Utilizing Asset Management Database Systems to Meet NPDES Requirements

Presented By
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Stormwater Compliance Manager

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Washington State Municipal Stormwater Conference
The Challenge
(Do it, Track it, and Report it)

- NPDES Permit Requirements:
  - Illicit Discharge Detection Elimination (IDDE)
    - Investigation
    - Enforcement
  - Post Construction, Operations & Maintenance
    - Stormwater Maintenance Inspections
    - Enforcement
The Project Goals

- Develop a standardized approach for tracking and reporting NPDES requirements
  - Geolinked (assets & mapping);
  - Useful and reliable database to query for management and NPDES reporting needs
  - Improve quality of tracking data and simplify annual reporting.
The Tool For Job

- GIS Integrated Asset Management Database System
  - Several systems on the market with Public Works focus
    - VueWorks, Hansen, Cartograph, Cityworks, etc.
  - SeaTac’s Considerations
    - GIS Compatibility, Functionality, Cost
- Tool Chosen
Some Assembly Required

- **Service Request Form**
  - All City Complaints
  - IDDE and Spill Hotline Tracking

- **Work Order Forms**
  - IDDE Field Screening
  - Storm Drainage Inspections
    - Public Storm Systems
    - Private Storm Systems
    - Post Storm Spot Check Inspections
    - Catch Basin Inspection (Coming Soon)
    - Catch Basin Maintenance (Coming Soon)

- **Reports**
IDDE and Spill Hotline Complaints
Click-n-Request
The Public Interface

ClicknRequest.CityofSeaTac.com
Web Request Form
Phone App

Use Current Location...
Please verify that the map crosshairs are centered on the report location.

Issue: Please select...
- Garbage/Recycling
- Graffiti
- Illegal Dumping
- Land Use/Development
- Parks
- Police (non-emergency)
Web Form & Phone App

- Generates a Service Request (SR)
- Sends email notification to gate keeper
  - Gate keeper verifies and assigns SR
  - Assignee also receives email notification

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From: Cityworks Admin
Sent: Thursday, April 19, 2012 9:39 AM
To: Cityworks PW Stormwater Compliance

Request: Service Request Z35

Address: 20430 12th Ave S
Initiated By: ROBINETT, DON
Date Initiated: 4/19/2012 9:39:25 AM
Submitted To: PW, STORMWTRCOMMP
Details: Property owner discovered grey liquid entering property from neighbors property. Owner gave staff permission to enter his property to investigate.
Comments: By ROBINETT, DON 4/19/2012 9:39:29 AM. Act: Assigned to Adam McFayden - WQ Tech
Location: Location of spill is in left side of back yard along fence
Inbox Shows Active SRs
Select SR ID #
Service Request

- Tracks
  - All Complaints
  - IDDE Complaints
  - Spill Hotline Calls
  - Existing Actions
    - tracks each action taken to resolve complaint
  - Submit To: Dept/Div
  - Dispatch to: Staff
Request/Comment Info Panel

- Tracks
  - Address
  - Geolink Info
  - Location details
  - Details of Request or complaint
# Caller Information Panel

![Caller Information Panel]

## Call Times
4/19/2012 9:29 AM

## Source of Request
Citizen/General Public

## Caller Information
**First Name:** KADY (KADEE)  
**Last Name:** SOK

**Address:** 20450 12th Ave S

**City:** SeaTac

**Day Phone:** 206-886-8804  
**Fax:**

**Work Phone:**

**Date:**

**Problem Details:** Property owner discovered gray liquid entering property from neighbors property. Owner gave staff permission to enter his property to investigate.

**Caller Information:** Homeowner

## Other Callers (Double-click to edit)

<table>
<thead>
<tr>
<th>Call Time</th>
<th>First Name</th>
<th>Last Name</th>
<th>Home Phone</th>
<th>Work Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/19/2012 9:29 AM</td>
<td>KADY (KADEE)</td>
<td>SOK</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Move Calls to Request
Custom Fields Panel

- Mandatory Fields in Red
- Tracks
  - Mode of Request
  - Owner info
  - Permit info
  - Findings
  - Type of Request
  - IDDE info
  - DOE Notification
Custom Field

- Taken VIA (Mode)
  - Tracks Spill Hotline calls
Custom Field

Type of Request
- Extensive Pick List
- Lists types by Dept and Division
- Enhances Tracking & Reporting
- Management Tool
Stormwater Inspections
(Customized Work Order Forms)
Stormwater Inspection
Private System

- Locate site on map
- Zoom in till assets are visible
Select Assets to be Inspected

Selection ties inspection to stormwater features
# Stormwater Inspection Work Order Form

**Work Order #:** 409  
**SD:** SDC (Private)  
**Date:** 5/17/2012 2:10:30 PM  
**Related Service Request:** Parent WO:  
**Description:** SDC (Private)  
**Business Name:**  
**Site Address:**  
**Inspected By:** SIRA, LAU  
**Date:** 5/17/2012 2:13:11 PM

### Actions Required:
- **Remove Debris**
- **Construction Required:** $25,000
- **Remove Vegetation**
- **Construction Required:** $25,000
- **Remove Sediment**
- **Other**

### Core/Enforcement Action Required
- **Y/N**
- **# of SDC Assets**
- **# of Enforcement Case #**
- **# of Control Structures**
- **# of Enforcement Actions**
- **# of Catch Basins Checked**
- **Timely Completion**
- **Y/N**
- **# of Trash Bins Checked**
- **If no, please explain:**
- **# of Outlets Checked**

### SWM Details:
- **Eligibility**
- **Y/N**
- **# of Inlets Checked**
- **Approved SWM Report**
- **Y/N**
- **# of Deterrence/Retention Ponds**
- **Other Structural BMP's Checked**
- **Y/N**
- **Maintenance Required**
- **Y/N**

### Site Notes:

Findings:

Date Closed: 5/17/2012 2:13:11 PM  
By Whom: SIRA, LAU

### Comment Log:
By ROBINETT, DON: 5/17/2012 2:20:31 PM
Act: 1 Conducted inspection - all storm facilities have been maintained and are working properly - no corrections issued.
Timeliness requirements are on the back of the form

Public Works Maintenance Inspection Form
(Page 2)
Timely Completion Guidelines

Language from Section 55 C5.n of the NPDES Phase II Municipal Stormwater

"Unless there are circumstances beyond the Permittee’s control, when an inspection identifies an exceedance of the maintenance standard, maintenance shall be performed:

- Within six (6) months for typical maintenance
- Within two (2) years for maintenance that requires capital construction of less than $25,000
- Within one (1) year for wet pool facilities and detention/detention ponds
- Within nine (9) months for maintenance requiring re-vegetation

Circumstances beyond the permittee’s control include: denial or delay of access by property owners, denial or delay of necessary permit approvals, and unexpected relocations of maintenance staff to perform emergency work. For each exceedance of the required timeliness, the Permittee must document the circumstances and how they were beyond their control."
Site Map Attached for Inspections
Stormwater Inspection Data Panels

- Custom Fields
  - Mandatory Fields
  - Corrections & Enforcement
  - SWM Rebate
  - IDDE
  - Number & type of structures
Field Screening
# Field Screening Inspection Form

**IDDE Field Screening Form**

<table>
<thead>
<tr>
<th>Work Order #:</th>
<th>456</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>6/24/2013 10:48:23 AM</td>
</tr>
<tr>
<td>Description:</td>
<td>IDDE Field Screen</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Related Service Request:</td>
<td></td>
</tr>
<tr>
<td>Parent WO:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outfall Location:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Outfall Description:</td>
<td>DMID - CTH-77s</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inspected By:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Point of Observation:</th>
<th>C1 #7s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving Water:</td>
<td>Stormwater</td>
</tr>
<tr>
<td>Last Event:</td>
<td>24 hours</td>
</tr>
<tr>
<td>Dominant Land Use Type:</td>
<td>Residential</td>
</tr>
<tr>
<td>Free Chlorine:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flow:</th>
<th>(Y/N)</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe or Structured Coating/Running:</td>
<td>new</td>
<td>S Clemens</td>
</tr>
<tr>
<td>Water Color:</td>
<td>new</td>
<td>Lab Test Needed</td>
</tr>
<tr>
<td>Vegetation Indicator:</td>
<td>new</td>
<td>No</td>
</tr>
<tr>
<td>Ambient Air Temperature:</td>
<td>(Y/N)</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Findings:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date Closed:</th>
<th>6/24/2013 10:52:00 AM</th>
</tr>
</thead>
<tbody>
<tr>
<td>By Whom:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment Log:</th>
</tr>
</thead>
</table>
Field Screening Inspection Form
(Customized Work Order)
Reports & Reporting
NPDES Elements

- Designed to simplify NPDES Reporting
- Serves a management tool
- NPDES requirements tracked in three reports
  - IDDE Field Screening Report
  - NPDES Tracking Report
    - IDDE Investigations & Spill Hotline
  - Maintenance Inspection Report
    - Private & public stormwater inspections and spot check inspections
Select Date Range

Enter StartDate:
Please enter Date in format "mm/dd/yyyy".

12/31/2011

Enter EndDate:
Please enter Date in format "mm/dd/yyyy".

5/31/2012

OK
# Field Screening Inspection Report

**IDDE Field Screening Report**

**Reporting Period:** 01/01/2013 to 12/31/2013

## Municipal Stormwater System Field Screening Data

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Linear Feet of City Stormwater System</td>
<td>453,377</td>
</tr>
<tr>
<td>Linear Feet of Stormwater System Screened</td>
<td>185,237</td>
</tr>
<tr>
<td>Percentage of Stormwater System Screened</td>
<td>40.0%</td>
</tr>
<tr>
<td>Number of Points of Observation Screened</td>
<td>134</td>
</tr>
<tr>
<td>Number of Illicit Discharges Detected</td>
<td>0</td>
</tr>
</tbody>
</table>

## Number of Stormwater Assets Screened

<table>
<thead>
<tr>
<th>Asset Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catch Basins</td>
<td>1,158</td>
</tr>
<tr>
<td>Discharge Points</td>
<td>5</td>
</tr>
<tr>
<td>Pipes / Ditches</td>
<td>2,639</td>
</tr>
<tr>
<td>Water Quality Facilities</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total Number of Assets</strong></td>
<td><strong>3,791</strong></td>
</tr>
</tbody>
</table>
Mapping Field Screening Compliance
# IDDE Reporting

## NPDES Tracking Report

Tracking Includes Cancelled Requests

Report Period 12/31/2011 to 5/31/2012

<table>
<thead>
<tr>
<th>Spill Hotline</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Spill Hotline Requests</td>
<td>1</td>
</tr>
<tr>
<td>Number of Spill Hotline Actions Taken</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stormwater Service Requests</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Stormwater Requests</td>
<td>14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Requests by City Section</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 4</td>
<td>1</td>
</tr>
<tr>
<td>Section: Port of Seattle</td>
<td>2</td>
</tr>
<tr>
<td>Section: Unassigned</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Requests by Source</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Citizen / General Public</td>
<td>4</td>
</tr>
<tr>
<td>City Staff</td>
<td>4</td>
</tr>
<tr>
<td>City / County Agency</td>
<td>1</td>
</tr>
<tr>
<td>Unassigned</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Service Requests by Mode</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td>9</td>
</tr>
<tr>
<td>Phone</td>
<td>6</td>
</tr>
<tr>
<td>Spill Hotline</td>
<td>1</td>
</tr>
<tr>
<td>Web Request</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Requests by Type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PW</td>
<td>Maint</td>
</tr>
<tr>
<td>PW</td>
<td>Maint</td>
</tr>
<tr>
<td>PW</td>
<td>SWC</td>
</tr>
<tr>
<td>PW</td>
<td>SWC</td>
</tr>
<tr>
<td>PW</td>
<td>SWC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Maintenance Division Requests</th>
<th></th>
</tr>
</thead>
</table>
### Stormwater Inspection Reporting

**PW Maintenance Inspection Report**

Report Period: 12/31/2011 to 5/31/2012

#### Private Facility Inspections:

<table>
<thead>
<tr>
<th>NUMBER OF INSPECTIONS BY CITY SECTION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SECTION 1</td>
<td>2</td>
</tr>
<tr>
<td>SECTION 2</td>
<td>5</td>
</tr>
<tr>
<td>SECTION 3</td>
<td>5</td>
</tr>
<tr>
<td>SECTION 4</td>
<td>14</td>
</tr>
<tr>
<td>SECTION 5</td>
<td>15</td>
</tr>
<tr>
<td>SECTION 6</td>
<td>9</td>
</tr>
<tr>
<td>SECTION PORT OF SEATTLE</td>
<td>3</td>
</tr>
<tr>
<td>SECTION UNASSIGNED</td>
<td>40</td>
</tr>
</tbody>
</table>

#### Number of Private Facilities/Sites (permit requirement §5.04.08)

91

#### Number of Facilities/Sites Approved after 02/15/2010

0

#### Number of Structural BMPs Inspected

0

#### Number of Corrections and Enforcement Required

0

#### Number of Timely Maintenance Requirements Not Met

0

<table>
<thead>
<tr>
<th>WORKORDER</th>
<th>SDC#</th>
<th>ADDRESS</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>SDC-035</td>
<td>5211 D 154TH ST</td>
<td>OPEN</td>
</tr>
<tr>
<td>15</td>
<td>SDC-021</td>
<td>20313 28TH AVE S</td>
<td>OPEN</td>
</tr>
<tr>
<td>16</td>
<td>SDC-020</td>
<td>19001 DEER MOUNTAIN DRIVE</td>
<td>OPEN</td>
</tr>
<tr>
<td>17</td>
<td>SDC-032</td>
<td>2012 S 148TH ST</td>
<td>OPEN</td>
</tr>
<tr>
<td>18</td>
<td>SDC-013</td>
<td>3652 S 168TH ST</td>
<td>OPEN</td>
</tr>
<tr>
<td>19</td>
<td>SDC-033</td>
<td>4600 INTERNATIONAL BLVD</td>
<td>OPEN</td>
</tr>
<tr>
<td>20</td>
<td>SDC-044 &amp; 047</td>
<td>16000 INTERNATIONAL BLVD</td>
<td>OPEN</td>
</tr>
<tr>
<td>21</td>
<td>SDC-027</td>
<td>16000 INTERNATIONAL BLVD</td>
<td>OPEN</td>
</tr>
<tr>
<td>22</td>
<td>SDC-046</td>
<td>16000 INTERNATIONAL BLVD</td>
<td>OPEN</td>
</tr>
</tbody>
</table>
Benefits

- Provides consistent and reliable tracking data
- Simplifies and streamlines NPDES reporting
- Inspections are geolinked and tied to assets
- Serves as a program management tool
- Information is just a query away - you frame the question
Database as a Management Tool

Query 1
Map of Illicit Discharges
Database as a Management Tool

Query 2
Map of Illicit Discharges - Oil Spills & Leaks
Lessons Learned

- Biggest challenge – getting user buy in
  - Staff resistant to change
- Garbage in/Garbage out
  - Clarify roles and responsibilities
  - QA/QC – Check in several times during 1st year
- Geolinking is essential
  - Map based queries important management tool