

Memorandum

To: Ecology RSMP staff and SIDIR subgroup
CC: City of Lakewood, Washington
From: James Packman, Cardno consultants
Date: December 1, 2015
Re: *DRAFT* Summary of Initial Review of Municipal NPDES IDDE Submittals

INTRODUCTION

This memo provides the results of an initial compilation and review of data and permit submittal information from municipal illicit discharge detection and elimination (IDDE) stormwater programs in western Washington. The intention of the data review is to provide information for the Regional Stormwater Monitoring Program (RSMP) Source Identification Information Repository (SIDIR) subgroup on what data permittees have submitted from their IDDE programs. The goal of SIDIR is “to provide information about source identification and elimination methods and identify opportunities for regional solutions to common illicit discharges and pollution problems” (Ecology 2015a).

The data and information used in this review came from current permittees of the National Pollution Discharge Elimination System (NPDES) Municipal Stormwater permits, which are issued by the Washington State Department of Ecology (Ecology 2013a, Ecology 2013b). Entities whose data are included in this review are NPDES Phase I and Phase II cities and counties in western Washington and Phase I Ports of Seattle and Tacoma. The initial review of IDDE data focused on metadata – the type, format, and quality of the data submitted by permittees. In addition, this memo includes a description of how the IDDE data could be organized into a cohesive database and an assessment of the usability of the IDDE data for potential descriptive and statistical analysis.

SCOPE AND OBJECTIVES

The City of Lakewood is the lead agency for this data review and Cardno consultants are implementing the review as part of the larger RSMP source control effectiveness study. Following is a description of the initial IDDE data review activity and the planned deliverables from the scope of work of the Interagency Agreement (IAA, Lakewood 2015).

The [IDDE] data compilation and review will focus on the quality and usability of the data submitted by permittees in the 2014 annual reports (question 48 for Phase Is and question 20 for Phase IIs) for conducting regional analyses to inform stormwater management programs. The data compilation and review will result in a technical memo on IDDE incident metadata and describe a plan for completing the dataset and conducting the ensuing data evaluation. A report of the findings from the data compilation and review will be prepared for review by the RSMP Coordinator and the Stormwater Work Group (SWG) SIDIR Subgroup.

Deliverables:

- 1. Preliminary database composed of permittee data not requiring entry by hand and with data gaps from initial permittee submittal of IDDE data.*
- 2. Draft memo from data compilation and initial review.*
- 3. Meeting with SIDIR subgroup.*

4. Final memo from data compilation and initial review.

This draft memo provides Deliverable 2 in the list above. Deliverable 1 is provided as an attachment to this memo as a database (Excel for the draft version) of submittal data that does not require hand-entry. Deliverable 3 is the planned meeting of the SIDIR subgroup on December 15. At that meeting the project team anticipates receiving feedback on this draft summary and discussion about next steps of the data assessment. After receiving feedback, the project team will revise this metadata summary, which will be provided as Deliverable 4.

In addition to the review of IDDE metadata provided in this memo, the scope of work also includes a set of tasks for collating the data into a single database and performing data summary and analysis on the content of the IDDE information. The full task description from the scope of work is provided in Appendix A and includes the tasks and deliverables for both the review of IDDE metadata (tasks 7.1 through 7.9) and the subsequent pending data compilation and analysis (tasks 7.10.1 through 7.10.12). Proceeding with the analysis of IDDE submittal content is dependent on the outcome of the initial data review and feedback from the RSMP Coordinator and the SIDIR subgroup.

The objectives for the initial data review are to answer the following four questions from the task description in the scope of work (Lakewood 2015):

- 1. How is Ecology receiving this data?*
- 2. What methods are people using to report this information?*
- 3. How many permittees submitted their data in spreadsheet or database output format that is easily incorporated in a single database for regional analysis?*
- 4. How many submitted pdfs or other formats that will require hand entry and what level of effort will be required to enter those data into the regional database?*

These four questions were provided by the RSMP Coordinator during scope development. The questions address both information about the submittals and information about the level of effort to develop a database for evaluation of the IDDE data. These objectives are addressed in four complementary sections in the Summary of Metadata section below.

IDDE REPORTING REQUIREMENTS AND SOURCES OF DATA

This section describes the IDDE data reporting requirements as applicable to the permittees whose data were reviewed. The required reporting of IDDE data is important for comparison to what information was submitted. The section also describes the sources of data available for the assessment.

The relevant IDDE permit sections are S5.C.8 for Phase I cities and counties, S6.E.3 for the Phase I Ports of Seattle and Tacoma, and S5.C.3 for Phase II cities and counties. These permit sections describe requirements for stormwater management planning to include an “ongoing program designed to prevent, detect, characterize, trace and eliminate illicit connections and illicit discharges into the MS4” (Ecology 2013a, Ecology 2013b). The current NPDES permit period for these permittees is from August 1, 2013 to July 31, 2018, and data reviewed are from the 2014 annual reports. Per instructions from the RSMP Coordinator, secondary permittees’ data are not included in this review.

IDDE REPORTING REQUIREMENTS

Following is a listing of the IDDE-related questions that Phase I and Phase II permittees are required to answer in their annual reports (Ecology 2013a and Ecology 2013b). Table 1 lists the primary questions

for which IDDE data and information were reported that forms the basis of the data reviewed here. The associated permit sections are noted in parentheses after each question. Most of the annual report questions require a descriptive or yes/no answer and a few ask for a quantitative response. Permittees that reported zero illicit discharges (see underlined questions in Table 1) did not submit responses to the subsequent question asking for a summary of actions. Many jurisdictions combined answers to multiple questions in their annual report submittals; thus, information and data were typically part of the submittal of a Summary of Actions (bolded questions in Table 1). Individual illicit discharges and connections that are described in the Summary of Actions are referred to as “incidents” in this review. For reference, Table 2 lists the additional questions for IDDE annual reporting, the answers to which are not included in this review.

Table 1. Primary IDDE annual report questions relevant to this assessment.

Permit Topic	Phase I: Larger Cities and Counties	Phase I: Port of Seattle and Port of Tacoma	Phase II: Smaller Cities and Counties
Implement IDDE Program and Procedures	Question 40. Implemented procedures for conducting illicit discharge investigations (S5.C.8.c.i). Question 46. Implemented an ongoing program to characterize, trace, and eliminate illicit discharges into the MS4 (S5.C.8.d).	Question 12. Implemented procedures to identify and remove illicit discharges and illicit connections (S6.E.3.d).	Question 13. Implemented procedures for conducting illicit discharge investigations (S5.C.3.c.i). Question 18. Implemented an ongoing program to characterize, trace, and eliminate discharges into the MS4 (S5.C.3.d).
Number of Illicit Discharges and Connections	<u>Question 47.</u> Number of illicit discharges, including illicit connections, eliminated during the reporting year (S5.C.8.d.iii and iv).	<u>Question 13.</u> Number of illicit discharges, including illicit connections, eliminated during the reporting period (S6.E.3.d).	<u>Question 19.</u> Number of illicit discharges, including illicit connections, eliminated during the reporting year (S5.C.3.d.iv).
Summary of Actions	Question 48. Attach a summary of actions taken to characterize, trace and eliminate each illicit discharge found by or reported to the permittee. For each illicit discharge, include a description of actions according to required timelines (S5.C.8.d.iv).	Question 13b. Attach a summary of illicit discharges discovered and actions taken to eliminate the discharges (S6.E.3.d).	Question 20. Attach a summary of actions taken to characterize, trace and eliminate each illicit discharge found by or reported to the permittee. For each illicit discharge, include a description of actions according to required timeline (S5.C.3.d.iv).

Note: **Bolded** questions indicate the submittals from permittees that contained the IDDE data and information used in this review.

Table 2. Other IDDE annual report questions.

Permit Topic	Phase I: Larger Cities and Counties	Phase I: Port of Seattle and Port of Tacoma	Phase II: Smaller Cities and Counties
MS4 Mapping and Screening	Questions 6, 7, 8, 41, 42, 43	Questions 7, 8, 9, 11	Questions 10, 14
Telephone Hotline	Questions 44, 44b		Questions 15, 15b
Training and Spill Response	Questions 45, 49, 50	Questions 14, 15	Questions 16, 21
Inform Employees and Public			Question 17
Compliance Strategy		Question 6	Question 11
Local Policies, Ordinances, and Regulations	Question 39	Questions 4, 5	Question 12
G3 Notification	Questions 86, 87, 88, 89		Questions 60, 61, 62, 63

SOURCES OF IDDE DATA

Two sources of IDDE data were available for this review. The first data source was submissions made by permittees as part of their annual report. The submissions were obtained with the assistance of Ecology in developing a filter for the Permit and Reporting Information System (PARIS) to download documents for the relevant annual report questions (Ecology 2015d). As indicated in Table 1 above, IDDE data and information from the annual reports were collected from answers to primarily one annual report question (no. 48 for Phase I cities and counties, no. 13b for Phase I Ports of Seattle and Tacoma, and no. 20 for Phase IIs).

The second data source was the online reporting of illicit discharge incidents via a tracking form and instructions developed by Ecology (Ecology 2015b and 2015c). The online form is intended for use by Phase II jurisdictions to provide a convenient and consistent format for IDDE incident reporting. Usage of the online form was optional, and it was found that only a small percentage of permittees used the online reporting method. Notification to permittees about the availability of the online database was provided to all Phase II jurisdictions in February 2014 by Ecology permit managers (K. Dinicola, personal communication). Information about the online submittals is included in the Summary of Metadata below.

SUMMARY OF METADATA

The summary of IDDE metadata was focused on addressing the four questions from the scope of work (see above). The first two questions are somewhat open ended and the second two questions are more specific. The IDDE metadata information is summarized in four sections below and, while they do not parallel the four scope questions, are useful categories to describe the data at this stage of the assessment. The four sections focus on the types and formats of files submitted, the number and types of permittee responses, the number and types of IDDE incident responses, and an assessment of level of effort to compile data into a single dataset. In addition, several **Recommendation** sections are included throughout this summary section rather than as a separate section after the presentation of results. The recommendations are provided in contextual locations in order to improve the flow of ideas as they come up in the presentation of the results.

FILE TYPES and REPORTING FORMATS

Permittee submittals of IDDE data and information in NPDES annual reports were provided in three document types: portable document format (PDF), Excel spreadsheet (XLS), or as a Word document (DOC). Figure 1 shows the number of PDF, XLS, and DOC files submitted by permittees.

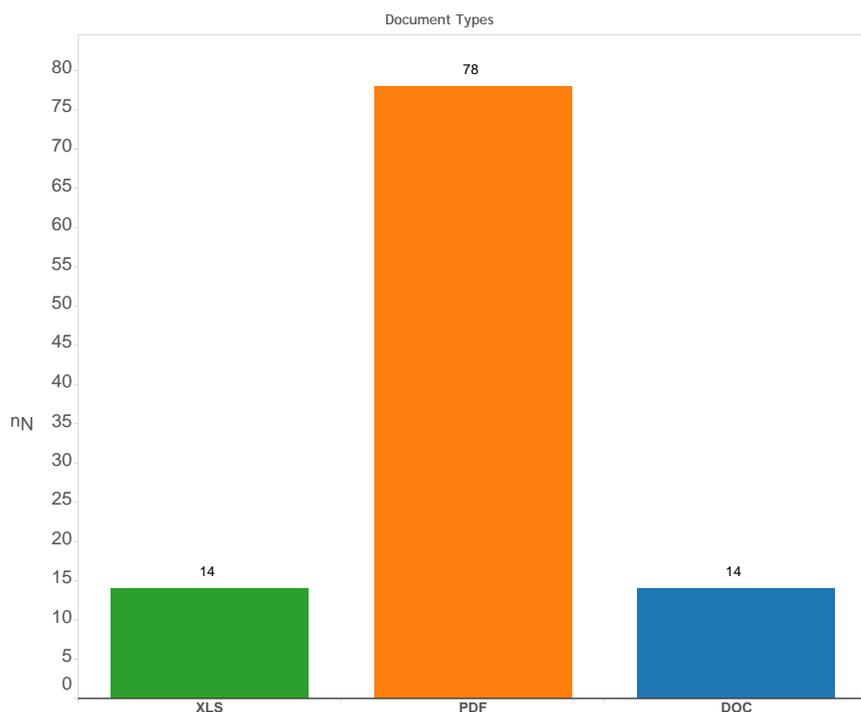


Figure 1. Number and types of documents submitted.

The reporting format in the submittal documents varied. Each document type included multiple report formats of IDDE data and information. Reporting formats in the PDF files include:

- Reports from databases (all as PDF), including City Works and other databases for use in public works.
- Narrative descriptions of IDDE incidents as stand-alone paragraphs that address annual report questions.
- Letters to Ecology that serve as G3 notification of illicit discharges.
- Copies of the ERTS entry record for incidents.
- Tables of summary information for discrete IDDE events (discharges and connections). Some tables have some or all fields from the Ecology online reporting tool, others use unique sets of fields. Tables almost always include narrative description of action taken to address event.
- Screen shots or scans of database reports and tables of IDDE incidents.
- Records of Work Orders, Service Requests, Spill Response, and IDDE incident reports, many on unique forms specific to the permittee. Some reports included photographs.
- Memorandum from a consultant to the permittee about IDDE events in their jurisdiction.
- Fire response report.

- IDDE program manual for the permittee and their jurisdiction.

Reporting formats in Word files include:

- Narrative descriptions of IDDE incidents that address annual report questions.
- IDDE and spill reports, some with photographs.

Reporting formats in Excel spreadsheets include:

- Tables of summary information for discrete IDDE events (discharges and connections). Some tables have some or all fields from the Ecology online reporting tool, others use unique sets of fields. Tables almost always include narrative description of actions taken to address events.
- Spill response incident report.

The reporting formats were grouped into 11 categories to assess how information and data could be collated and analyzed. Figure 2 shows the distribution of the reporting format groups among the three document types.

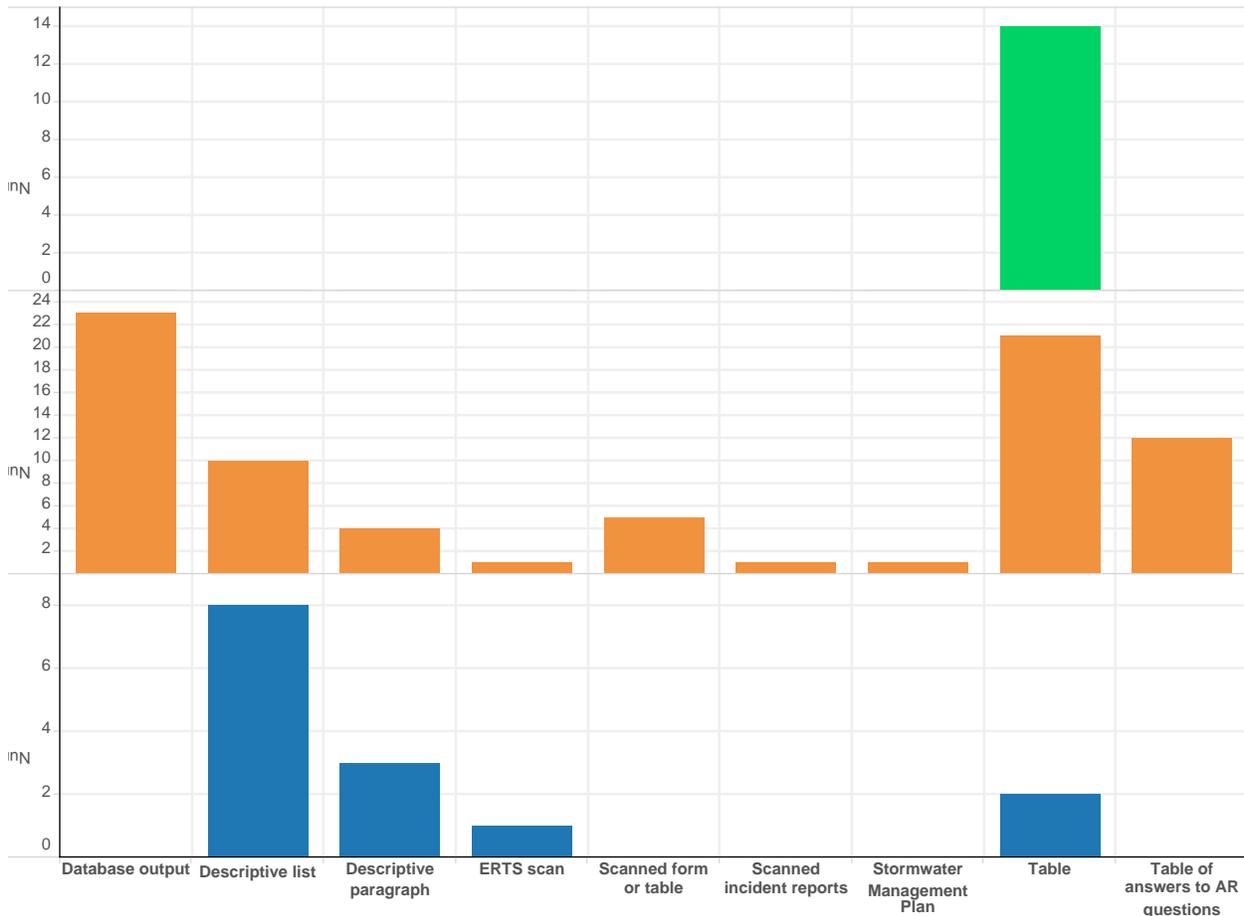


Figure 2. Method of IDDE reporting in annual report submittals.

Recommendation

Due to the mostly descriptive nature of the IDDE data and information reported, the descriptions will need to be read and information extracted. Almost all of the descriptions contain some amount of similar information that could be extracted and used to populate a set of common database fields. It is recommended that Ecology approve the next stage of the IDDE data assessment, which will include extracting information from descriptions and building a database. The database will serve multiple purposes, including allowing further descriptive summaries, data analysis of the IDDE incidents, and will help inform Ecology about what IDDE information is likely to be submitted for the remainder of the permit cycle.

NUMBER OF PERMITTEE RESPONSES

All permittees submitted responses to IDDE annual report questions. Out of eight Phase Is, seven permittees submitted IDDE information and one permittee reported zero illicit discharges or connections eliminated. Out of 85 Phase IIs, 71 permittees submitted IDDE information and 14 reported zero illicit discharges or connections eliminated. Figure 3 shows the distribution of permittee submittals with and without IDDE incidents and discharges reported as well as those Phase IIs who also submitted incident data through the online tracking method. Table 4 provides the list of those permittees who reported zero incidents or discharges eliminated. The full list of permittees and the method and format of IDDE information submitted is provided in Appendix B.

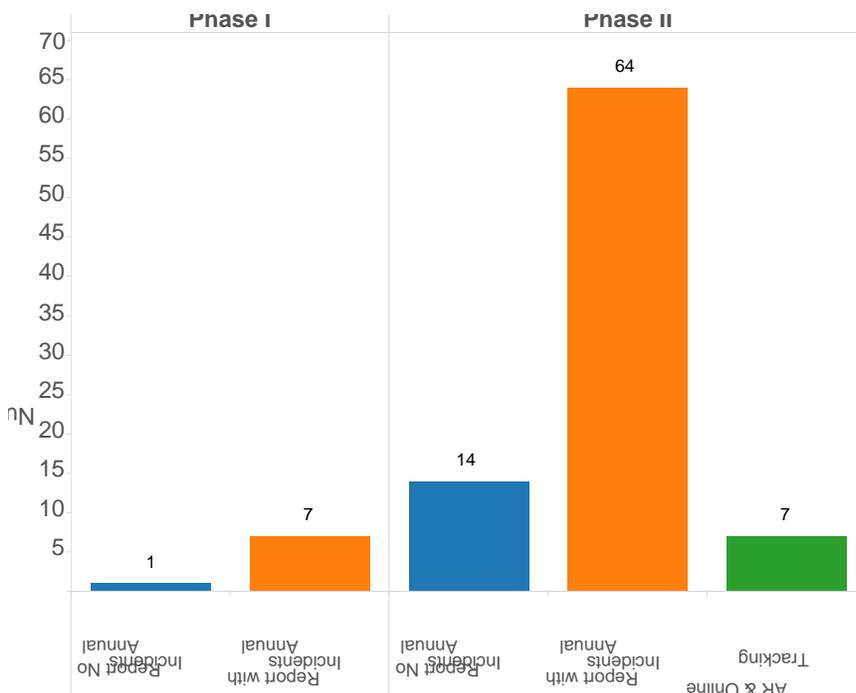


Figure 3. Permittee IDDE submittal by annual report (with and without incidents reported) and by online tracking form.

Table 4. Permittees who reported zero illicit discharges and connections eliminated.

Permittee	Permit Type
Port of Tacoma	Phase I
City of Aberdeen*	Phase II
City of Brier	Phase II
City of Buckley	Phase II
City of Burlington	Phase II
City of Camas	Phase II
City of Centralia	Phase II
City of Duvall	Phase II
City of Edgewood	Phase II
City of Fife	Phase II
City of Fircrest	Phase II
City of Medina	Phase II
City of Mountlake Terrace	Phase II
City of Normandy Park	Phase II
City of Steilacoom	Phase II
Cowlitz County	Phase II

* Aberdeen reported 5 incidents for annual report question 19 but no summary of actions with incident information (question 20).

Recommendation

It is recommended that some permittees be contacted to request IDDE data in a different report format. This would be especially useful for the formats that indicate data are available digitally and could be readily exported from a database or as a spreadsheet. The reporting formats (from Figure 2) that likely have a digital data source are database output; scanned form, table, or incident report; and non-XLS tables. Contacting permittees to fill data gaps in the IDDE dataset is one of the tasks of the pending subsequent compilation and review of IDDE submittal content.

NUMBER OF IDDE INCIDENTS REPORTED

The number of incidents was determined from a count as reported by permittees in their 2014 annual reports and by online incident reporting. Incidents reported online were checked against those submitted via annual reports. A handful of incidents were reported in both ways and the final count excludes duplicates.

A total of 2849 individual IDDE incidents were reported among all permittees. Of this total, 1125 incidents were reported by Phase Is and 1724 were reported by Phase IIs. Each permittee submittal contained from 0 to 741 individual IDDE incidents reported. Two permittees reported over 300 incidents (325 from the City of Bellevue and 741 from the City of Tacoma), five permittees reported between 100 and 200 incidents (one Phase I and four Phase IIs), five permittees reported between 50 and 100 incidents (all Phase IIs), and 67 permittees reported 1-49 incidents (4 Phase Is and 63 Phase IIs). In addition, 14 Phase IIs and one Phase I reported no IDDE incidents.

Figures 4, 5, and 6 show the distribution of IDDE incidents reported among, respectively, Phase Is, Phase IIs reporting 15 or more incidents, and Phase IIs reporting fewer than 15 incidents. As Figure 4 shows, one Phase I permittee (City of Tacoma) reported significantly more incidents than all other Phase Is combined. Likewise, one Phase II permittee (City of Bellevue) reported significantly more incidents than other Phase IIs (Figure 5). The majority of Phase IIs reported less than 15 incidents (Figure 6). A complete table of the number of incidents reported by each permittee is provided in Appendix B.

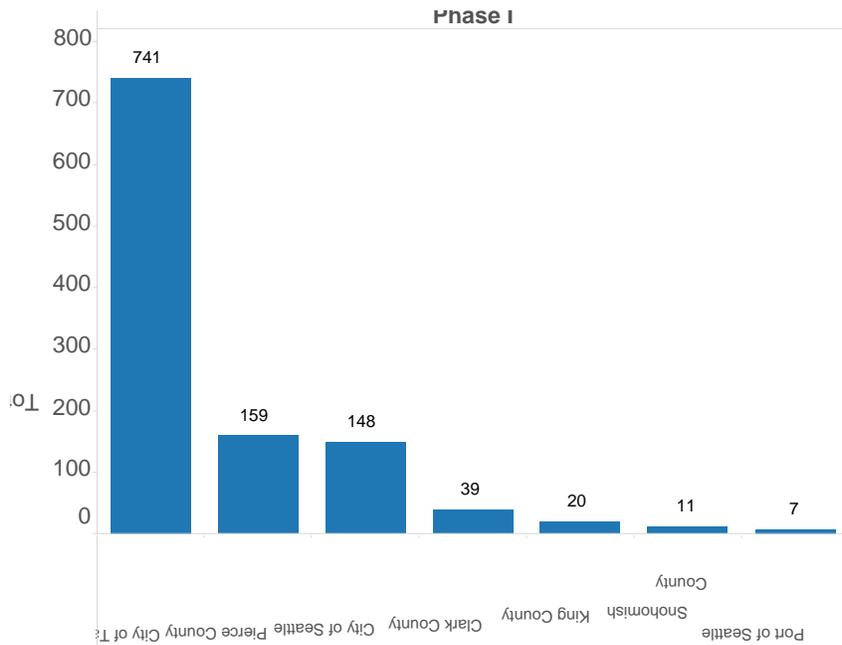


Figure 4. Distribution of IDDE incidents by Phase Is.

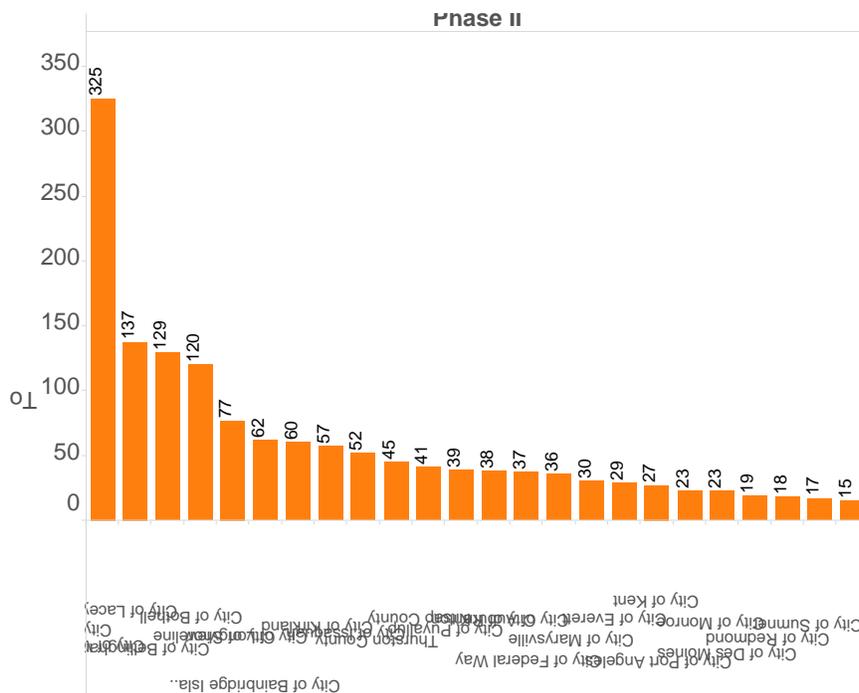


Figure 5. Distribution of IDDE incidents by Phase IIs reporting 15 or more.

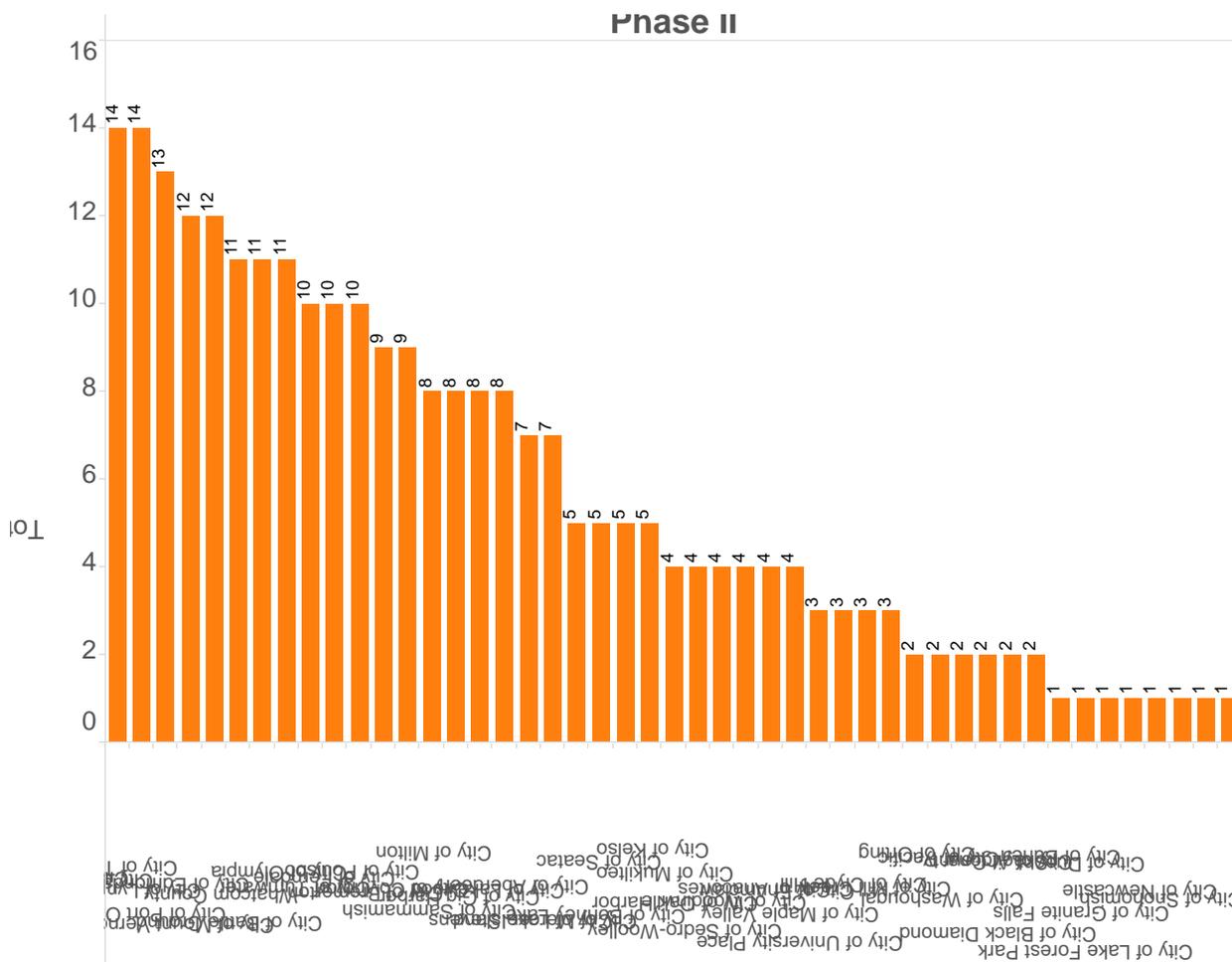


Figure 6. Distribution of IDDE incidents by Phase IIs reporting fewer than 15.

Figures 4, 5, and 6 show the distributions of all IDDE incidents among permittees that includes all methods of reporting (annual report or online tracking form). In order to evaluate the completeness of how incidents were reported, the data fields from the online tracking form, which represent preferred responsiveness, were compared to data and information provided by permittees in the annual reports. The online tracking form contains 34 unique fields that include information on: permittee name and contact information; incident location, weather, discharge characteristics, and notes; and methods for IDDE investigation. With assistance from RSMP staff, two “responsiveness groups” of fields from the tracking form were identified to indicate two levels of the completeness of the IDDE incident reporting: required per the form (15 fields) and Ecology’s definition of a responsive submittal (14 fields). In addition, the project team identified a third responsiveness group with 12 fields from the tracking form that would be preferred for possible data analysis. The online tracking fields are listed in Table 5 and indicate the fields that correspond to these three responsiveness groups.

Table 5. Online Tracking Form Fields and Responsiveness Groups.

Online Tracking Form Fields	Required Fields	"Responsive" Submittal	Preferred Fields for Analysis
1. Jurisdiction Name	X		X
1a. Email			
2. Unique Identifier	X	X	X
2a. New or Edited Entry			
3. Date incident initially reported	X	X	X
4. Location			
4a. Street Address			
4b. And Or Zip Code			
4c. And Or Nearest Intersection			
4d. Is the structure mapped/inventoried?			
5. Weather condition at time of report [Raining]			
5a. Temperature			
5b. Precipitation in previous 24hrs			
6. Frequency	X		
7. Threat Determination and G3 Notification:	X	X	
7a. Immediate Response?	X	X	
7b. G3 Notification?	X		
8. Investigated within 7 days per program procedures?	X	X	X
8a. If suspected illicit connection, investigated within 21 days?	X	X	X
8b. Final resolution of illicit connection within 6 months?	X	X	X
9. How did you learn about the problem?			
9a. ERTS Number			
10. Source Tracing Methods:	X	X	X
11. Indicator Testing:			
12. Pollutant(s) Identified:	X	X	X
13. Source or Cause:	X	X	X
13a. Commercial [Commercial]	X (or 13)	X (or 13)	X (or 13)
14. Correction/Elimination Method:	X	X	X
14a. Enforcement [Enforcement]	X (or 14)	X (or 14)	X (or 14)
15. Final Resolution Date		X	X
15a. Final Resolution Date		X (or 15)	X (or 15)
16. Field notes, explanations, and other comments:	X	X	X
17. Other helpful or relevant information			
18. Validate This Form for Submission - What is 5 times 5?			
Total fields = 34	15	14	12

The permittees who submitted IDDE incidents via the online tracking form are listed in Table 6. Most permittees who used the online form reported different incidents in their annual report submittals, although a few permittees reported incidents both ways. Table 6 also includes three permittees who submitted their own spreadsheet files in the annual reports using the same fields as in the online tracking form. In addition, Table 6 shows the number of incidents (200 in total) in a format that can be readily copied and that are included in the preliminary IDDE incident database attached to this memo.

Table 6. Permittees who used the Online Tracking Form for either online reporting or in annual report submittals. Values indicate the number of IDDE incidents reported.

Permittee	Online Tracking Form	Annual Report	Total Number of Incidents Reported	Number Incidents In Preliminary Database
City of Auburn	26	10*	36	36
City of Anacortes	2	1*	3	3
City of Orting	1	1*	2	2
City of Federal Way	21	29***	30	30
City of Sammamish	1	7*	8	1
City of Issaquah	3	45**	45	3

Permittee	Online Tracking Form	Annual Report	Total Number of Incidents Reported	Number Incidents In Preliminary Database
City of Redmond	6	11*	17	17
Permittees who submitted IDDE incidents in Annual Reports using Ecology tracking form.				
City of Longview	0	60	60	60
City of Poulsbo	0	9	9	9
Kitsap County	0	39	39	39
Whatcom County	11	11****	11	0
TOTAL	71	223	260	200

* annual report does not include incidents reported online

** annual report includes incidents reported online.

*** annual report includes 20 incidents reported online

*** Whatcom county provided a scanned PDF of a database export that uses the online tracking form fields.

Recommendation

The online tracking form includes several fields that could have a quantitative response but instead just request a descriptive or yes/no answer. These include especially the date fields (3, 7a, 8, 8a, 8b, 15, and 15a) for the incident investigation and resolution timeline. It is recommended that Ecology consider revising the date fields to request specific dates so that more precise time periods can be calculated. This information would provide useful data to evaluate questions of level of effort and time for incident resolution for various types of IDDE events.

In addition, it is recommended to categorize certain fields that would typically have a limited number of answers, such as discharge frequency (field 6) and source tracing methods (field 10). New categorized fields could also be added to the list to capture useful information, such as the quantity of discharge. Answers to these questions could be a drop-down list of common answers, such as for frequency of discharge answers could be continuous, intermittent with regularity, intermittent with no apparent regularity, one-time, and unknown. A categorized discharge field could have a drop-down menu of answer options, including, for example, up to 10 gallons, 11 to 100 gallons, 101 to 1,000 gallons, 1,001 to 10,000 gallons, more than 10,000 gallons, and unknown. Having preset categories for some fields will make the data entry more straight forward at the time of reporting, would add consistency to answers, and would allow more direct comparison of answers among permittees.

ASSESSMENT OF EFFORT TO HAND-ENTER IDDE INCIDENT DATA INTO A DATABASE

The level of effort required to enter the incident data into a master database was assessed by reviewing the document types and reporting formats. A weighting factor ranging from 0 to 1 was assigned to each permittee to indicate a relative level of effort. The weighting factor was multiplied by the number of incidents reported by the permittee to provide an approximate number of incidents requiring hand-entry. A weighting factor of 0, for example, was used for permittees from whom all information reported could easily be entered (by copying and pasting from an existing table or spreadsheet in the submittal file) and would result in 0 incidents that require hand entry. A factor of 0.5 indicated that some of the information was reported in a table and about half was reported by written description and would result in a level of effort equivalent to hand-entering 50 percent of that permittees' IDDE incidents. A factor of 1 indicated that all incident data from a permittee would need to be hand-entered (typically for incidents that were reported in purely descriptive written format). The results of the weighted analysis for hand-entry of data indicate 77 incidents from Phase Is and 1291 incidents from Phase IIs that would need to be hand-entered. Thus, a total estimate of 1368 incidents would require an approximately equal effort to hand-entering complete data records. Figure 7 shows the number of IDDE

programs about the efficacy of reporting requirements and data fields in the IDDE incident tracking form.

PROPOSED DATABASE AND DATA ANALYSIS

The method of IDDE data reporting differed among jurisdiction, with some jurisdictions providing details in many fields separated into discrete pieces of information and other jurisdictions including most data in one or more descriptive memo fields. The database proposed here would seek to resolve data to the incident level using many separate fields, which would better facilitate summarizing and analyzing the records in order to answer key questions. Therefore, the first step in constructing a master database would be to identify and standardize the most important and/or most frequently used pieces of information. Once those fields are chosen (and a list of example responses is developed for categorical fields), then the records from each jurisdiction can be included in the master database.

For those jurisdictions that already provided IDDE information in many discrete fields (electronic format), this process may be relatively straightforward and would involve a match-up of field names or list of responses that can be done with database queries or lookup tables. For example, a field to include the source of the IDDE incident report might be reported slightly differently in each jurisdiction, but the various responses can be standardized to a single list (e.g. inspection, caller, hotline). However, when the relevant data has been reported in large text fields, then some manual conversion of large text fields to simpler categorical fields that can be searched will be necessary. For example, a jurisdiction may report all information about the spill/discharge in one long paragraph, and that would need to be parsed into fields that list the type of incident, reporter type, type of impact, pollutant, etc.

The master IDDE database would include a few major field types, which would likely be developed from the online tracking form that Ecology developed. Those fields can be grouped into four categories each of which would have answers in a similar format.

- Short text with a drop-down list – This would apply to most fields. The responses should be standardized as much as possible so that searches can be run and tabulated. Field examples include generalized summaries of characteristics for the reporter, incident type, pollutant type, pollutant tracking, rainfall, corrective actions, etc.
- Date fields – Some jurisdictions report the actual dates of the report, response, and resolution, while others report time in terms of specific actions occurring within 7 days, 21 days, or 6 months. When possible, the more detailed date information should be maintained so that response times and incident resolution times can be calculated. In addition, detailed date information can also be converted into the more discrete time periods to match the less detailed data.
- Yes-No fields – Some questions may be reduced to a simple yes or no.
- Continuous quantity – In some cases, a jurisdiction may report the quantity of the pollutant/spill/discharge. While some records may contain a continuous quantity (e.g. 1 inch, 30 gallons, number of days to resolution), most provide an estimated range of values (e.g. range of gallons, up to or less than the number of days to incident resolution, etc.). Therefore, any quantity information should be included as detailed as possible on the initial import and then converted to discrete groups to standardize across all jurisdictions.

For the most part, the IDDE database will be a series of categorical fields. Therefore, data analysis will be almost exclusively descriptive tabular and graphical summaries, with some opportunity for

contingency table statistical analysis (e.g. Chi-squared, G tests) to compare the distribution of records across multiple groups. Following is a list of some potential specific objectives that could be addressed by analysis of IDDE incident records that have been collated into a master database as described above.

- Calculate the number of records for various categories, such as incident type or pollutant type, to determine where the majority of time is being spent.
- Determine whether the corrective action differs among incident types, reporter types, or pollutant type using contingency tables.
- Help focus IDDE investigations and inspector training efforts on the most often repeated incident or pollutant types.
- Compare jurisdictions (for those with comparable reporting fields) and permit types (Phase I and II) to find potential differences in types of incidents.
- Compare response times (categorically) by reporter type or closure times by incident type in contingency tables.
- Identify times when significant illicit discharges were occurring in individual watersheds and compare to data from the status and trends monitoring to assess the potential of downstream impacts by illicit discharges and connections to the MS4.

Recommendation

Because of the open-ended objectives for this initial review of metadata, the planning for specific analysis of IDDE data would be aided by the development of specific questions to be answered in the data analysis that are of interest to the RSMP and SIDIR.

CONCLUSIONS AND NEXT STEPS

This initial review of IDDE reporting by permittees of the western Washington NPDES permits has the following conclusions:

1. The annual report questions for reporting IDDE program information and data ask for mostly descriptive information. Thus, the vast majority of data reported were in descriptive form and not in numeric or quantitative form.
2. Information about IDDE incidents from permittee submittals was primarily provided in one annual report question per permittee type (question 48 for Phase I cities and counties, question 13 for Phase I ports, and question 20 for Phase II cities and counties).
3. IDDE incidents (and supporting information) were reported by seven out of eight Phase Is and 71 out of 85 Phase IIs. One Phase I and 14 Phase IIs reported zero incidents.
4. Relatively few IDDE incidents (2 percent) were reported via the Ecology online tracking form, some of which were also reported in annual report submittals.
5. Three file types composed the submittals: 78 portable document format files (PDF), 14 text files (Word DOC files), and 14 spreadsheets (Excel XLS files).
6. The reporting formats of IDDE incidents varied among permittees. Relatively few permittees provided incident information in tables or output files from a database that could readily be imported into a master IDDE incident database.
7. A total of 2849 discrete IDDE incidents were reported by all permittees. Of these, 1125 incidents were reported by Phase Is and 1724 incidents were reported by Phase IIs.
8. One Phase I permittee (City of Tacoma) reported many times more IDDE incidents (741) than other Phase Is (individually and combined).

9. One Phase II permittee (City of Bellevue) reported many more IDDE incidents (325) than other Phase IIs (individually).
10. The majority of permittees reported less than 15 IDDE incidents each.
11. The anticipated level of effort for hand-entering descriptive data and information from IDDE submittals is estimated to be equivalent to entering 1368 complete records. This effort is greater than what was assumed in the scope of work (1000 records).
12. A description is provided of the proposed database for the IDDE data. The identification of a master list of data fields is a key step in the creation of a database and it is proposed to use the fields from the online tracking form as a starting point. The fields would fall into four groups: short text with drop down menu options, date fields, yes/no fields, and continuous quantity fields.
13. No specific objectives have been articulated yet for potential IDDE data analysis. Several potential data analysis ideas and objectives are provided to help the RSMP and the SIDIR subgroup identify data analysis of interest on the content of the IDDE submittals.
14. It is recommended for Ecology to approve proceeding with assembling and analyzing a complete IDDE incident dataset. However, issues of level of effort exceeding the scope assumptions and the exact questions to be addressed in the analysis still need to be worked out.

The next step of the IDDE data compilation and review is a meeting with Ecology and the SIDIR subgroup on December 15, 2015. At that meeting, the project team anticipates receiving feedback and comments on this draft memo and the initial IDDE metadata review. It is also anticipated that a discussion will occur at that meeting about whether or not to proceed with the data compilation, database creation, and the questions (and associated objectives) for data analysis. Information from this memo should aid in that discussion. Information on the exact next steps and schedule will be determined following the discussion at the December 15 meeting.

REFERENCES

- Ecology 2013a. Phase I Municipal Stormwater Permit. National Pollution Discharge Elimination System and State Waste Discharge General Permit for discharges from Large and Medium Municipal Separate Storm Sewer Systems. Effective dates: August 1, 2013 to July 31, 2018. Reference includes associated appendices.
- Ecology 2013b. Phase II Western Washington Phase II Municipal Stormwater Permit. National Pollution Discharge Elimination System and State Waste Discharge General Permit for discharges from Small Municipal Separate Storm Sewers in Western Washington. Effective dates: August 1, 2013 to July 31, 2018. Reference includes associated appendices.
- Ecology 2015a. Website of the Ecology RSMP.
<http://www.ecy.wa.gov/programs/wq/stormwater/municipal/rsmp/rsmp.html>.
- Ecology 2015b. IDDE data submitted online via Ecology form. <https://data.wa.gov/Natural-Resources-Environment/RSMP-Illicit-Discharge-Detection-and-Elimination-I/ikwr-f47z>.
- Ecology 2015c. Western Washington IDDE Incident Tracking Form. Instructions for IDDE online reporting. <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/IDDEinctrkfrminstr.pdf>.
- Ecology 2015d. Ecology Water Quality Permitting and Reporting System, Permit and Reporting Information System (PARIS). Website with filter developed by Ecology to obtain responses to individual questions. Phase I permittees:
https://fortress.wa.gov/ecy/wqreports/public/f?p=110:302:773825931585507::NO:RP:P302_PERMIT_TYPE:15. Phase II permittees:
<https://fortress.wa.gov/ecy/wqreports/public/f?p=110:302:2522273609057873::NO:RP::>.
- K. Dinicola, personal communication. Email on 10/28/15 forwarding an email from February 2014 to Phase II permittees about the online IDDE incident tracking form.
- Lakewood 2015. City of Lakewood scope of work in Interagency Agreement with Ecology. Ecology Contract no. 1500129.

APPENDIX A – SCOPE OF WORK FOR IDDE ASSESSMENT

Task 7. Compile, Review, and Evaluate Illicit Discharge Detection and Elimination (IDDE) Data from Permittees

Task 7 is not associated with the source control study but is instead for separate activities included in this scope at the request of Ecology and the SWG Source Identification Information Repository (SIDIR) subgroup. Work under task 7 will include compiling, reviewing, and evaluating data received by Ecology of IDDE incident tracking as reported by NPDES Municipal Stormwater permittees (per Phase I section S5.C.8 and Phase II section S5.C.3). The data compilation and review will focus on the quality and usability of the data submitted by permittees in the 2014 annual reports (question 48 for Phase Is and question 20 for Phase IIs) for conducting regional analyses to inform stormwater management programs. The questions to be answered for the data compilation and review efforts include:

- How is Ecology receiving this data?
- What methods are people using to report this information?
- How many permittees submitted their data in spreadsheet or database output format that is easily incorporated in a single database for regional analysis?
- How many submitted pdfs or other formats that will require hand entry and what level of effort will be required to enter those data into the regional database?

The data compilation and review will result in a report on IDDE incident metadata and describe a plan for completing the dataset and conducting the ensuing data evaluation. A report of the findings from the data compilation and review will be prepared for review by Ecology and the SIDIR committee.

An additional set of subtasks for data evaluation and summary report of results will proceed dependent upon the outcome of the initial data compilation and assessment and feedback from Ecology and the SIDIR subgroup. The data evaluation subtasks will include analysis of the data and presenting findings at a workshop for permittees on a date to be determined (estimated to occur in late 2015).

1. Subtasks: Review and Compile Data, Create Database, Summarize Data, and Prepare Data Summary Report

- 7.1 Download and compile the IDDE data submitted by permittees as spreadsheet or character-delimited files. Data will be obtained via Ecology's permit and reporting information system (PARIS) using a filter developed by Ecology (personal communication, K. Dinicola, 3/3/15).
- 7.2 Create and populate an Access database based on the data fields available in the submitted data.
- 7.3 Identify and list datasets with inconsistent data types and formats that cannot be easily imported into the database.
- 7.4 Identify the number of permittees and records for which data would need to be entered by hand from scanned field notes or other raw data sources.
- 7.5 Determine the number of respondents and number of incidents reported.
- 7.6 Identify recommendations for further data compilation and evaluation.
- 7.7 Write a draft memo of the data compilation and review tasks and submit to Ecology for review. The memo will describe how data are being provided by permittees, the methods permittees are using to report the IDDE information, the overall completeness of the dataset, and the estimated level of effort required to complete the dataset with inclusion of hand-entered records. The memo will also provide recommendations for further data review and evaluation, including statistical analysis as part of the data evaluation subtask 7.10.
- 7.8 Meet with the SIDIR subgroup to discuss the draft report findings and ideas of how the data could be further evaluated to support the SIDIR activities (see task 7.10 below).

7.9 Write final memo of the data compilation and initial review based on comments from Ecology and the SIDIR subgroup on the draft memo and from discussion at the meeting with the SIDIR subgroup.

7.10 Subtasks: Evaluate Data, Prepare Report, and Present Findings at Workshop

- 7.10.1 Compare data fields reported by permittees to Ecology’s online Western Washington IDDE Incident Tracking Form and associated (offline) spreadsheet. Determine a percent completeness and gaps in the data submitted relative to the Incident Tracking Form and associated instructions.
- 7.10.2 Contact permittees to try to fill data gaps in the reported data.
- 7.10.3 Compile additional data received from data gaps request to permittees. Import data into database.
- 7.10.4 Enter by hand into the database the data submitted in PDF format. Create database form to expedite data entry.
- 7.10.5 Summarize metadata, including the number and types of data fields available: qualitative, quantitative, geographic, date range, and number and type of data package formats.
- 7.10.6 Tabulate the range of responses for each quantitative data field.
- 7.10.7 Categorize the IDDE issues reported in terms of frequency of occurrence, potential severity of impact, and location.
- 7.10.8 Compare IDDE methods used with type of issue (discharge or connection) and water body affected.
- 7.10.9 Perform statistical evaluation of data based on recommendations in the memo for the data compilation and review tasks above.
- 7.10.10 Write a draft report with the results of the data evaluation. Discussion in the report will include the applicability of findings to the NPDES stormwater management program, the usability of the data for the Status and Trends monitoring program, and the consistency of data reporting with the IDDE Field Screening Manual (King County 2013). Report will be reviewed by Ecology and the SIDIR subgroup.
- 7.10.11 Prepare final report based on comments on draft report.
- 7.10.12 Prepare a presentation of up to one hour of the data evaluation findings for a workshop for permittees. The RSMP coordinator will notify Lakewood in the fall of 2015 with a range of appropriate dates for workshop planning. Attend workshop and give presentation.

Deliverables for Subtasks 7.1-7.9	Subtasks	Cost	Target
7.1 Preliminary database composed of permittee data not requiring entry by hand and with data gaps from initial permittee submittal of IDDE data.	7.1, 7.2	\$12,740	9/25/15
7.2 Draft memo from data compilation and initial review.	7.3-7.7	\$11,430	10/30/15
7.3 Meeting with SIDIR subgroup.	7.8	\$1,322.06	11/13/15
7.4 Final memo from data compilation and initial review.	7.9	\$3,040	12/11/15
Total for tasks 7.1-7.9		\$28,532.06	
Deliverables for Subtask 7.10			
7.5 Complete database including data entered by hand and additional data provided by permittees from data gaps request.	7.10.1-7.10.4	\$45,160	1/29/15
7.6 Draft report on data evaluation.	7.10.5-	\$22,430	2/26/15
7.7 Final report on data evaluation.	7.10.11	\$3,790	3/25/16
7.8 Presentation at workshop or SWG meeting.	7.10.12	\$3,850	TBD
Total for task 7.10		\$75,230	
Total Cost		\$103,762.06	

Assumptions:

- It is unknown exactly how much and what quality of data will be received by Ecology. For purposes of this scope and cost estimate, it is assumed there will be up to 10,000 records, 1,000 of which would need to be entered by hand at 15 minutes per record on average.
- Proposed schedule assumes contracting will be completed and work will begin by August 3, 2015.
- Ecology and the SWG will organize and facilitate the workshop at which the findings will be presented.
- Ecology's review of the draft memo and draft report will take up to two weeks each.

APPENDIX B – DATABASE OF IDDE SUBMITTAL METADATA

Permittee	NPDES Phase I or II	Document format	Document Title	Annual Report Question	Submittal Type	Type of Report	Reporting Format	Total number of incidents	Weighting factor for hand-entry	Approximate number of incidents to be hand-entered
City of Seattle	Phase I	PDF	City_of_Seattle_48 - IDDE Actions_48_03272015031107	Q 48	Annual Report with Incidents	Annual report table	Table	148	0	0
City of Tacoma	Phase I	PDF	City_of_Tacoma_Q48 Attachment G Illicit discharges Jul 2014	Q 48	Annual Report with Incidents	Incident report	Database output	51	0	0
City of Tacoma	Phase I	PDF	City_of_Tacoma_Q48 Attachment I Illicit discharges Sep 2014	Q 48	Annual Report with Incidents	Incident report	Database output	51	0	0
City of Tacoma	Phase I	PDF	City_of_Tacoma_Q48 Attachment A Illicit discharges Jan 2014_48_03	Q 48	Annual Report with Incidents	Incident report	Database output	53	0	0
City of Tacoma	Phase I	PDF	City_of_Tacoma_Q48 Attachment D Illicit discharges Apr 2014	Q 48	Annual Report with Incidents	Incident report	Database output	54	0	0
City of Tacoma	Phase I	PDF	City_of_Tacoma_Q48 Attachment F Illicit discharges Jun 2014	Q 48	Annual Report with Incidents	Incident report	Database output	57	0	0
City of Tacoma	Phase I	PDF	City_of_Tacoma_Q48 Attachment E Illicit discharges May 2014	Q 48	Annual Report with Incidents	Incident report	Database output	61	0	0
City of Tacoma	Phase I	PDF	City_of_Tacoma_Q48 Attachment K Illicit discharges Nov 2014	Q 48	Annual Report with Incidents	Incident report	Database output	62	0	0
City of Tacoma	Phase I	PDF	City_of_Tacoma_Q48 Attachment H Illicit discharges Aug 2014	Q 48	Annual Report with Incidents	Incident report	Database output	64	0	0
City of Tacoma	Phase I	PDF	City_of_Tacoma_Q48 Attachment L Illicit discharges Dec 2014	Q 48	Annual Report with Incidents	Incident report	Database output	64	0	0
City of Tacoma	Phase I	PDF	City_of_Tacoma_Q48 Attachment B Illicit discharges Feb 2014	Q 48	Annual Report with Incidents	Incident report	Database output	68	0	0
City of Tacoma	Phase I	PDF	City_of_Tacoma_Q48 Attachment J Illicit discharges Oct 2014	Q 48	Annual Report with Incidents	Incident report	Database output	72	0	0
City of Tacoma	Phase I	PDF	City_of_Tacoma_Q48 Attachment C Illicit discharges Mar 2014	Q 48	Annual Report with Incidents	Incident report	Database output	84	0	0
Clark County	Phase I	PDF	Clark County_Q 48 Attachment_48_03192015_1018	Q 48	Annual Report with Incidents	Annual report summary and table	Table	39	1	39
King County	Phase I	PDF	King County_AR_Q48_ICID_2014_Summaries_FINAL_48_02042015_0908.	Q 48	Annual Report with Incidents	Incident descriptions	Descriptive list	20	1	20
Pierce County	Phase I	PDF	Pierce County SW_2014 IDDE Report_48_02272015_0220	Q 48	Annual Report with Incidents	Incident report	Database output	159	0	0
Port of Seattle	Phase I	PDF	Port_of_Seattle_Attachment_3_IDDESummaryTable_13b_03182015_1133.pdf	Q 13	Annual Report with Incidents	Annual report table	Table	7	1	7
Port of Tacoma	Phase I	PDF	Copy of Record PortofTacoma Thursday February 12 2015	Q13	Annual Report No Incidents	Annual report Copy of Record	Table of answers to AR questions	0	0	0
Snohomish County	Phase I	DOC	Snohomish County_Q48 - 2014 Illicit Discharge Summary_48_02272015_0	Q 48	Annual Report with Incidents	Annual report summary	Descriptive paragraph	11	1	11
City of Aberdeen	Phase II	PDF	Copy of Record CityofAberdeen Wednesday April 08 2015	Q19	Annual Report with Incidents	Annual report Copy of Record	Table of answers to AR questions	5	1	5
City of Algona	Phase II	DOC	City_of_Algona_NPDES S5.C.3.D.IV_20_01262015_1149	Q 20	Annual Report with Incidents	Incident descriptions	ERTS scan	1	1	1
City of Anacortes	Phase II	DOC	City_of_Anacortes_Question 20 summary_20_03312015032535.docx	Q 20	AR & Online Tracking	Incident report	Descriptive list	3	1	3
City of Arlington	Phase II	DOC	City_of_Arlington_IDDE'S_20_03262015_1050.docx	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive list	14	1	14
City of Auburn	Phase II	PDF	City_of_Auburn_1 Auburn IDDE Tracking Form Data_20_02042015_0122.	Q 20	AR & Online Tracking	Incident report	Table	36	0	0
City of Bainbridge Island	Phase II	PDF	City_of_Bainbridge Island_2014 IDDE Tracking Database_20_03172015_1128.pdf	Q 20	Annual Report with Incidents	Incident report	Database output	57	1	57
City of Battle Ground	Phase II	PDF	City_of_Battle Ground_2014 Illicit Discharge Cases_20_02112015_0148.pdf	Q 20	Annual Report with Incidents	Incident report	Scanned form or table	10	1	10
City of Bellevue	Phase II	PDF	City_of_Bellevue Q20 Attachment Individual IDDE Rpts - 201	Q 20	Annual Report with Incidents	Annual report summary and table	Database output	325	1	325
City of Bellingham	Phase II	XLS	City_of_Bellingham_2014 BERTS data_20_03312015040504.xlsx	Q 20	Annual Report with Incidents	Incident report	Table	120	0	0
City of Black Diamond	Phase II	PDF	City_of_Black Diamond_IDDE_Q20_20_03192015_0400	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive paragraph	1	1	1
City of Bonney Lake	Phase II	DOC	City_of_Bonney Lake_Attachment 5 2014 Spill & IDDE_20_03302015094259.d	Q 20	Annual Report with Incidents	Incident report	Table	4	0.25	1
City of Bothell	Phase II	PDF	City_of_Bothell_2014 Complaint_Log-DRAFT_20_02112015_0235.pdf	Q 20	Annual Report with Incidents	Incident report	Table	77	0.25	19
City of Bremerton	Phase II	DOC	City_of_Bremerton_IDDE Annual Report 2014_20_03262015_0839.docx	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive list	8	1	8
City of Brier	Phase II	PDF	Copy of Record CityofBrier Tuesday March 31 2015	Q19	Annual Report No Incidents	Annual report Copy of Record	Table of answers to AR questions	0	0	0
City of Buckley	Phase II	PDF	Copy of Record CityofBuckley Monday March 30 2015	Q19	Annual Report No Incidents	Annual report Copy of Record	Table of answers to AR questions	0	0	0
City of Burien	Phase II	PDF	City_of_Burien_IDDE response efforts_20_03122015_1000.pdf	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive paragraph	1	1	1

Permittee	NPDES Phase I or II	Document format	Document Title	Annual Report Question	Submittal Type	Type of Report	Reporting Format	Total number of incidents	Weighting factor for hand-entry	Approximate number of incidents to be hand-entered
City of Burlington	Phase II	PDF	Copy of Record CityofBurlington Friday March 20 2015	Q19	Annual Report No Incidents	Annual report Copy of Record	Table of answers to AR questions	0	0	0
City of Camas	Phase II	PDF	City_of_Camas_IDDE Program Manual Oct 2011_20_03302015041306.pdf	Q 20	Annual Report No Incidents	SWMP Program Manual	Stormwater Management Plan	0	0	0
City of Centralia	Phase II	PDF	Copy of Record CityofCentralia Tuesday March 31 2015	Q19	Annual Report No Incidents	Annual report Copy of Record	Table of answers to AR questions	0	0	0
City of Clyde Hill	Phase II	PDF	City_of_Clyde Hill_Attachment for Ques_20_03312015114908.p	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive list	2	1	2
City of Covington	Phase II	XLS	City_of_Covington_IDDE_20_03312015120946.xls	Q 20	Annual Report with Incidents	Incident report	Table	8	0.25	2
City of Des Moines	Phase II	XLS	City_of_Des Moines_Summary of 2014 IDDE Actions_20_01222015_0826.xlsx	Q 20	Annual Report with Incidents	Incident report	Table	18	1	18
City of Dupont	Phase II	PDF	City_of_Dupont_Illicit Detection_20_04272015045820.pdf	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive paragraph	1	1	1
City of Duvall	Phase II	PDF	City_of_Duvall_S5..C.3.d.iv_IDDE Tracking_20_03302015013921.pdf	Q 20	Annual Report No Incidents	Incident descriptions	Descriptive paragraph	0	0	0
City of Edgewood	Phase II	PDF	Copy of Record CityofEdgewood Wednesday March 25 2015	Q19	Annual Report No Incidents	Annual report Copy of Record	Table of answers to AR questions	0	0	0
City of Edmonds	Phase II	PDF	City_of_Edmonds_IDDE summary 2014_Q#20_20_03172015_0950.pdf	Q 20	Annual Report with Incidents	Incident report	Table	11	0.75	8
City of Enumclaw	Phase II	PDF	City_of_Enumclaw_Q20 - Illicit discharge incident in alley behind J	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive list	1	1	1
City of Enumclaw	Phase II	PDF	City_of_Enumclaw_Q20 - Leaking barrel found at 2273 Cole St, 7.16.1	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive list	1	1	1
City of Enumclaw	Phase II	PDF	City_of_Enumclaw_Q20 - Illicit discharge incident on Garrett St bet	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive list	1	1	1
City of Everett	Phase II	XLS	City_of_Everett_Grant--Copy of Annual Report S_20_03312015085414.x	Q 20	Annual Report with Incidents	Incident report	Table	27	1	27
City of Federal Way	Phase II	PDF	City_of_Federal Way_Attachment 5 IDDE Investigations Fed Way_20_03242	Q 20	AR & Online Tracking	Incident report	Table	30	0.5	15
City of Ferndale	Phase II	PDF	City_of_Ferndale_IDDE Report Tracking_20_04172015041347.pdf	Q 20	Annual Report with Incidents	Incident report	Table	9	1	9
City of Fife	Phase II	PDF	Copy of Record Fife Friday March 27 2015	Q19	Annual Report No Incidents	Annual report Copy of Record	Table of answers to AR questions	0	0	0
City of Fircrest	Phase II	PDF	Copy of Record CityofFircrest Monday March 30 2015	Q19	Annual Report No Incidents	Annual report Copy of Record	Table of answers to AR questions	0	0	0
City of Gig Harbor	Phase II	PDF	City_of_Gig Harbor_IDDE Actions_20_03302015104817.pdf	Q 20	Annual Report with Incidents	Incident report	Descriptive list	7	1	7
City of Granite Falls	Phase II	DOC	City_of_Granite Falls_Gr Falls Illicit Connect Doc IDR2014-001_20_030220	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive paragraph	1	1	1
City of Issaquah	Phase II	PDF	City_of_Issaquah_Attachment 2014 Annual Report IDDE S5.C.3.d.iv_20_	Q 20	AR & Online Tracking	Incident report	Database output	45	1	45
City of Kelso	Phase II	PDF	City_of_Kelso_IDDE Log - 2014_20_03262015_0240.pdf	Q 20	Annual Report with Incidents	Incident report	Table	4	0.5	2
City of Kenmore	Phase II	PDF	City_of_Kenmore_S5C3D4_DOCUMENTATION_KENMORE_20_03302015035436.pdf	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive list	14	1	14
City of Kent	Phase II	XLS	City of Kent 2015 Annual Report question 20_20_030	Q 20	Annual Report with Incidents	Annual report table	Table	23	0.5	12
City of Kirkland	Phase II	PDF	City_of_Kirkland_Line item 20 IDDE Actions report_20_03182015_0503.	Q 20	Annual Report with Incidents	Incident report	Database output	52	1	52
City of Lacey	Phase II	XLS	City_of_Lacey_2014 SPILLS & IDDE_20_03182015_0937.xls	Q 20	Annual Report with Incidents	Incident report	Table	129	1	129
City of Lake Forest Park	Phase II	PDF	City_of_Lake Forest Park_2014 Spill Records_20_03262015_1056.pdf	Q 20	Annual Report with Incidents	Incident descriptions	Scanned form or table	1	1	1
City of Lake Stevens	Phase II	XLS	City_of_Lake Stevens_Spill Responce Tracking_20_02232015_0224.xlsx	Q 20	Annual Report with Incidents	Incident report	Table	5	0	0
City of Lakewood	Phase II	DOC	City_of_Lakewood_Annual Report 2014 Question 20_20_0302201	Q 20	Annual Report with Incidents	Incident report	Descriptive list	7	1	7
City of Longview	Phase II	XLS	City_of_Longview_2014 IDDE Incident Annual Rpt_20_03312015112612.x	Q 20	Annual Report with Incidents	Incident report	Table	60	0.5	30
City of Lynnwood	Phase II	XLS	City_of_Lynnwood_2014 IDDE Inspections_20_03262015_1245.xl	Q 20	Annual Report with Incidents	Incident report	Table	12	0.5	6
City of Maple Valley	Phase II	PDF	City_of_Maple Valley_2014 IDDE Summary_Maple Valley_20_03252015_0322.pd	Q 20	Annual Report with Incidents	Incident report	Table	3	0.25	1
City of Marysville	Phase II	PDF	City_of_Marysville_Q20IDDEAttachment_20_03192015_0152	Q 20	Annual Report with Incidents	Incident report	Table	29	1	29
City of Medina	Phase II	PDF	Copy of Record CityofMedina Monday July 27 2015	Q19	Annual Report No Incidents	Annual report Copy of Record	Table of answers to AR questions	0	0	0
City of Mercer Island	Phase II	PDF	CityofMercerIsland_19_S5C3di_2014 Illicit Discharge Records	Q19	Annual Report with Incidents	Incident report	Scanned incident reports	5	1	5
City of Mill Creek	Phase II	PDF	City_of_Mill Creek_2014 incident reports_20_02172015_0818.pdf	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive list	2	1	2
City of Milton	Phase II	PDF	City_of_Milton_Question 20 Milton IDDE Summar_20_03302015123846.p	Q 20	Annual Report with Incidents	Incident report	Table	8	0.25	2

Permittee	NPDES Phase I or II	Document format	Document Title	Annual Report Question	Submittal Type	Type of Report	Reporting Format	Total number of incidents	Weighting factor for hand-entry	Approximate number of incidents to be hand-entered
City of Monroe	Phase II	PDF	City_of_Monroe_2014IDDEInspectionYearlySummar_20_03302015085335.p	Q 20	Annual Report with Incidents	Incident report	Table	19	1	19
City of Mount Vernon	Phase II	PDF	City_of_Mount_Vernon_Q20 2014 IDDE Report_20_03262015_1009	Q 20	Annual Report with Incidents	Incident Report	Descriptive list	11	1	11
City of Mountlake Terrace	Phase II	DOC	City_of_Mountlake Terrace_SW 20_20_03302015021908.docx	Q 20	Annual Report No Incidents	Incident descriptions	Descriptive list	0	0	0
City of Mukilteo	Phase II	PDF	City_of_Mukilteo_Spill_Response2014_20_03112015_0621.pdf	Q 20	Annual Report with Incidents	Incident report	Table	4	1	4
City of Newcastle	Phase II	XLS	City_of_Newcastle_SWIncident_2014_20_04102015120410.xls	Q 20	Annual Report with Incidents	Incident report	Table	1	1	1
City of Normandy Park	Phase II	PDF	Copy of Record CityofNormandyPark Monday May 11 2015	Q19	Annual Report No Incidents	Annual report Copy of Record	Table of answers to AR questions	0	0	0
City of Oak Harbor	Phase II	DOC	City_of_Oak Harbor_Department of Ecology ERTS_20_03132015_0205.docx	Q 20	Annual Report with Incidents	Incident report	Descriptive list	4	1	4
City of Olympia	Phase II	DOC	City_of_Olympia_20 Illicit Discharge Summary_20_02242015_0137	Q 20	Annual Report with Incidents	Annual report table	Table	10	1	10
City of Orting	Phase II	PDF	City_of_Orting_2014 Illicit Discharge Tracking_20_03122015_1024.p	Q 20	AR & Online Tracking	Incident report	Table	2	0	0
City of Pacific	Phase II	PDF	City_of_Pacific_Q20 Action Summary of Illicit_20_03302015035537.p	Q 20	Annual Report with Incidents	Incident report	Database output	2	1	2
City of Port Angeles	Phase II	PDF	City_of_Port Angeles_20 IDDE Incident Tracking Report_20_03252015_0911.	Q 20	Annual Report with Incidents	Incident report	Table	23	0.25	6
City of Port Orchard	Phase II	PDF	City_of_Port Orchard_2014 Spill Reporting_20_03102015_1038.pdf	Q 20	Annual Report with Incidents	Incident report	Table	12	0.75	9
City of Poulsbo	Phase II	XLS	City_of_Poulsbo_2014 Illicit Discharge Log_Pbo_AbbrevAnRep_20_0326	Q 20	Annual Report with Incidents	Incident report	Table	9	0	0
City of Puyallup	Phase II	PDF	City_of_Puyallup_2014_IDDE_Report_20_03062015_0909	Q 20	Annual Report with Incidents	Incident report	Database output	38	1	38
City of Redmond	Phase II	XLS	City_of_Redmond_Attachment 6_2014 IDDE Trackin_20_03302015023500.x	Q 20	AR & Online Tracking	Incident report	Table	17	0	0
City of Renton	Phase II	PDF	City_of_Renton_Q20 - IDDE Summary (2014)_20_03122015_0857	Q 20	Annual Report with Incidents	Incident report	Table	37	0.25	9
City of Sammamish	Phase II	DOC	City_of_Sammamish_2014 AR Q 19 and Q 20_20_02262015_0924	Q 20	AR & Online Tracking	Incident descriptions	Descriptive list	8	1	8
City of Seatac	Phase II	PDF	City_of_Seatac_10 Illicit Discharges Removed - Printed SRs_20_021	Q 20	Annual Report with Incidents	Incident report	Database output	5	1	5
City of Sedro-Woolley	Phase II	PDF	City_of_Sedro-Woolley_Illicit Discharge Tracking_20_03062015_0334.pdf	Q 20	Annual Report with Incidents	Incident report	Table	4	1	4
City of Shoreline	Phase II	PDF	City_of_Shoreline_IDDE_Actions 3-15_20_03112015_1108.pdf	Q 20	Annual Report with Incidents	Incident report	Database output	62	1	62
City of Snohomish	Phase II	PDF	City_of_Snohomish_116 Union Ave - AEC Hydraulic Spill 7-2014_20_0305	Q 20	Annual Report with Incidents	Incident Report	Scanned form or table	1	1	1
City of Sumner	Phase II	PDF	City_of_Sumner_2014 IDDE Tracking_20_03302015020205.pdf	Q 20	Annual Report with Incidents	Incident report	Table	15	0	0
City of Tukwila	Phase II	PDF	City_of_Tukwila_Summary of Actions Taken to Characterize Trace and	Q 20	Annual Report with Incidents	Incident report	Scanned form or table	13	1	13
City of Tumwater	Phase II	PDF	City_of_Tumwater_2014 IDDE Rpt_20_03102015_1137.pdf	Q 20	Annual Report with Incidents	Incident Report	Database output	10	1	10
City of University Place	Phase II	XLS	City_of_University Place_Illicit Discharge Summary Repo_20_08112015050036	Q 20	Annual Report with Incidents	Incident report	Table	3	1	3
City of Vancouver	Phase II	PDF	City_of_Vancouver_2014 IDDE Actions for Ann Rpt_20_03242015_0348.pdf	Q 20	Annual Report with Incidents	Incident report	Table	137	1	137
City of Washougal	Phase II	PDF	City_of_Washougal_PW-AW-MFC9330_008222_20_03272015090355.pdf	Q 20	Annual Report with Incidents	Incident Report	Scanned form or table	2	1	2
City of Woodinville	Phase II	PDF	City_of_Woodinville_IDDE Characterization Summary_20_03302015024446.p	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive list	4	1	4
Cowlitz County	Phase II	PDF	Copy of Record CowlitzCounty Thursday August 13 2015	Q19	Annual Report No Incidents	Annual report Copy of Record	Table of answers to AR questions	0	0	0
Kitsap County	Phase II	XLS	Kitsap County_SIDIR-IDDE-2014_20_03172015_0324	Q 20	Annual Report with Incidents	Incident report	Table	39	0	0
Skagit County	Phase II	DOC	Skagit County_Q20 Annual Report_20_03122015_0412	Q 20	Annual Report with Incidents	Incident descriptions	Descriptive list	2	1	2
Thurston County	Phase II	PDF	Thurston County_Question 20_20_03302015083507.pdf	Q 20	Annual Report with Incidents	ERTS report	ERTS scan	41	1	41
Town of Steilacoom	Phase II	DOC	City_of_Steilacoom_DOESummary of actions taken to_20_03312015021856.d	Q 20	Annual Report No Incidents	Incident descriptions	Descriptive paragraph	0	0	0
Whatcom County	Phase II	PDF	Whatcom_County_Question 20-IDDE summary_20_08182015024148	Q 20	Annual Report with Incidents	Incident report	Database output	11	1	11

