CENTER FOR URBAN WATERS
UNIVERSITY of WASHINGTON | TACOMA

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(revised 13 February 2012)

To: Karen Dinicola, Dana DeLeon, and Mindy Fohn
From: Joel Baker and Kurt Marx
Subject: Proposed refinements to Source Identification and Diagnostic Monitoring project (NEP Task 1)

The purpose of this memo is to articulate our current understanding of the needs and objectives of the stormwater community with respect to Source Identification and Diagnostic Monitoring & Removal (SIDDMR)[1], in light of the Draft Stormwater Permit and our current contract with Ecology (NEP Task 1). The goal of this project is to provide a coherent framework for the SIDDM Repository by completing an IDDE literature review and by developing a path forward for the SIDDM program.

Identifying the communities. Our initial analysis suggests there are three distinct yet related communities engaged in SIDDMR programs in Washington State.

1. Jurisdictions with developed SIDDMR IDDE programs (Phase I's and some Phase II's).
2. Jurisdictions currently without IDDE (or who have underdeveloped IDDE programs) who will be required to build capacity
3. Department of Ecology and the broader water quality management community

Each of these groups has something to contribute to the overall SIDDMR effort, and each will benefit from the aggregate effort, as described below.

What might the SIDDMR Repository be? Our analysis to date suggest that there are two types of information, each of which should be compiled, reviewed, and analyzed to continually improve the SIDDMR program.

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[1] Clarification of definitions
SIDDMR: Source Identification, Diagnostic Monitoring, and Removal: Includes activities covered under the traditional definitions of IDDE and Source Control.
Illicit Discharge Detection and Elimination (IDDE). Programs required by stormwater permits to identify and eliminate undocumented and uncontrolled sources of pollutants to stormwater. IDDE programs use track down methods and generate information about the types, frequency of occurrence and magnitudes of uncontrolled sources.
Source Control = a suite of approaches, ranging from legislative through regulatory through engineering through voluntary best practices intended to keep harmful substances from the stormwater waste stream. IDDE is often considered to be one type of source control (E=elimination). Not all source control is IDDE.
Source Identification and Diagnostic Monitoring (SIDDM)= Coordinated activities described by the Stormwater Workgroup and incorporated in the draft stormwater permit. Appears to contain aspects of both IDDE and Source Control, but this needs to be further clarified.

1. A critical review of methods and resources used to search for unknown sources, for identifying the chemical composition, and for tracking down flowpaths, with an emphasis on learning what works and what does not work in the region.
2. A compilation of the results and findings of current SIDDMR programs, with an analysis of what is most often detected.
3. A peer-network to facilitate communication and sharing of knowledge and methods.

SIDDMR programs would benefit from both repositories, with the first serving as a common resource to avoid reinventing the wheel by taking advantage of the expertise in the developed programs, and the second supporting adaptive management of SIDDMR as observations are used to continually improve the region's programs.

Since the two types of information are inherently different, we recommend two separate but coordinated repositories (An Authoritative Methods and Resources Library and a Compiled Regional Results and Findings Database).

Our proposed 5-year vision. To focus the several on-going efforts around SIDDMR, we propose the following framework that involves the three communities described above, with progress facilitated by the Stormwater Workgroup, the Washington Stormwater Center, or another third party. Completing this vision will require several years—our purpose in the NEP Task is to facilitate agreement on the framework.

The overall vision is to have an informed community of stormwater professionals engaged in source identification and diagnostic monitoring using well-vetted and consistent protocols to generate information that results both in local pollutant reductions and a continually-improving regional SIDDMR (or individual IDDE and Source Control) programs. The proposed framework will enhance communication within and among the three communities (developed programs, underdeveloped programs, and regional water quality managers) and, through the two repositories, foster compatibility across programs and uncover issues common across the region.

In this proposed framework, the roles, responsibilities, and rewards of the communities are:

1. Jurisdictions with developed SIDDMR programs
    a. Roles: valued source of experienced practitioners; on-going generators of information; refine existing and develop new procedures and methods.
    b. Responsibilities: serve as mentors to those expanding/developing local SIDDMR programs; advisors to overall effort
    c. Rewards: participation in a peer network to foster collaboration and information exchange among existing programs; pathway to improve permit-required program; less pollutants into their MS4 from upstream jurisdictions.

2. Jurisdictions with expanding/developing SIDDMR programs
    a. Roles: expand the scope and diversity of SIDDMR issues to jurisdictions of differing size,
    b. Responsibilities: develop relationships within peer network; communicate specific issues to the overall effort
    c. Rewards: efficient technology transfer from experienced jurisdictions (i.e., avoid "re-inventing the wheel"; coherent voice at the regional scale; pathway to improve permit-required program

3. Department of Ecology and the broader water quality management community
    a. Roles: support and maintain the framework; digest information from both repositories to adaptively manage the SIDDMR program
    b. Responsibilities: maintain clean lines of communication; facilitate information flow; be responsive to participating groups.
    c. Rewards: More focused monitoring and diagnostic program; more efficient use of required monitoring; a program that continually improves based on evolving experience of participants.

We envision two important information flows (see attached Figure). First, information about strategies and tactics (what works, what doesn't) flows from those with experience through the Methods/Resources Repository to all participants, especially those developing new or expanded SIDDMR programs. Second, all participants will submit findings to the Results/Findings Repository which, when aggregated, will be used to adapt and update the Methods/Resources Repository. For example, if several participants from across the region report that using fluoride as a tracer for potable water into storm drains is not effective, the aggregate data will be used to propose changes to the recommended methods. Similarly, if a recommended analytical technique fails to detect a target pollutant, further work may be required to develop and validate a new track-down method.

Proposed next steps and questions for the SIDDMR subgroup

1. Finalize vision, roles, and responsibilities

2. Compile list of SIDDMR programs/staff to interview.

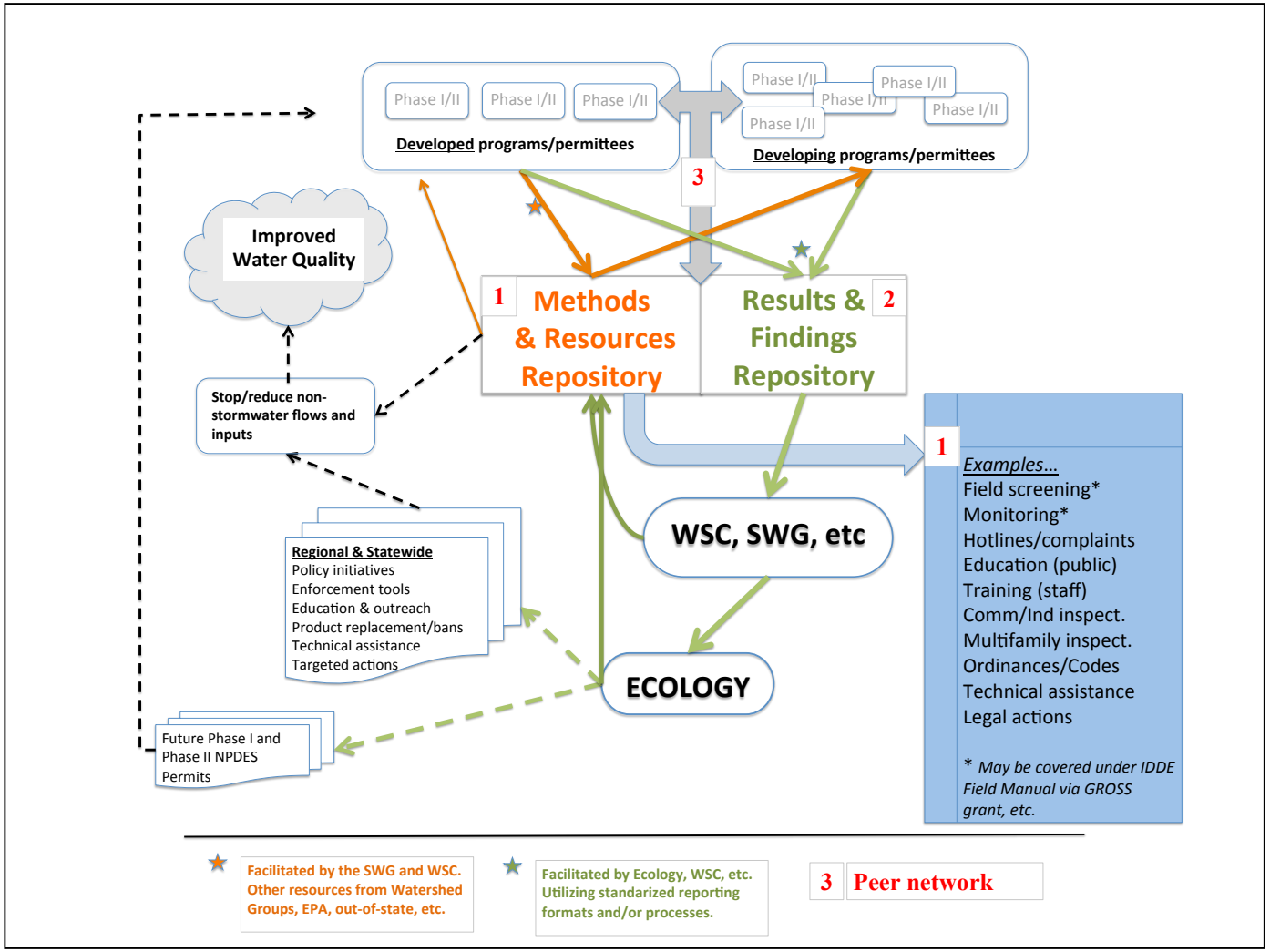
3. Complete literature review for the Methods/Resources Repository
    a. Continue building list of keywords
    b. Cross-reference with earlier Ecology survey results

4. Coordinate with, if awarded, GROSS grant activities for the "IDDE Field Screening Manual". At this point, we are assuming that the IDDE manual developed under the GROSS grant would cover field screening and monitoring methods; thus, the NEP effort will not included these aspects (however, the final

IDDE Field Manual would be included as a component of the Methods/Resources Repository)

5. Develop ideas/concepts for Data/Findings Repository
    a. Consider database structure options, including "tagged-model"
    b. Concepts on the methods/formats for reporting information into the Results & Findings Repository.

- Focus is on Puget Sound basin jurisdictions (but developed tools could easily be expanded).
- Timing? End of grant is September 30, 2012.


Phase I/II
Phase I/II
Phase I/II
Developed programs/permittees
Phase I/II
Phase I/II
Phase I/II
Phase I/II
Phase I/II
Developing programs/permittees
3
Improved Water Quality
1
Methods & Resources Repository
Results & Findings Repository
2
Stop/reduce non-stormwater flows and inputs
1
Examples…
Field screening*
Monitoring*
Hotlines/complaints
Education (public)
Training (staff)
Comm/Ind inspect.
Multifamily inspect.
Ordinances/Codes
Technical assistance
Legal actions
* May be covered under IDDE Field Manual via GROSS grant, etc.
WSC, SWG, etc
Regional & Statewide
Policy initiatives
Enforcement tools
Education & outreach
Product replacement/bans
Technical assistance
Targeted actions
ECOLOGY
Future Phase I and Phase II NPDES Permits
Facilitated by the SWG and WSC. Other resources from Watershed Groups, EPA, out-of-state, etc.
Facilitated by Ecology, WSC, etc. Utilizing standarized reporting formats and/or processes.
3 Peer network