at Rest Areas, Welcome Centers, and State Parks. Distribute brochures and maps at State Fair. Maintain spill clean-up kits and information. Install signs at Rest Areas and on Roadways
Year 4	Implement target audience-based programs with construction contractors. Continue and expand partnership with IDNR Programs. Radio and television spots promoting programs and participation; Revise and redistribute brochure in multiple languages. Conduct survey at State Fair. Maintain spill clean-up kits and information. Distribute brochures at Rest Areas, Welcome Centers, and State Parks. Distribute brochures and maps at State Fair. Continue to install signs at Rest Areas and on Roadways.
Year 5	Continue partnership with IDNR Programs. Conduct survey at State Fair. Continue target audience-based programs with construction contractors. Distribute brochures at Rest Areas, Welcome Centers, and State Parks. Distribute brochures and maps at State Fair. Maintain spill clean-up kits and information. Continue to install signs at Rest Areas and on Roadways.

B. PUBLIC PARTICIPATION AND INVOLVEMENT

1. 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.

2. **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 develop measurable goals for 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.

3. **Guidelines for Developing and Implementing This Measure**

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 citizens of Indiana, regardless of 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 September 2000, six meetings were 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 throughout 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 can 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.

4. 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 INSTIP 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 is the measurable goals for INDOT's Public Participation and Involvement Program for the initial permit period.

<u>Target Date</u>	<u>Activity</u>
(end of) Year 1	Develop and conduct six State-wide Public Hearing/Meetings of which 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.
Year 2	Programs will also be posted on the internet "List Service"
Year 3	Nothing required, as the Storm Water Quality Management Plan has been adopted and implemented.
Year 4	Nothing required, as the Storm Water Quality Management Plan has been adopted and implemented.
Year 5	Prepare for renewal of NPDES Permit by conducting six State-wide Public Hearing/Meetings of which Notices will be published in several print media and bilingual flyers, including internet postings, in accordance with Indiana Code, IC 4-22-3

C. ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM

An illicit discharge is defined by IDEM's storm water program 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 often flow during dry weather.

1. 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.

2. 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 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.

3. 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

a. Illicit Discharge Detection and Reporting System

INDOT will 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. Therefore, INDOT will report illicit discharge violators to the proper authority, to IDEM or to the County Health Department. A tagging/marking system will be developed to readily (physically) identify those discharge points that are authorized by INDOT, all others will be considered illicit or illegal.

b. Storm Water Control Policy

In the past INDOT has issued a permit for construction 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 owner 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, i.e. data has been annually submitted to INDOT to verify that the discharge has not polluted. Also the license may require the property owner to install structural measures to keep floatable materials and other pollutants from entering INDOT right-of-way.

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 retrofit the system by installing structural measures to keep floatable materials and other pollutants from entering INDOT right-of-way.

c. Storm Water Drainage Maps

IDEM's NPDES Rule 13 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 the drainage systems, outfalls, 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. Therefore, it is INDOT's position that this mapping requirement has been fulfilled. However, outfalls will be located (GPS) and labeled (mapping) during sampling and testing according to the INDOT priority system of sensitive waters.

4. 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 is the measurable goals for INDOT's Illicit Discharge Detection And Elimination Program for the initial permit period.

<u>Target Date</u>	<u>Activity</u>
(end of) Year 1	INDOT field employees will be trained to identify illicit discharges; Develop written procedures for reporting illicit discharges.
Year 2	INDOT will begin developing a Discharge to Right-of-way License, it may require promulgation of rules, or even a State Statute.
Year 3	Evaluation of the field employees training and illicit discharge detection and reporting procedures will be performed. Continue to develop the Discharge to Right-of-way License.
Year 4	Finalize the Discharge to Right-of-way License.
Year 5	Begin issuance of Discharge to Right-of-way Licenses.

D. CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

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

1. Benefits of INDOT's Construction Site Program

Polluted 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.

2. 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

3. Guidelines for Developing and Implementing This Measure

- a. Minimum Design Criteria
**INDOT Standard Specification, Section 205, and
current Supplemental Specifications
INDOT Standard Drawings, Section 205**

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.

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.

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. See also Section a. v. above.

- b. Control Mechanism

New contract provisions will be developed to require the contractor to routinely **document** inspections of the erosion control BMP's. The BMP's must be inspected weekly and after a measurable 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.

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 INDOT.

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

Procedures for reviewing and approving storm water control site plans (erosion control plan): 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). Currently the plans are reviewed by the local SWCD, and inspections performed by IDNR.

System to track the status of the storm water control site plan (erosion control plan): INDOT, Division of Environment, Planning, and Engineering, Environmental Services Section will periodically inspect construction sites to assess erosion control BMP's.

INDOT will provide adequate project oversight to prevent inadequate storm water control plans from being implemented.

d. Inspections and Enforcement

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 measurable rain event at the site.

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.

Enforcement Procedures

INDOT Standard Specification 108.06.

- i. Failure to Install BMP's Correctly.
If not corrected in a timely manner, a Notice of Violation (NOV) letter will be issued. If not corrected within five (5) calendar days, progress estimate payment may be withheld until problems are corrected.
 - ii. Failure to Maintain BMP's.
If not corrected in a timely manner, a Notice of Violation (NOV) letter will be issued. If not corrected within five (5) calendar days, progress estimate payment may be withheld until problems are corrected.
 - iii. Failure to Perform Routine Inspections.
If not corrected in a timely manner, a Notice of Violation (NOV) letter will be issued. If not corrected within five (5) calendar days, progress estimate payment may be withheld until problems are corrected.
 - iv. Failure to Document Inspections.
If not corrected in a timely manner, a Notice of Violation (NOV) letter will be issued. If not corrected within five (5) calendar days, progress estimate payment may be withheld until problems are corrected.
- e. Training and Education for Construction Site Supervisors (Project Engineers, PE's)

IDNR has indicated that they are revising the *Indiana Handbook for Erosion Control in Developing Areas* for the NPDES Phase II Rules. IDNR may develop a program to certify erosion control inspectors. INDOT Project Engineers, Project Supervisors and other qualified field staff will be trained, and may be certified by IDNR.

4. 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 permit period.

<u>Target Date</u>	<u>Activity</u>
(end of) Year 1	Design Criteria, Standard Operating Procedures for Storm Water Control Site Plan review and monitoring developed; Develop procedures for complaint system.
Year 2	All INDOT Project Engineers and Project Supervisors will be trained for erosion control inspection; Procedures for complaint system in place .
Year 3	Storm Water Runoff Control Plan review monitoring program. Enforcement Program developed and implemented.
Year 4	Develop and implement an audit program to periodically inspect construction projects for BMP's.
Year 5	Increase number of projects periodically inspected by 25%.

E. POST CONSTRUCTION STORM WATER MANAGEMENT

1. 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, leading 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.

3. 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.
- 6) Directing the community's physical growth away from sensitive areas and toward areas that can support it without compromising water quality.

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 in 327 IAC 2-11
- 4) As site conditions allow, a vegetated filter strip of appropriate width shall be maintained along unvegetated swales and ditches.
- 5) 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 develop measurable goals for this measure

3. Guidelines for Developing and Implementing This Measure

INDOT will require 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. This BMP design may be incorporated in other projects outside the karst regions, near other sensitive waters of the State.

All post construction BMP's are maintained by INDOT maintenance workers.

4. 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 permit period.

<u>Target Date</u>	<u>Activity</u>
(end of) Year 1	Develop Design Criteria for Post Construction BMP's; Develop Standard Operating Procedures for the maintenance of Storm Water BMP's.
Year 2	Implement new design criteria for BMP's; Implement the new Standard Operating Procedures for the maintenance of Storm Water.
Year 3	Evaluate the new design criteria for BMP's for effectiveness and cost; Evaluate the new Standard Operating Procedures for the maintenance of Storm Water BMP's for man hour allocation, effectiveness, common problems, and cost.
Year 4	Implement changes to the design criteria for BMP's based on the previous year's evaluation; Implement changes to the Standard Operating Procedures for the maintenance of Storm Water BMP's based on the previous year's evaluation.
Year 5	Initiate new BMP's if continuing evaluation shows the need for additional measures.

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

1. 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 its activities to help ensure a reduction in the amount and type of pollution that; (1) collects on highways and streets, 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 and street maintenance, and from 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.

2. 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 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:

- 1) Periodic litter pick up
- 2) Periodic BMP structure cleaning
- 3) Periodic pavement sweeping
- 4) Roadside shoulder and ditch stabilization.
- 5) Planting and proper care of roadside vegetation.
- 6) 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, and waste transfer stations. 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, alkalis, 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.

3. 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 may impact storm water quality for Highway and Roadside Maintenance are presented below. *Environmental Notes* have been added to each activity identifying the additional measures to assure that storm water quality is protected. The *Environmental Notes* are also presented below, following the field activities. **Crew Day Cards** are used by field personnel to document and track their field activities. Environmental entries shall be added to the crew day cards to help document and track the costs and effects the field operations have on storm water runoff.

Patching & Leveling – Minor and major patching of roadway surfaces and paved shoulders to correct surface failures caused by potholes, edge or base failure, blowup, or settlement. This activity also includes, temporary patching of bituminous and concrete surfaces with compacted bituminous mixture. This activity also includes correcting depressions at bridge ends, surface failures and depressions caused by settlement at pipe replacements and deep patches.

Seal Coating - Seal Coating continuous full width section of roadway surface with hot bituminous material and aggregate to correct extensive cracking, raveling, spalling, and shallow surface failures and to prevent deterioration of the surface.

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.

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

Joint And Bump Repair - Grinding or planing of bituminous surfaces to remove bumps, ripples and heaved joints.

Other Roadway and Shoulder Maintenance - Other routine work activities performed on the roadway or shoulder surfaces that are not specifically identified as separate work activities.

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. Also 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.

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.

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

Clean and Reshape Ditches - Machine cleaning of roadside ditches with excavating equipment to restore original grade and maintain adequate drainage. This activity includes the reshaping of front and back slopes, shoulder restoration as related to ditching, and may also include pipe replacement in the ditch line and under driveways.

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.

Clean Underdrains - Clean inside and outside of underdrain pipes to restore adequate drainage flow. Mark locations of outlets and other drainage maintenance as required.

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

Bridge Repair - Repairs to bridge structures including repair, replacement or painting of handrails, curbs or sidewalks repair, joint and deck repair, timber deck repair, support repair, deck sealing, patching, and other repairs as needed.

Emergency Maintenance - Emergency or extraordinary repairs, traffic control and clean up of roadway, roadside, and structures on the State Highway System in response to emergency conditions.

Snow and Ice Removal - This activity includes all operations during and after a storm as 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.

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.

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

Roadside Park, Rest Area, Lift Bridge, and Weigh Station – Care, cleaning and maintenance of building, grounds and parking lots of state maintained rest areas, roadside parks, lift bridges, and weigh stations.

Work for State Institutions - All maintenance activities performed on the designated roadways of the State of Indiana institutions and Department of Natural Resources Facilities.

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. Department of Corrections labor is also utilized for the trash pickup. Additionally INDOT participates with various civic minded groups in **Adopt a Highway** program to maintain ongoing trash pickup along designated portions of the highway system.

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.

Roadway Cleaning - Mechanical or manual sweeping of roadway, including intersections, curbs and gutters, to remove excess loose sand, chemicals, and debris.

Material Handling and Storage - Handling and storage of materials that are used for routine maintenance activities. Excluding snow and ice control materials. This activity includes the loading, hauling, unloading, mixing, stockpiling, and storage of material.

Maintenance Improvements - Non-routine work performed by maintenance forces on the State Highway System. This activity includes improvements

on all the various elements of the system-surface, shoulders, roadside, and Department buildings and grounds.

Environmental Notes for Operation and Maintenance Activities:

1. Application of liquid asphalts shall be as required and shall not result in excess material leaving the 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, for example, soil for shoulder reconstruction, old concrete as riprap, etc.
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, appropriately stored or recycled.
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 that the chips be utilized 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 segregate and recycle the larger metal material. Tires are to be transported to a district tire recycling location, and the general debris is to be properly disposed of.

BRIDGE PAINTING

INDOT contracts all bridge (Super Structure) painting as construction projects and thus uses Standard Specification 619 to control the work. Standard Specification 619 relies on the current certifications and guides provided by the Steel Structures Paint Council, SSPC. INDOT has no policies or procedures for bridge painting, other than the ones spelled-out in Standard Specification 619, and the Quality Control Plan (QCP) required by the contractor per 619.

WINTER OPERATIONS TEAM

INDOT has created a **Winter Operations Team** that meets on a regular basis and has produced a ***Total Storm Management Manual***. 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*.

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 Maintenance - 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.

SALT AND DE-ICER MATERIALS HANDLING

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 sure"*. **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.

INDOT has written a **Spill Response Plan** that describes how facilities for **Bulk Storage For Deicing Liquids** are to respond to unintended releases of the deicing liquid, to meet the needs of each location.

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.

4. 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 is 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 permit period.

Target Date

Activity

(end of) Year 1

Develop written procedures for providing added environmental measures to field operations activities. INDOT field employees will be trained to provide added environmental measures to field operations activities. Add environmental entries to Crew Day Cards.

- Year 2 Continue annual training of INDOT field employees to provide added environmental measures to field operations activities.
- Year 3 Continue annual training of INDOT field employees to provide added environmental measures to field operations activities. Evaluation of the field employees training will be performed. Make changes as needed to operations activities.
- Year 4 Continue annual training of INDOT field employees to provide added environmental measures to field operations activities.
- Year 5 Continue annual training of INDOT field employees to provide added environmental measures to field operations activities. Evaluation of the field employees training will be performed. Make changes as needed to operations activities.