American Public Works Association presents…

Municipal Stormwater Self-Audit: A How-To Guide

Thursday, June 26, 2008
8:00 PDT * 9:00 MDT * 10:00 CDT * 11:00 EDT

Speakers:

John Kosco, P.E., CPESC
Principal Engineer
Tetra Tech, Inc.
Fairfax, VA

John Tinger
Civil Engineer
US EPA Region IX, NPDES Permits Branch
San Francisco, CA

Lisa Knerr
Senior Environmental Scientist
Tetra Tech
Golden, CO

Jim Weber
Special Projects Manager
City of Steamboat Springs, CO

Moderator:
Rob J. Beilfuss - CPESC
Watershed Program, Water Quality Specialist
City of Lenexa, KS
Municipal Stormwater Self-Audit: A How-To Guide
June 26, 2008

Speaker Bios

John Kosco, P.E., CPESC
Principal Engineer
Tetra Tech, Inc.
Fairfax, VA

A principal engineer with Tetra Tech, John has led a team who has conducted MS4 audits of over 150 different municipal stormwater programs. He was the author of EPA’s Municipal Stormwater Evaluation Guide and leads Tetra Tech’s support to EPA’s stormwater program.

John Tinger
Civil Engineer
US EPA Region IX, NPDES Permits Branch
San Francisco, CA

An environmental engineer with EPA Region IX in San Francisco, John has conducted a number of municipal stormwater audits and has trained EPA and state inspectors on how to conduct an audit.

Lisa Knerr
Senior Environmental Scientist
Tetra Tech
Golden, CO

An environmental scientist with Tetra Tech, Lisa has conducted municipal stormwater audits for EPA and has helped cities conduct self-audit of their stormwater programs.

Jim Weber
Special Projects Manager
City of Steamboat Springs, CO

Since 1985, Jim Weber has been involved with Municipal Engineering. He has worked for communities in Connecticut and Colorado with populations ranging from 7,000 to 50,000. Jim has held various positions in his career from a Staff Engineer to Director of Public Works and is currently a Special Projects Manager for the City of Steamboat Springs, Colorado.

Jim has been involved in all aspects of municipal engineering from sidewalks, road designs, water, wastewater and stormwater systems to water rights and supply and water/wastewater treatment facilities.

During his tenure Jim has worked with many community organizations and regulatory agencies to fulfill the expectations and obligations of the various municipalities. Jim received his BS in Civil Engineering from Tri State University in 1982 and is a member of APWA and ASCE.

Moderator:
Rob J. Beilfuss - CPESC
Watershed Program, Water Quality Specialist
City of Lenexa, KS
Municipal Stormwater Self-Audit: A How-To Guide

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Upcoming Education Programs

- July 17  Single- vs. Dual-Stream Recycling: One Size Doesn’t Fit All
- Aug 7  The Urban Forest - Preserve and Protect

Visit www.apwa.net/Education for more Education Opportunities.
Municipal Stormwater Self-Audit: A How-To Guide

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How to Submit a Question for Q&A

1. Type question here
2. Click "Send"

Polling Question #1

How many people are listening at your site today?

a. 1-3
b. 4-7
c. 8-20 all one agency
d. 8-20 multiple agencies
e. 21+

Today's Moderator...

Rob J. Beilfuss - CPESC
Watershed Program, Water Quality Specialist
City of Lenexa, KS
Webcast Agenda

- Introduction (John Kosco)
- EPA’s MS4 Evaluation Guide (John Tinger)
- How to conduct an MS4 self-audit (Lisa Knerr)
- Tools to help conduct a self-audit (John Kosco)
- Case Study: Steamboat Springs, CO (Jim Weber)
What's an MS4?

- Municipal separate storm sewer system
- Refers to both a system of storm drains and the owner/operator of those storm drains
- Not a combined sewer system

NPDES Permits

- NPDES permits are issued by States or EPA to regulate discharges to surface waters
- Most Phase I MS4s (primarily large urban cities/counties) have been issued individual NPDES permits since mid-90s
- Most Phase II MS4s (smaller urban cities, counties and governmental facilities) have been issued general NPDES permits since 2003

MS4 program areas

Phase II/Phase I
- Public education/outreach
- Public involvement/participation
- Illicit discharge detection/elimination *
- Construction site stormwater runoff control *
- Post construction stormwater management *
- Pollution prevention/good housekeeping

Phase I
- Industrial
- Monitoring

Hawaii Department of Transportation

Consent Decree, October 2005

- HDOT failed to develop, submit and implement the stormwater program, including BMPs; and for discharging without a valid permit.
- HDOT must pay $1 million penalty.
- HDOT must spend an estimated $50 million to address Clean Water Act stormwater violations at highways and airports in Hawaii.

City of Dallas, TX

Consent Decree, May 2006

- City failed to implement, adequately fund and adequately staff the stormwater program.
- City is required to fill staff positions, inspect hundreds of industrial facilities and construction sites, improve management systems at several facilities, and construct two wetlands.
- Total cost of $3.5 million

Polling Question #2

Who do you represent?
A. Phase I MS4
B. Phase II MS4
C. Federal/State government
D. Consultant
E. Other
EPA’s MS4 Program Evaluation Guide

John Tinger
Civil Engineer
U.S. EPA Region 9
NPDES Permits Branch
San Francisco, CA

Why does EPA conduct MS4 audits?
- Assess compliance
- Other reasons may include:
  - Increase awareness of MS4’s need to implement program requirements
  - Assess MS4 program effectiveness
  - Prepare for MS4 permit reissuance
  - Technical assistance

EPA 2007 Compliance Monitoring Strategy
- Phase I MS4s – Audits conducted of all Phase I MS4s once every 5 years
- Phase II MS4s – Audits conducted as necessary to determine compliance with strategy by 2014

Audit/evaluation/inspection
- Terminology can vary, but all terms generally refer to the same type of activity
- MS4 audits/MS4 evaluations generally refer to an audit/evaluation of your entire MS4 program
- MS4 inspections are generally targeted to a single MS4 program component

EPA’s MS4 Program Evaluation Guidance
- Published in January 2007
- Based largely on Tetra Tech audits performed
  - In California - -> 37 audits (124 programs)
  - Also in AZ, NV, & Hawaii - 7 audits (20 programs)
- Primary audience:
  - Regulators conducting a program evaluation

Guidance Manual Includes:
- Regulatory background
- Common activities by program
- Stormwater references
Guidance Manual Includes:
- Examples of "what to look for":
  - Documentation
  - Observations
  - Checklists

Guidance Manual Includes:
- Lists of common deficiencies
- Sample questions for auditors
- Evaluation “tips” on how to prepare, conduct, and document an audit

Lessons Learned from Past Audits
- Past MS4 audit reports from EPA Region 9 are online at:
  
  www.epa.gov/region09/water/npdes/ms4audits.html

Lessons Learned
- MS4 Permit Language Greatly Affects SWMP Development and Compliance
  - More specific permit language often resulted in more specific SWMPs
  - Specific permit language also reduced uncertainty about expectations

Lessons Learned
- Need for Clear Guidance and Direction from State regulatory staff
  - Even detailed permits need additional guidance
  - Audits provide an opportunity for State regulatory staff to clarify requirements and answer questions

Lessons Learned
- Communication Provides Many Benefits
  - Builds stronger relationship between MS4 and State staff
  - Direct and immediate feedback
  - Program priorities
  - Program challenges
Lessons Learned

- A Well-Written SWMP Plan is Critical for Compliance
  - Some permits did not specifically require a SWMP, or a single generic SWMP was developed for all co-permittees
  - An MS4-specific plan is needed to describe implementation procedures, BMPs, schedules, responsibilities, and goals

- Measurable Goals Should Be Outcome-Based
  - Goals should be based on the desired outcomes of the stormwater program
  - Goals should be developed on the basis of the pollutant of concern, sources of the pollutant, behaviors associated with the sources, and the indicator most appropriate to demonstrate a change in those behaviors

- Annual Reports are not Always Effective Indicators of Program Compliance
  - Especially where MS4 permits lack specificity in annual reporting requirements
  - MS4 reluctant to voluntarily report non-compliance

Polling Question #3

Have you been subject to an MS4 audit?
A. Yes – An audit conducted by EPA
B. Yes – An audit conducted by our State
C. No

Results

- Process is learning experience
- Program visibility
- Voluntary improvements
- Permit / SWMP / Reporting requirements
- Enforcement

How to conduct an MS4 self audit

Lisa Knerr
Senior Environmental Scientist
Tetra Tech
Golden, CO
Benefits of conducting a self audit

- Assess compliance of a stormwater program
- Determine if additional resources are needed
  - Staff
    - Full time
    - Part time
    - Interns
  - Funding
  - Capitol improvements

How to conduct a self audit

- Review program
- Compile paperwork
- Conduct the audit
  - Use EPA’s guide or another guide developed for your state
    - Colorado Stormwater Council’s self audit guide
    - Great checklists!
  - Schedule meetings with other participants in the program
- Write a report

Program Review

- Web site
- Documents submitted to state or federal regulatory agency
  - Stormwater management plan
  - Letters requesting modifications to the SWMP
  - Notification of non-compliance
  - Annual reports

Program review

- Other documents
  - MOUs and IGAs
  - SOPs
  - Program description documents
    - IDDE manual
    - BMP manual
  - Ordinances, resolutions, codes, and other legal authority
  - Construction site project files
  - Databases

- Other documents
  - Outreach materials
  - Brochures
  - Fact sheets
  - Posters
  - Newspaper articles
  - Presentations, agendas, and attendee lists (employee)
  - Public notices
  - Map of storm drain system
    - Outfall map
  - Facility runoff control plans/stormwater pollution prevention plans
Conduct a self audit
- Use EPA’s guide or another guide developed for your state
- Colorado Stormwater Council’s self audit guide
- Great checklists!
- Schedule meetings with other participants in the program

Using EPA’s Guide in your self-audit
- Chapter 4 – Detailed on-site evaluations
  - Review the “common activities” for each program component
  - Check out the Resources and Tips
  - Read evaluation questions for each program component
  - Review “common issues identified during program evaluations”
  - Use the worksheets (John will discuss next)

Schedule meetings with other participants in the program
- Self audit can take 1-3 days
  - In-office
  - Field
- Remember to include those that might not know that they are part of the program
  - Illicit discharges
    - Fire department
    - Police department

Typical Schedule
- Day 1 (office)
  - Kick-off Meeting
  - Program Management; Plan Development; Program Effectiveness and Assessment; Monitoring
  - Public Education and Involvement
  - New Development/Redevelopment and Construction

- Day 2
  - Field
    - Construction inspections
  - Office
    - Illicit discharge detection and elimination

- Day 3
  - Office
    - Municipal operations
  - Field
    - Municipal facility
    - Post-construction BMPs
Write a report

- Deficiencies
  - Address them now
  - Set your own compliance schedule

Write a report

- Successes
  - Above-and-beyond the permit/SWMP
- Recommendations
  - More staff
  - More funds

Preparing for an EPA/State Audit

- Conduct your own audit first
- Identify any potential problem areas
- Read your MS4 Permit and go through your SWMP!
- Educate staff (again)
- Review and organize your records
- Visit your maintenance yards

Q&A

1. Type question here
2. Click “Send”

5 Minute Break
Tools to help you conduct an MS4 self-audit

John Kosco, P.E., CPESC
Principal Engineer
Tetra Tech, Inc.
Fairfax, VA

EPA’s MS4 Evaluation Guide
Program Eval. Worksheets (App. B)

- Appendix B includes worksheets for the following program areas:
  - Program Management
  - Public Education/Involvement
  - MS4 Maintenance
  - Construction
  - Post-Construction
  - Industrial/Commercial
  - Illicit Discharge

Example: Construction

- Major topics in an MS4’s construction program include:
  - Ordinance/Legal Authority
  - Construction Project Inventory
  - Construction Requirements and BMPs
  - Plan Review Procedures
  - Construction Project Inspections
  - Enforcement/Referrals
  - Outreach and Education
  - MS4-owned Construction Projects

- These are also addressed in section 4.4 of the Guide
Example: Construction

- For the ordinance/legal authority topic, the worksheet asks:
  - Name/code section of ordinance
  - Threshold for coverage
  - Exclusions from coverage
  - Whether other pollutants are regulated
  - Permitting mechanism used to require BMPs
  - Whether a plan is required
  - Types of enforcement mechanisms available
  - Whether an enforcement escalation plan is in place

Field Inspection Worksheets

- Developed for:
  - MS4 Maintenance Facility
  - Construction Inspections
  - Industrial/Commercial Inspections
  - Outfall Visual Inspections
  - Worksheets give tips to EPA auditors on what to look for in the field
  - Use these tips to train staff and address problems at maintenance facilities

MS4 Maintenance Facility Worksheet

- Developed for MS4 Maintenance Facility
- Worksheets give tips to EPA auditors on what to look for in the field
- Use these tips to train staff and address problems at maintenance facilities

Construction Inspection Worksheet

- Worksheets give tips to EPA auditors on what to look for in the field
- Use these tips to train staff and address problems at maintenance facilities
Industrial / Commercial Inspection Worksheet

Outfall Visual Inspection Worksheet

Center for Watershed Protection Tools
CWP’s IDDE Manual

- Chapter 2 – Components of an effective IDDE program
- Chapter 3 – Auditing existing IDDE resources and Programs

CWP’s Post-Construction Manual

- To be published summer/fall 2008
- Guidance on how MS4s can develop an effective post-construction program
- Self-assessment tool – assess existing status of post-construction program, identify key actions, address identified gaps

Your MS4 Permit

- As a final tool, go through your MS4 permit line by line
- Identify any areas of potential non-compliance
- Identify any ambiguous requirements
- Phase II MS4s: Make sure you’ve reviewed both your Permit and SWMP

Polling Question #4

Have you conducted an MS4 self-audit?

A. Yes – we conducted a full MS4 self-audit using in-house staff
B. Yes – we conducted a full MS4 self-audit using a consultant
C. Yes – we conducted a partial MS4 self-audit
D. No

Why we conducted an audit

- Determine compliance with our stormwater program description document
  - Need more or less resources?
    - Internal
    - External
  - Under/over compliance?

City of Steamboat Springs

Jim Weber
Special Projects Manager
City of Steamboat Springs, CO
Why we conducted an audit
- Unique MS4
- What is everyone else doing?
- Prepare for the next permit term
  - Understand the status of the current program and expectations of new permit

How we prepared
- We talked to
  - State regulator
  - City manager
- Planned for in operating budget
- RFP
- Selected consultant
  - Sent information to consultant to prepare

The audit
- Program areas evaluated
  - Program management
  - Public education and involvement
  - Illicit discharge detection and elimination
  - Construction sites runoff control
  - New development and redevelopment
  - Municipal operations

The audit
- Office
  - Paperwork review
  - Staff interviews
    - Public works
      - Engineering
        - Plan review
        - Temporary BMP inspections
        - Permanent BMP inspections
        - IDDE inspections
        - Streets
          - Fleet and streets maintenance

The audit
- Field
  - Construction inspections
  - Post-construction inspections
  - Maintenance facility

Can it be done in-house?
- Not in Steamboat Springs
- In house staff might have bias
- Influenced by the community
- Political environment
- Recommend third party
  - Neutral party
  - No bias
  - Identify wide variety of other options
How long it took

- Audit
  - Compile information for the consultant (city)
  - Research program (consultant)
  - 3 days for audit
  - 2 weeks for report
  - 2 weeks for City comments

What was achieved

- Reality
- Better understanding of regulatory expectations
- Better understanding of how the City can meet those expectations

What was achieved

- Ability to develop a reasonable and achievable stormwater management program description document for the next 5 years
  - Staff
  - Fiscal
  - Compliance with the general MS4 permit

What we learned

- What appears to be easy to implement is sometimes difficult
- Tools for other MS4s can be easily customized to the City

Next Steps

- Prepare and submit a stormwater management program description document
  - Achievable
  - Consistent with other MS4s
  - Reasonable to manage program
    - Budget
Next Steps

- Tie up loose ends identified in report
- Implement program under the new MS4 permit

Final Q&A

How to Submit a Question for Q&A

1. Type question here
2. Click “Send”

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Phone: (970) 879-2060 ext 243
Email: jweber@steamboatsprings.net

Thursday, July 17, 2008
11:00 a.m. EST • 10:00 a.m. CST • 9:00 a.m. MST • 8:00 a.m. PST
REGISTRATION per site: Member – $150 USD, Nonmember – $200 USD

Single- vs. Dual-Stream Recycling:
One Size Doesn’t Fit All

Thursday, August 7, 2008
11:00 a.m. EST • 10:00 a.m. CST • 9:00 a.m. MST • 8:00 a.m. PST
REGISTRATION per site: Member – $150 USD, Nonmember – $200 USD

The Urban Forest
Preserve and Protect

www.apwa.net

Thank you!
Today’s program was brought to you by...
**Construction Component Worksheet**

**Instructions:** Use this worksheet as a guide for questioning MS4 staff and reviewing applicable documents. Keep in mind that additional questions may be necessary based on local regulations, MS4 permit requirements, implementation strategies, or water quality issues. Remember to obtain copies of any applicable documents or files which may assist in writing the MS4 evaluation report.

### Date of Evaluation

### Evaluator Name, Title

### MS4 Permittee

<table>
<thead>
<tr>
<th>Staff Interviewed</th>
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<tbody>
<tr>
<td><strong>Name</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Ordinance/Legal Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interview Questions</strong></td>
</tr>
<tr>
<td>Ordinance used to require stormwater BMPs at construction sites?</td>
</tr>
<tr>
<td>Name and/or code section(s).</td>
</tr>
<tr>
<td>Threshold for coverage (e.g., 1 acre, 100 cubic yards, etc.)</td>
</tr>
<tr>
<td>Exclusions from coverage allowed:</td>
</tr>
<tr>
<td>Other pollutants regulated on construction sites (e.g., construction wastes, trash, chemicals, etc.):</td>
</tr>
<tr>
<td>Permitting mechanism used to require appropriate BMPs (i.e. grading permit, building permit):</td>
</tr>
<tr>
<td>Is a plan required (erosion control plan or SWPPP)?</td>
</tr>
<tr>
<td>Interview Questions</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Are minimum construction site BMPs specified?</td>
</tr>
<tr>
<td>What types?</td>
</tr>
<tr>
<td>Types of enforcement mechanisms available:</td>
</tr>
<tr>
<td>Notices of Violations (NOV)</td>
</tr>
<tr>
<td>Administrative fines</td>
</tr>
<tr>
<td>Stop-work orders</td>
</tr>
<tr>
<td>Civil penalties</td>
</tr>
<tr>
<td>Criminal penalties</td>
</tr>
<tr>
<td>Other:</td>
</tr>
<tr>
<td>Official enforcement escalation plan or procedures in place?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applicable Documents</th>
<th>Reviewed</th>
<th>Obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grading, Erosion and Sediment Control, Stormwater or other related Ordinance(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enforcement escalation plan or procedures</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Notes</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Construction Project Inventory</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview Question</td>
<td>Response</td>
</tr>
<tr>
<td>Construction projects tracked?</td>
<td>YES</td>
</tr>
<tr>
<td>Projects &lt;1 acre?</td>
<td>NO</td>
</tr>
<tr>
<td>Projects &lt;1 acre?</td>
<td>YES</td>
</tr>
<tr>
<td>Projects &lt;1 acre?</td>
<td>NO</td>
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</table>

January 2007

125

EPA-833-R-07-003
## APPENDIX B – PROGRAM EVALUATION WORKSHEETS

<table>
<thead>
<tr>
<th>Updated at what frequency?</th>
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<tbody>
<tr>
<td>Information tracked:</td>
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</tr>
<tr>
<td>Project status</td>
<td>YES</td>
</tr>
<tr>
<td>Inspection Findings</td>
<td>YES</td>
</tr>
<tr>
<td>Enforcement Actions</td>
<td>YES</td>
</tr>
<tr>
<td>Complaints</td>
<td>YES</td>
</tr>
<tr>
<td>NOI submittal</td>
<td>YES</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
<tr>
<td>Projects prioritized to determine inspection frequency?</td>
<td>YES</td>
</tr>
<tr>
<td>Criteria used:</td>
<td></td>
</tr>
<tr>
<td>Proximity to waterbody</td>
<td>YES</td>
</tr>
<tr>
<td>Waterbody impairment</td>
<td>YES</td>
</tr>
<tr>
<td>Size of project</td>
<td>YES</td>
</tr>
<tr>
<td>Slope of project site</td>
<td>YES</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
<tr>
<td>Number of active projects:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applicable Documents</th>
<th>Reviewed</th>
<th>Obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of active construction projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>List of projects covered under a state/EPA general permit</td>
<td></td>
<td></td>
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| Notes                        |   |

<table>
<thead>
<tr>
<th>Construction Requirements and BMPs</th>
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<tbody>
<tr>
<td><strong>Interview Questions</strong></td>
</tr>
<tr>
<td>Technical guidance provided or required?</td>
</tr>
<tr>
<td>Does guidance include selection criteria?</td>
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</tbody>
</table>
### Construction Requirements and BMPs

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<tr>
<th>Interview Questions</th>
<th>Response</th>
</tr>
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<tbody>
<tr>
<td>Does guidance include operation and maintenance requirements?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>NO</td>
</tr>
<tr>
<td>Does guidance have different requirements or standards for different times of the year (i.e. rainy vs. dry seasons)?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>NO</td>
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</tbody>
</table>

### Applicable Documents

<table>
<thead>
<tr>
<th>BMP guidance or technical document</th>
<th>Reviewed</th>
<th>Obtained</th>
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</table>

### Notes

### Plan Review Procedures

<table>
<thead>
<tr>
<th>Interview Questions</th>
<th>Response</th>
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</thead>
<tbody>
<tr>
<td>Who performs erosion and sediment control plan review (i.e. planning department, building department)?</td>
<td></td>
</tr>
<tr>
<td>Training received and frequency:</td>
<td></td>
</tr>
<tr>
<td>Size threshold for plan review (i.e. 1 acre, 10,000 square feet)?</td>
<td></td>
</tr>
<tr>
<td>NOI submittal verified during review?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>NO</td>
</tr>
<tr>
<td>How (i.e. canceled permit fee check)?</td>
<td></td>
</tr>
<tr>
<td>Pre-project meetings conducted with developer?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>NO</td>
</tr>
<tr>
<td>Standard conditions of approval include erosion and sediment control and/or general storm water</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>NO</td>
</tr>
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</table>
Plan Review Procedures

<table>
<thead>
<tr>
<th>Interview Questions</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan review criteria or checklist used?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>NO</td>
</tr>
</tbody>
</table>

Applicable Documents

<table>
<thead>
<tr>
<th>Reviewed</th>
<th>Obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copy of standard conditions of approval</td>
<td></td>
</tr>
<tr>
<td>Example of standard conditions applied to an approved project</td>
<td></td>
</tr>
<tr>
<td>Checklist used by plan reviewers</td>
<td></td>
</tr>
</tbody>
</table>

In addition to interviewing staff, select at least 2 to 3 approved projects with erosion and sediment control plans to review with the permittee. Try to choose different project types (residential, commercial) and sizes. Also review at least one public project plan to see if the permittee is applying adequate standards to municipal construction.

Private Project Name #1:

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMPs adequately incorporated into the plan to address erosion control, sediment control, housekeeping?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design specifications and details for all BMPs included on the plans?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standards conditions include erosion and sediment control or stormwater provisions?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance requirements specified?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

Private Project Name #2:

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMPs adequately incorporated into the plan to address erosion control, sediment control, housekeeping?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design specifications and details for all BMPs included on the plans?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standards conditions include erosion and sediment control or stormwater provisions?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance requirements specified?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Private Project Name #2:

<table>
<thead>
<tr>
<th>Notes:</th>
</tr>
</thead>
</table>

### Private Project Name #3:

| BMPs adequately incorporated into the plan to address erosion control, sediment control, housekeeping? | YES | NO |
| Design specifications and details for all BMPs included on the plans? | YES | NO |
| Standards conditions include erosion and sediment control or stormwater provisions? | YES | NO |
| Maintenance requirements specified? | YES | NO |

<table>
<thead>
<tr>
<th>Notes:</th>
</tr>
</thead>
</table>
### Construction Project Inspections

<table>
<thead>
<tr>
<th>Interview Questions</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who performs construction storm water inspections (i.e. building inspector, dedicated stormwater inspector)? List all if different phases or areas of project are inspected by different staff. (i.e. public right-of-way, building footprint, grading phase, construction phase).</td>
<td></td>
</tr>
<tr>
<td>Training received and frequency:</td>
<td></td>
</tr>
<tr>
<td>How many inspectors for stormwater issues at construction projects? On average, number of projects each inspector is responsible for?</td>
<td></td>
</tr>
<tr>
<td>How often are sites inspected?</td>
<td></td>
</tr>
<tr>
<td>What determines frequency?</td>
<td></td>
</tr>
<tr>
<td>Inspections triggered by rain events?</td>
<td>YES</td>
</tr>
<tr>
<td>What size rain event?</td>
<td>NO</td>
</tr>
<tr>
<td>How soon after the event?</td>
<td></td>
</tr>
<tr>
<td>Standard inspection checklist used?</td>
<td>YES</td>
</tr>
<tr>
<td>Findings tracked in a database?</td>
<td>NO</td>
</tr>
</tbody>
</table>

#### Applicable Documents

<table>
<thead>
<tr>
<th>Reviewed</th>
<th>Obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most recent inspection staff training records</td>
<td></td>
</tr>
<tr>
<td>Example of active construction project inspection checklist</td>
<td></td>
</tr>
<tr>
<td>Records from inspection tracking database or filing system</td>
<td></td>
</tr>
</tbody>
</table>

### Notes

---

January 2007 130 EPA-833-R-07-003
### Enforcement/Referrals

<table>
<thead>
<tr>
<th>Interview Questions</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can construction inspectors administer enforcement actions?</td>
<td>YES</td>
</tr>
<tr>
<td>If no, who can?</td>
<td>NO</td>
</tr>
<tr>
<td>If yes, what types of enforcement actions?</td>
<td></td>
</tr>
<tr>
<td>Enforcement action is most commonly used:</td>
<td></td>
</tr>
<tr>
<td>Enforcement actions tracked?</td>
<td></td>
</tr>
<tr>
<td>How?</td>
<td></td>
</tr>
<tr>
<td>Average number of enforcement actions (by type) issued in the previous year:</td>
<td></td>
</tr>
<tr>
<td>Notices of Violations (NOV)</td>
<td>_______</td>
</tr>
<tr>
<td>Administrative fines</td>
<td>_______</td>
</tr>
<tr>
<td>Stop-work orders</td>
<td>_______</td>
</tr>
<tr>
<td>Civil penalties</td>
<td>_______</td>
</tr>
<tr>
<td>Criminal penalties</td>
<td>_______</td>
</tr>
<tr>
<td>Other:</td>
<td>_______</td>
</tr>
<tr>
<td>Most common compliance issue on construction projects (i.e. tracking on streets,</td>
<td></td>
</tr>
<tr>
<td>litter, inadequate concrete washout BMPs)?</td>
<td></td>
</tr>
<tr>
<td>Adequate legal authority and tools available to inspectors to enforce storm water</td>
<td></td>
</tr>
<tr>
<td>requirements on construction projects?</td>
<td></td>
</tr>
<tr>
<td>If no, how could the program be improved?</td>
<td></td>
</tr>
<tr>
<td>Who does follow up on enforcement actions?</td>
<td></td>
</tr>
</tbody>
</table>
### Applicable Documents

<table>
<thead>
<tr>
<th>Applicable Documents</th>
<th>Reviewed</th>
<th>Obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enforcement cases files both active and closed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example of most typical enforcement action documentation (i.e. NOV)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>List of enforcement actions used in the last year</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes

### Outreach and Education

<table>
<thead>
<tr>
<th>Interview Questions</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of training provided to construction operators:</td>
<td></td>
</tr>
<tr>
<td>Attendance required?</td>
<td></td>
</tr>
<tr>
<td>Training frequency?</td>
<td></td>
</tr>
<tr>
<td>Number of operators trained:</td>
<td></td>
</tr>
<tr>
<td>Training topics:</td>
<td></td>
</tr>
<tr>
<td>Presentations given by MS4 staff to professional groups?</td>
<td>YES</td>
</tr>
<tr>
<td>Brochures or outreach materials targeted at operators:</td>
<td></td>
</tr>
</tbody>
</table>

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APPENDIX B – PROGRAM EVALUATION WORKSHEETS

How/when is the information distributed?  

Web site used to educate operators?  
Web address:  

<table>
<thead>
<tr>
<th>Applicable Documents</th>
<th>Reviewed</th>
<th>Obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brochures, outreach materials</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes

**MS4-Owned Construction Projects**

<table>
<thead>
<tr>
<th>Interview Questions</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects designed in-house or contracted?</td>
<td></td>
</tr>
<tr>
<td>Designers trained in stormwater BMP implementation?</td>
<td>YES</td>
</tr>
<tr>
<td>Checklist used during the design and/or review of public construction projects?</td>
<td>YES</td>
</tr>
<tr>
<td>Are projects greater than one acre covered a general construction permit (has an NOI been submitted)?</td>
<td>YES</td>
</tr>
</tbody>
</table>

January 2007 133 EPA-833-R-07-003
## MS4-Owned Construction Projects

<table>
<thead>
<tr>
<th>Interview Questions</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>If contracted planners and engineers are used for the design of MS4-owned projects, does the contract language specify that storm water BMPs be incorporated into the design?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>NO</td>
</tr>
<tr>
<td>In-house inspection staff inspect projects? If so, which department?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>NO</td>
</tr>
<tr>
<td>Project inspectors trained?</td>
<td>YES</td>
</tr>
<tr>
<td>Frequency:</td>
<td>NO</td>
</tr>
<tr>
<td>If contracted inspectors are utilized, are minimum inspection, maintenance and reporting requirements specified in the contract?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>NO</td>
</tr>
</tbody>
</table>

### Applicable Documents

<table>
<thead>
<tr>
<th>Reviewed</th>
<th>Obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS4-owned project storm water design standards and/or checklist</td>
<td></td>
</tr>
<tr>
<td>Contract language for active public project not developed or inspected in-house</td>
<td></td>
</tr>
</tbody>
</table>

### Project Name:

<table>
<thead>
<tr>
<th>BMPs adequately incorporated into the plan to address erosion control, sediment control, housekeeping?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design specifications and details for all BMPs included on the plans?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Standards conditions include erosion and sediment control or stormwater provisions?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Maintenance requirements specified?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Notes:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes
Appendix C – Field Inspection Worksheets

This appendix includes the following four field inspection worksheets:

- MS4 Maintenance Facility Field Inspection Worksheet
- Construction Field Inspection Worksheet
- Industrial/Commercial Facility Field Inspection Worksheet
- Outfall Visual Field Inspection Worksheet

Use these field inspections sheets as you accompany MS4 staff on inspections of municipal facilities, construction sites and industrial/commercial facilities. In addition, the outfall visual field inspection worksheet can be used to assess the condition of an MS4’s outfall(s), thereby giving an evaluator an indication of the quality of the MS4’s maintenance program.
# MS4 Maintenance Facility Field Inspection Worksheet

**Permittee:**

**Address of facility:**

**Size of facility:**

**Date of visit:**

**Time of visit:**

Provide the name(s) and title(s) of permittee staff present during inspection

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Evaluator Observations:**

**SWPPP or stormwater plan**

Has the maintenance facility developed a SWPPP or stormwater plan?

Does the plan include a site map, list of pollutant sources, BMPs, and maintenance procedures?

Does the permittee conduct and document periodic inspections of the facility?

Are storm drains labeled and free of debris?

**Vehicle maintenance, fueling and washing**

Are vehicle maintenance activities conducted in a designated place not exposed to stormwater?

Are fueling stations properly designed with spill kits nearby?

Are vehicles washed on-site? Is wash water discharged to the MS4 or sanitary sewer?

**Material storage**

Are all materials that are potential stormwater contaminants stored under cover or in secondary containment?

**Hazardous waste management**

Are all hazardous materials properly labeled and stored to prevent exposure to stormwater runoff?

**Waste management**

Are waste bins covered with waste properly disposed in containers?

How is landscape waste stored?

**Spill response**

Does the facility have a spill response plan, and are spill kits readily available?

**Employee training**

What type of stormwater training do maintenance staff receive?

**Notes or additional information:**
**APPENDIX C – FIELD INSPECTION WORKSHEETS**

### Construction Field Inspection Worksheet

<table>
<thead>
<tr>
<th>Permittee:</th>
<th>Address of project:</th>
<th>Size of project:</th>
<th>NOI?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of visit:</td>
<td>Time of visit:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name of permittee’s inspector(s):</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Provide the name(s) and title(s) of site superintendent or contractor(s) present during inspection

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Evaluator Observations:**

**Inspector Training/Knowledge**
Is the inspector knowledgeable about:
- Erosion and sediment control BMPs,
- Stormwater/pollution prevention BMPs,
- Local stormwater requirements, and
- Legal authority (ordinances)?

Is the inspector familiar with the requirements in the State stormwater construction general permit?

What type of stormwater training did the inspector receive? When, and how often?

**Inspection Procedures**
Is a checklist used during the inspection?

Is the inspector aware of previous stormwater inspection results at this site?

Does the inspector review the approved plans (erosion and sediment control and/or SWPPP) required to be at the construction site?

Does the inspector walk the entire site and inspect all points of discharge?

Does the inspection address:
- Erosion control
- Sediment control
- Waste management practices
- Non-stormwater discharges?

Did the inspector miss obvious violations?

Are inspection findings documented in writing and presented to the site contact?

**Compliance/Enforcement**
How does the inspector address compliance issues (verbal warnings, NOV, stop work order, etc)?

If there are compliance issues identified, is a deadline given for correction?

**Education**
Are any materials or brochures given to the site contact to educate them about appropriate BMPs?
# Industrial/Commercial Facility Field Inspection Worksheet

<table>
<thead>
<tr>
<th>Permittee:</th>
<th>Address and Name of facility:</th>
<th>Size of project:</th>
<th>NOI?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of visit:</td>
<td>Time of visit:</td>
<td>Name of permittee’s inspector(s):</td>
<td></td>
</tr>
</tbody>
</table>

**Provide the name(s) and title(s) of facility representatives present during inspection**

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Evaluator Observations:**

**Inspector Training/Knowledge**

Is the inspector knowledgeable about:
- Source Control BMPs,
- Treatment Control BMPs,
- Local stormwater requirements, and
- Legal authority (ordinances)?

Is the inspector familiar with the requirements in the State stormwater industrial general permit?

What type of stormwater training did the inspector receive? When, and how often?

**Inspection Procedures**

Is a checklist used during the inspection?

Is the inspector aware of previous stormwater inspection results at this site?

Does the inspector review the BMPs in the industrial SWPPP (if available)?

Does the inspector walk the entire facility and inspect all points of discharge?

Does the inspection address:
- Good housekeeping practices
- Spill prevention and response
- Materials handling and storage
- Waste management practices
- Non-stormwater discharges?

Did the inspector miss obvious violations?

Are inspection findings documented in writing and presented to the facility representative?

**Compliance/Enforcement**

How does the inspector address compliance issues (verbal warnings, NOV, stop work order, etc)?

If there are compliance issues identified, is a deadline given for correction?

**Education**

Are any materials or brochures given to the facility representative to educate them about appropriate BMPs?
### Outfall Visual Field Inspection Worksheet

#### Background

Permittee: _______________________________ Date: _______________ Time: _______________

Evaluator: _______________________________ Predominant Watershed Landuse: _______________

Outfall Location: _____________ (Latitude) ____________ (Longitude)/ ________________________________________(Address)

Permittee Staff Interviewed: ____________________________________________________________________________________

Date Outfall Last Inspected by Permittee: _____________________ Days Since Last Rainfall __________ Inches ___________

Photos Taken?   Yes   No   Photo #s: _____________________________________________________________________________

#### Outfall Description

<table>
<thead>
<tr>
<th>End of Pipe Diameter (feet/inches):</th>
<th>Outfall Submerged:</th>
<th>Pipe Material:</th>
<th>Pipe Condition:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Channel? Yes  No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shape:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Circular</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Elliptical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Box</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Other: ______________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>Concrete</td>
<td></td>
</tr>
<tr>
<td>If yes, in:</td>
<td>Fully</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>Partially</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sediment</td>
<td>PVC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fully</td>
<td>Steel</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Partially</td>
<td>Other: ________</td>
<td>Poor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Visual Observations

<table>
<thead>
<tr>
<th>Flow Present: Yes  No</th>
<th>Flow Color:</th>
<th>Debris in Pipe:</th>
<th>Flow Odor:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Volume:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Low</td>
<td>Clear</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>□ Moderate</td>
<td>Muddy</td>
<td>Sediment</td>
<td>Petroleum</td>
</tr>
<tr>
<td>□ Heavy</td>
<td>Milky or cloudy</td>
<td>Trash</td>
<td></td>
</tr>
<tr>
<td>□ Intermittent</td>
<td>Sheen</td>
<td>Other: _________</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Soapy foam</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other: ________</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Debris Around Outfall:</th>
<th>Staining and Scum Present:</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>□ Sediment</td>
<td>Red/Orange</td>
<td></td>
</tr>
<tr>
<td>□ Trash</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>□ Other: ______________</td>
<td>Green algae</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oily scum</td>
<td></td>
</tr>
</tbody>
</table>

#### If flow is present, ask the following questions of the Permittee contact:

1. Has the outfall been inspected?   Yes  No   If yes, when? ________________

2. Was there dry weather flow during the last inspection? Yes (Go to Question # 3) No (Go to question # 6)
3. Was there an investigation as to the source of the flow? Yes  No  If yes, describe the investigation.
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________

4. What was the outcome of the investigation?
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________

5. Does the permittee have documentation detailing the investigation and enforcement which resulted? Yes  No  Describe.
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________

6. What are the permittee’s next steps regarding the flow discovered during the field inspection? Ask the permittee to describe, in
detail, how the flow will be investigated including specific staff members responsible, time frames for action, etc.
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________

7. If the source of the dry weather flow is determined, what enforcement actions will the permittee take against the person responsible?
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________

8. Are the actions described by the permittee contact confirmed in the Enforcement Response Plan? Yes  No  Describe.
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________

**Additional Comments or Observations:**
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________

---

APPENDIX C – FIELD INSPECTION WORKSHEETS

January 2007 170 EPA-833-R-07-003
Please rate the following using a scale of 1 to 4 with 1 equaling strongly disagree and 4 equaling strongly agree. Circle your answer:

Please rate your overall experience with today’s program:

1 2 3 4
Not informative Outstanding

After viewing this program, I am now better able to identify what EPA will typically be looking for when conducting an audit.

1 2 3 4
Strongly Disagree Strongly Agree

After viewing this program, I am now better able to conduct a self-audit of our stormwater management program.

1 2 3 4
Strongly Disagree Strongly Agree

After viewing this program, I am now better able to apply and implement the lessons learned by other communities who’ve been through the EPA audit process.

1 2 3 4
Strongly Disagree Strongly Agree

My role is:
Director/Commissioner/Superintendent/Assistant Director of P.W.
Public Works Supervisor/Manager
Engineer in a public agency
Consulting Engineer/Manager
Field/Construction Personnel
Other

NOT AN APWA MEMBER? Please complete the following to receive more information about APWA, its programs, and its membership privileges.

Name________________________________________ Email________________________________________
Organization___________________________________ Phone_______________________________________
Address______________________________________ Fax_______________________________________
City/State/Zip__________________________________

Comments:

What other topic(s) would you like to see covered in a Click, Listen & Learn?
The American Public Works Association

CEU REQUEST FORM

“Municipal Stormwater Self-Audit: A How-To Guide”

June 26, 2008

This program has been awarded 0.2 CEUs.

You must attend the entire program and have this form signed by your Site Coordinator to be eligible for CEUs.

Your Name:______________________________________________________________

Job Title:______________________________________________________________

Employer:______________________________________________________________

Address:______________________________________________________________

City: _____________________________________ State: ____ Zip: ____________

Email Address: (required) ________________________________________________

Phone No.:_____________________________ Fax No.:___________________________

Where did you attend the Click, Listen & Learn program? MUST BE COMPLETED to receive CEU credit

Agency/Organization: _____________________________________________________

Site Coordinator: Person who organized/set up and/or registered for program.

<table>
<thead>
<tr>
<th>Site Coordinator</th>
<th>Date</th>
<th>Printed Name</th>
</tr>
</thead>
</table>

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