REGIONAL SPILL HOTLINE FEASIBILITY STUDY – FINAL REPORT

EXECUTIVE SUMMARY

Project Goal Gather information and conduct an assessment on the feasibility and desire for a regional or statewide common "hotline" reporting system for citizens and municipal staff in Washington State to report spills and environmental incidents.

The evaluation involved documenting industry knowledge, experience and preferences through a survey, a series of interviews, and discussions with vendors:

SURVEYMONKEY SURVEY → MUNICIPAL AND STATE AGENCY INTERVIEWS → TECHNICAL INTERVIEWS → VENDOR RESEARCH

Detailed study findings are documented in the appendices to this report:

APPENDIX 1: INTERVIEW SUMMARY REPORT

- Survey Results
- Case Studies (Technical Interviews)
- In-Depth Municipal Interview Summary Report
- In-Depth State Agency Interview Summary Report

APPENDIX 2: OPTIONS MATRIX NARRATIVE

- Vendor Research
- Implementation Considerations
- Condensed Options Matrix
- Detailed Options Matrix

KEY FINDINGS

Based on the survey and interviews conducted for this study, the idea of implementing a regional spill reporting system is not broadly supported by most jurisdictions or state agencies.

Quotes from Municipal Interviews:

"Funding an unnecessary thing is just silly." [County]

"I worked a decade to get this program to where it's at and it scares me that something else is going be out there that is going to confuse the public and delay response." [City]

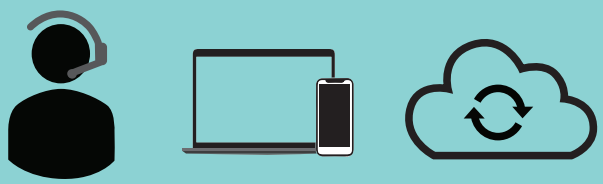
Currently, municipalities interpret and use Ecology's Environmental Report Tracking System (ERTS) for regional spill reporting purposes. However, Ecology did not intend for ERTS to function as a regional spill reporting system.

Quotes from Municipal/State Agency Interviews:

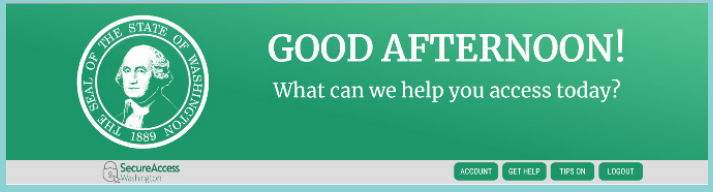
"ERTS works fine. What's the need? ... I think ERTS is the regional spill hotline." [County]

[ERTS] "should be expanded to meet everyone's needs, if that's the driver." [State Agency]

Implementation of a multi-jurisdiction regional spill reporting system is technically feasible. Multiple vendors can provide accessible, cloud-based products that address desired features including geodynamic routing, data standardization, and 2-way communication with the public.



Implementation of a regional spill reporting system could streamline Municipal NPDES Permit annual reporting activities and promote regional analysis (e.g., WQWebIDDE database) while allowing local spill response procedures to remain in place.



ACKNOWLEDGEMENTS

The regional spill hotline feasibility study is a Source Identification Information Repository (SIDIR) project that is being implemented through the Stormwater Action Monitoring (SAM) program with oversight from the Stormwater Work Group (SWG).

STORMWATER ACTION MONITORING → STORMWATER WORK GROUP → SOURCE IDENTIFICATION SUBGROUP

A Technical Advisory Committee (TAC) was also formed to provide guidance and review deliverables for this study. The project team would like to acknowledge the following contributors to this study:

- Washington State Department of Ecology
- Technical Advisory Committee (TAC)
- King County
- Interview Participants
- Herrera Environmental Consultants (Herrera)
- Hardwick Research
- SurveyMonkey Participants
- Vendors

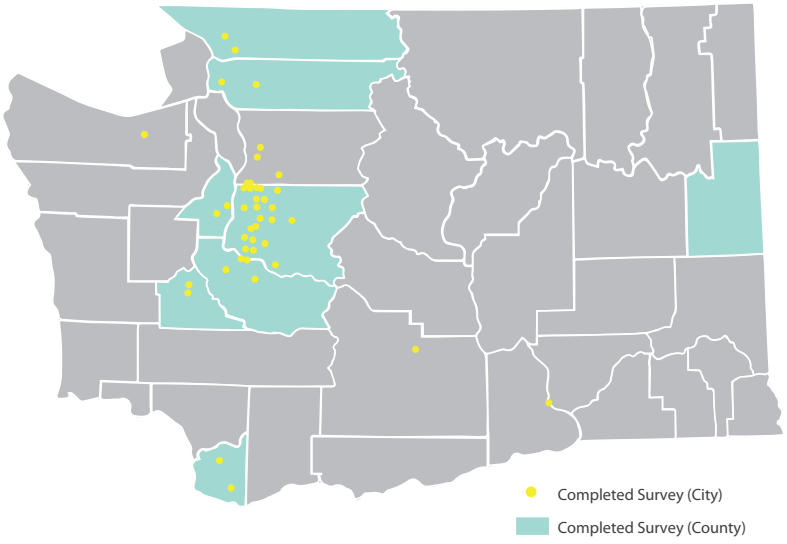
INTRODUCTION

Current Knowledge Municipal permittees are required to publicize a hotline or other telephone number for public reporting of spills and other illicit discharges. Awareness and options for public reporting vary widely by location, potentially resulting in delays in spill response, inefficiencies, and lost opportunities to prevent environmental damages.

Project Goal Gather information and conduct an assessment on the feasibility and desire for a regional or statewide common "hotline" reporting system for citizens and municipal staff in Washington State to report spills and environmental incidents. Recommendations provided in this report emphasize that a robust regional system can reduce barriers to spill reporting.

Source ID Subgroup Goals Get a regional perspective, improve coordination among jurisdictions, share resources and techniques that are effective, and create regional approaches to address common problems.

Study Area The study area for this feasibility study included the entire state of Washington.



Information Gathering: Survey

A 10-question survey was launched in April 2019 regarding current practices, suggestions, and concerns for implementing a regional spill reporting system. Eighty-nine (89) respondents representing municipalities, state agencies, tribes, and secondary permittees throughout Washington state submitted responses.

Municipal Interviews

Ten phone interviews were conducted by Hardwick Research in June 2019 to gain a better understanding of municipal processes for spill reporting and response. Discussion topics included barriers to and benefits of implementing a regional spill reporting system. City and County permittees that participated in the interviews include:

KING COUNTY (Phase I County permittee)	KITSAP COUNTY (Phase II County permittee)	PIERCE COUNTY (Phase I County permittee)	SKAGIT COUNTY (Phase II County permittee)	CITY OF BATTLE GROUND (Phase II County permittee)
CITY OF BELLEVUE (Phase II City permittee)	CITY OF KENNEWICK (Eastern WA Phase II City permittee)	CITY OF KIRKLAND (Phase II City permittee)	CITY OF REDMOND (Phase II City permittee)	CITY OF SEATTLE (Phase I City permittee)

State Agency Interviews

Three phone interviews were conducted by Hardwick Research in October 2019. The purpose of the state agency interviews was to gain a better understanding of state agencies with regard to spill response, their likes and dislikes of the current system, and the barriers to and benefits of implementing a regional spill reporting system.

WASHINGTON STATE DEPARTMENT OF HEALTH (DOH)

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT)

WASHINGTON STATE DEPARTMENT OF ECOLOGY (ECOLOGY)

Technical Interviews

Three phone interviews covering four reporting systems were conducted by Herrera in November and December 2019 to collect technical information on existing reporting systems. Ecology also provided written responses to interview questions regarding the Environmental Report Tracking System (ERTS) in January 2020.

Kitsap1 and SeeClickFix operated by Kitsap County	Spill Response Program operated by Seattle Public Utilities (SPU)	Squeal on Pigs! Feral Swine Campaign operated by WA Recreation and Conservation Office (RCO)	Washington Invasives App operated by WA Recreation and Conservation Office (RCO)	Environmental Report Tracking System (ERTS) operated by Ecology

Targeted Vendor Interviews Several vendors were contacted to explore software options for a regional spill reporting system.

Note: The vendors selected were based on research of specific feature and system capabilities and are not considered to be an exhaustive list of available products on the market. No benefits or incentives have been received from vendors listed in this report.

Citizen Engagement and Request Management Systems*		Phone Systems*	Emergency Management Systems*	Asset Management Systems*	Other Systems*	
Rock Solid	GovQA	AnswerNet	WebEOC	CitizenVUE by VUE-Works	ERTS	NICE Investigate Mobile
SeeClickFix	Accela Service Request Management	Google Number (GSuite)	EverBridge	Asset Essentials (previously Mobile311) from Dude Solutions	Custom-Build Option	Calabrio: Workforce Optimization (WFO) Suite

Darker color indicates extent of research and vendor involvement. Follow-up discussions were only conducted with vendors that met key criteria for a regional spill reporting system.

More involved  Less involved

* For definitions of these categories and more details on vendors, see Appendix 2.

KEY FINDINGS

1. Based on the survey and interviews conducted for this study, the idea of implementing a regional spill reporting system is not broadly supported by most jurisdictions or state agencies.

2. Currently, municipalities interpret and use ERTS for regional spill reporting purposes. However, Ecology did not intend for ERTS to function as a regional spill reporting system.

3. Implementation of a multi-jurisdiction regional spill reporting system is technically feasible. Multiple vendors can provide accessible, cloud-based products that address desired features including geodynamic routing, data standardization, and 2-way communication with the public.

4. Implementation of a regional spill reporting system could streamline Municipal NPDES Permit annual reporting activities and promote regional analysis (e.g., WQWebIDDE database) while allowing local spill response procedures to remain in place.

RESULTS & DISCUSSION

Is a regional spill reporting system technically feasible? YES

During the survey and interviews, key features were identified for a multi-jurisdiction regional spill reporting system (see Appendix 1). At a high-level, these include:

- Multiple reporting formats, including a live 24/7 call center
- Mobile-compatible web interface with dropdown menus (where applicable) for ease of data entry and consistency
- Geofencing or location-based workflows to efficiently auto-route reports based on jurisdiction
- Compatibility with permit reporting requirements (ERTS and WQWebIDDE)
- Two-way communication with the initial spill reporter (if needed for clarification) and to close-out the report
- Configurable user permissions for jurisdictional data management and analysis (at a regional or local scale)

Research findings indicate that it is technically **feasible** to implement a large-scale regional spill reporting system that will address these key features (see Appendix 2). Multiple vendors are available to accommodate regional system needs with cloud-based web solutions. Pairing with a supplemental phone hotline service would be necessary to provide both web and phone reporting options.

Is a regional spill reporting system preferred? NO

A frequently stated reason *against* implementation of a regional reporting system was the opinion that ERTS satisfies regional needs and is required by Ecology (see Appendix 1).

Quotes from Survey:

"Ecology already has a system. ERTS could be improved. Talking about yet another response # seems duplicative. We would need access to the system for reporting."

"Currently, ERTS has been effective and responsive to our reports/concerns. We do not want to see a non-state or non-federal agency replace this function."

"…the ERTS is basically a one call system already."

Other core concerns voiced by the [municipal] interviewees included delays in getting information, disruption to their established individual spill hotline systems, and potentially confusing their citizens with more phone numbers (see Appendix 1). Survey participants expressed similar concerns regarding efficiency loss and interference with current procedures.

Quote from Survey:

"We believe our existing system is already quite good and while we see value in a regional approach, we don't want it to diminish the system that we already have in place and have promoted."

Given these concerns, why consider implementation of a regional spill reporting system?

Ecology has stated that ERTS is not intended for regional spill reporting purposes. While permittee concerns for redundancy and confusion are valid, ERTS (in its current state) does not provide key features desired by municipalities (as stated in the survey and interviews) for regional reporting system functionality. As it stands, ERTS data entry and referrals are manual. Follow-up capabilities, queries/analytics, and data integration opportunities are also limited. For example, ERTS does not include GIS or other map-based integration to support geodynamic routing or spatial analysis. For these reasons, a robust regional solution cannot be structured on ERTS. Interviewees acknowledged some limitations of ERTS, but value other aspects of Ecology's system:

Hardwick Research Findings (Appendix 1):
"They [municipal interviewees] felt that ERTS functionality was not designed to support hazardous waste response. ERTS uses outdated software, is delayed in providing notifications, is not staffed all the time, and was not designed for citizen calls."

Quote from Survey:
"While ERTS isn't perfect, the coordinators know where to send things and whom to send them within a jurisdiction. We wouldn't want to lose this level of service."

Regarding other concerns stated by permittees, this study demonstrates that cloud-based technology solutions are available to provide geodynamic, location-based routing of spill reports with workflows configured to meet local needs. These features are anticipated to reduce potential for delays and lost efficiency. If large-scale regional implementation is still not preferred, these solutions could also be effective at a smaller scale for an individual jurisdiction or several jurisdictions working together.

What are the *benefits* of a regional spill reporting system?

- Central web form and central call center standardizes data collection and data accessibility across jurisdictions, allowing for streamlined inter-jurisdictional coordination
- Unified public-facing program avoids a "sprawl" of numerous redundant or competing mobile applications
- Central, cloud-based data storage assists long-term tracking and analytical capabilities for regional spill data
- Increased geodynamic automation for improved efficiency and cost-effectiveness in routing and responding to reports
- Capacity to develop automated workflows to meet ERTS and other permit reporting requirements
- Option to incorporate hybrid features and workflows (at additional cost) to maintain individual jurisdiction workflows and data integration (GIS, asset management systems, etc.)

What about ERTS?

ERTS is an accountability tool to receive and refer environmental complaints (not limited to stormwater or spills) to internal programs at Ecology or to relevant external entities. Complaints are primarily received through an online web form and calls to the Ecology regional offices, but can also be submitted via e-mail and postal mail. ERTS is not limited to spill reporting and will continue operating regardless of the decision to implement a regional spill reporting system or not.

RECOMMENDATIONS

What are the recommended core components for a regional spill reporting system?

Primary Coordinating Entity	Central Web Form	Central Call Center	Central Cloud Data Storage	No Mobile Application
A state or other public agency to host and manage all regional system needs, including vendor coordination, system updates/ maintenance, and contracting.	One public-facing, mobile-compatible, map-based web form for consistent reporting from the community. Users can access on mobile device or other browser, attach photos, and select from drop-down menus.	Provide 24/7 live "hotline" service with one shared number covering all areas to improve accessibility for the community. Utilize central web form for integrated data entry directly into system.	Common database to store regional spill information with local permissions for access and editing. Allows easy data sharing when needed, either between jurisdictions or for streamlined reporting to Ecology.	Mobile application requires an extra step to download and is not necessary because web form can be accessed via browser. Avoid app sprawl.
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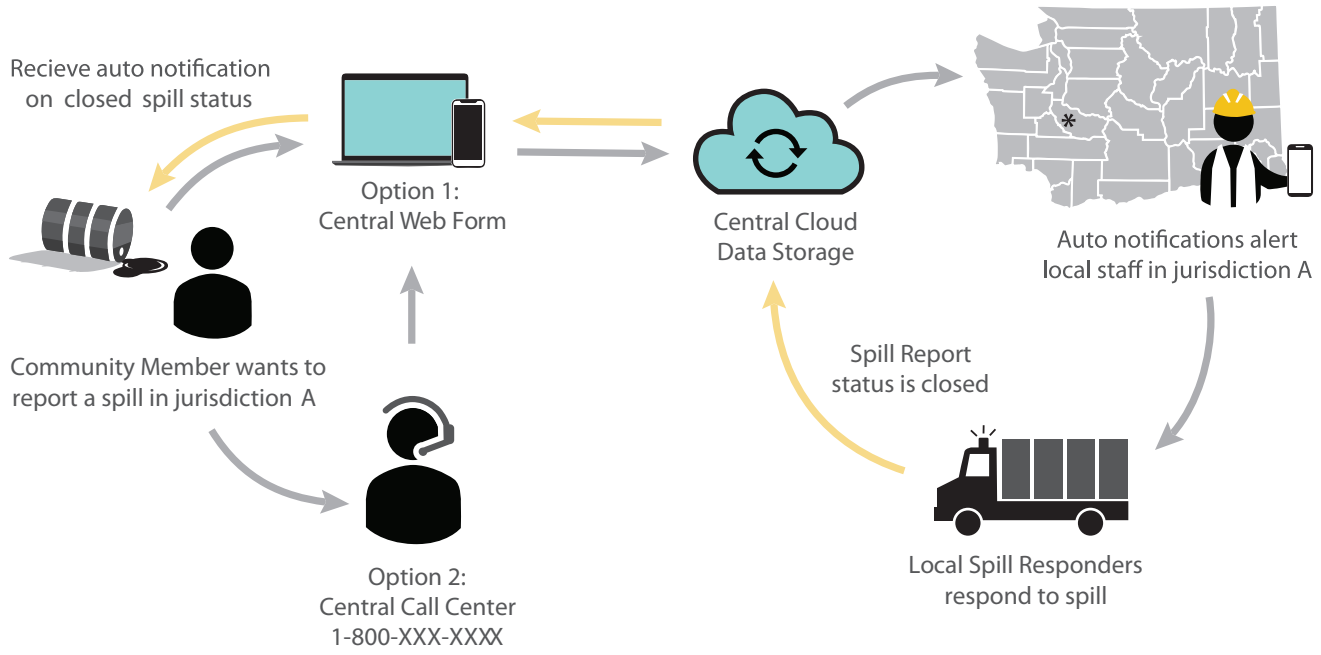
Centralized Regional Spill Reporting System



Spill Reporting Workflow

When a community member (spill reporter) observes a spill, they have two reporting options (regardless of their location):

- Option 1: Central Web Form accessible on any mobile device (phone, tablet, computer), or
- Option 2: Central Call Center

At the Central Call Center, data is entered directly into the Central Web Form as the spill reporter provides information. In either scenario, the spill report is synced directly to Central Cloud Data Storage and auto-routed to the appropriate jurisdiction based on geodynamic workflows and report information. Local staff receive notifications and respond to the spill. Afterwards, staff can update spill close-out status in the central database and send notifications back through the system to follow-up with the spill reporter. Regional data stored in the cloud is then available for long-term analytics or localized data download.

How do the core components address equity and accessibility?

Several features are recommended for successful voluntary and accessible public participation for a regional spill reporting system:

RECOMMENDATIONS:

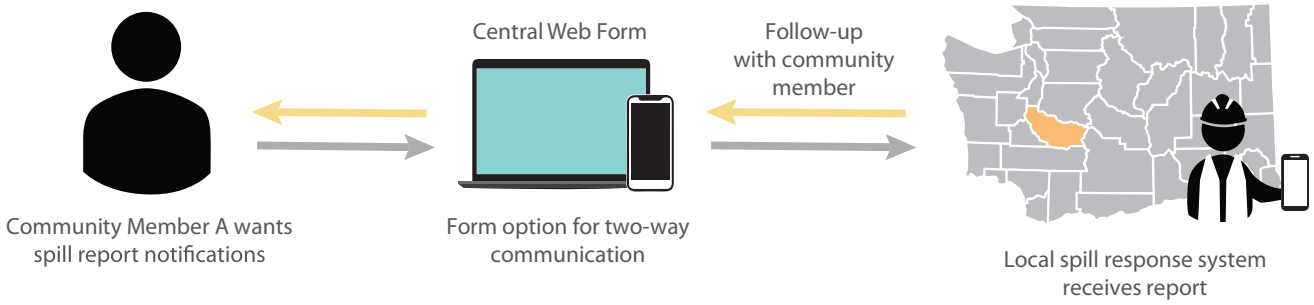
A central hotline number is a recommended core component for equity. A central hotline number addresses spill reporting accessibility, particularly for those without a mobile device or internet connection.

Include multiple language options in all reporting formats (phone, web) for non-English and limited English speakers. Choose a hotline service provider that offers live-translations or pre-recorded dial prompts.

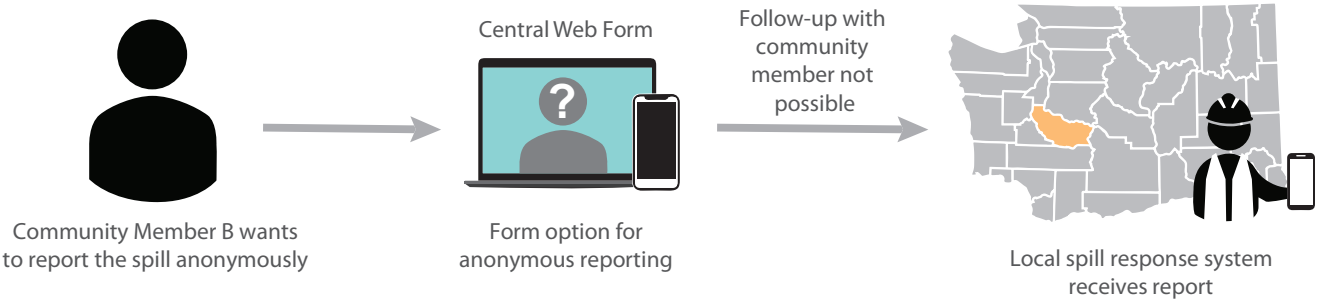
Encourage 2-way communication when possible but allow anonymous reporting, if needed. Providing contact information can allow local spill response staff to reach out for more information about the spill, or to follow-up with spill status updates. These practices increase public confidence in the regional system and promote communal responsibility.

Regional System Workflow: Public Reporting Accessibility

Option A: Two-way communication with notifications and follow-up



Option B: Anonymous reporting



Note: This study did not include public user surveys or focus group testing. Recommendations for communication and public accessibility are based on interviews with jurisdictions about successes and challenges with their current reporting systems.

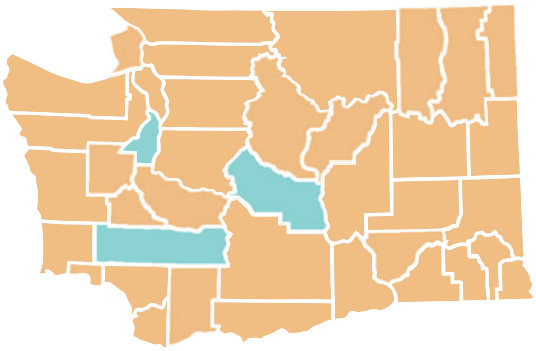
Who would manage a regional spill reporting system?

RECOMMENDATIONS:

Designate or create a dedicated "central entity" to host and manage the regional spill reporting system. A municipality could perform the host role, but a state or other public agency (existing or new) is recommended to provide cohesive coordination across multiple jurisdictions.

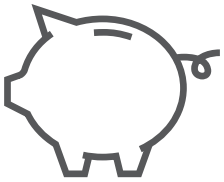
Primary Coordinating Entity Examples

Recommendation for Regional Spill System Funding and Management



Note: Out-of-Network jurisdictions were randomly selected for example

Jurisdictions in Regional Spill System Network



Group Funding

Funding allocated to Primary Coordinating Entity

Example:

The Northwest Clean Air Agency responds to complaints in Island, Skagit, and Whatcom counties

Example:

WA Recreation and Conservation Office (RCO) manages the tri-state Squeal on Pigs Hotline and the WA Invasives App

SYSTEM UPDATES
- Integrates system maintenance changes

CENTRAL CLOUD DATA STORAGE
- Hosts central database
- Coordinates user permissions
- Regional analysis and tracking

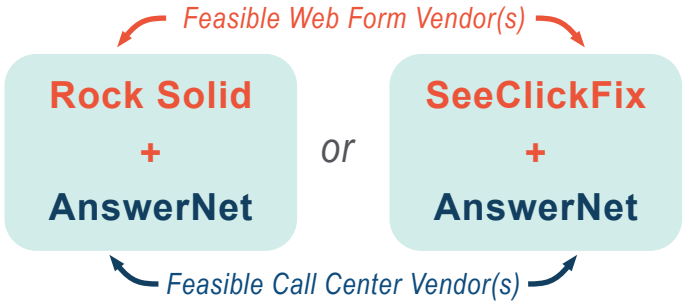
COMMUNICATION
- Facilitator for inter-jurisdictional coordination
- Maintains local contact information for spill response staff
- Manages contracts and vendor coordination

What vendor is recommended for a regional spill reporting system?

Thirteen (13) product options were evaluated at varying degrees of detail, including a review of ERTS and placeholder for a Custom-Build Option if no other alternatives were sufficient. Based on key features and capabilities, products in the Citizen Engagement and Request Management System category are most suitable for implementing a regional spill reporting system, with a supplemental service to provide a centralized call center.

Within the Citizen Engagement and Request Management System category, products vary by price and options for custom configurations. Not all products have comparable features for advanced hybrid configurations or experience with multi-jurisdictional implementation.

Two highly feasible configurations were identified based on vendor capabilities evaluated during vendor research:



Note: The intent of this study is not to make a product selection. The evaluation conducted for this study did not include all available products on the market. Both systems evaluated met core components and desired features identified through interviews conducted for this study. Other vendors researched did not provide the same level of experience with a multi-jurisdiction system or hybrid system that Rock Solid and SeeClickFix did.

Why consider a hybrid system?

The fully centralized regional spill reporting system (with one public-facing web form) is the simplest available workflow for implementation, but requires broad multi-jurisdictional support and buy in. A key outstanding question remains: What would happen to local mobile applications, programs, and workflows?

Jurisdictions that choose to join the regional system network would ideally adopt the regional public-facing web form to participate in standardized data collection. These participating "in-network" jurisdictions would potentially migrate, retire, or adapt existing web forms or mobile applications to reduce app sprawl and redundant systems. Calls and web form submissions to the regional system would be routed through digital communication (e-mail or notifications) to local spill responders. For jurisdictions that prefer to keep all or a portion of their current systems in place (for example, existing hotline numbers, existing mobile applications, etc.), a hybrid system would be necessary.

Interview Quote (Hardwick Research):
"I worked a decade to get this program to where it's at and it scares me that something else is going to be out there that is going to confuse the public and delay response" [City]

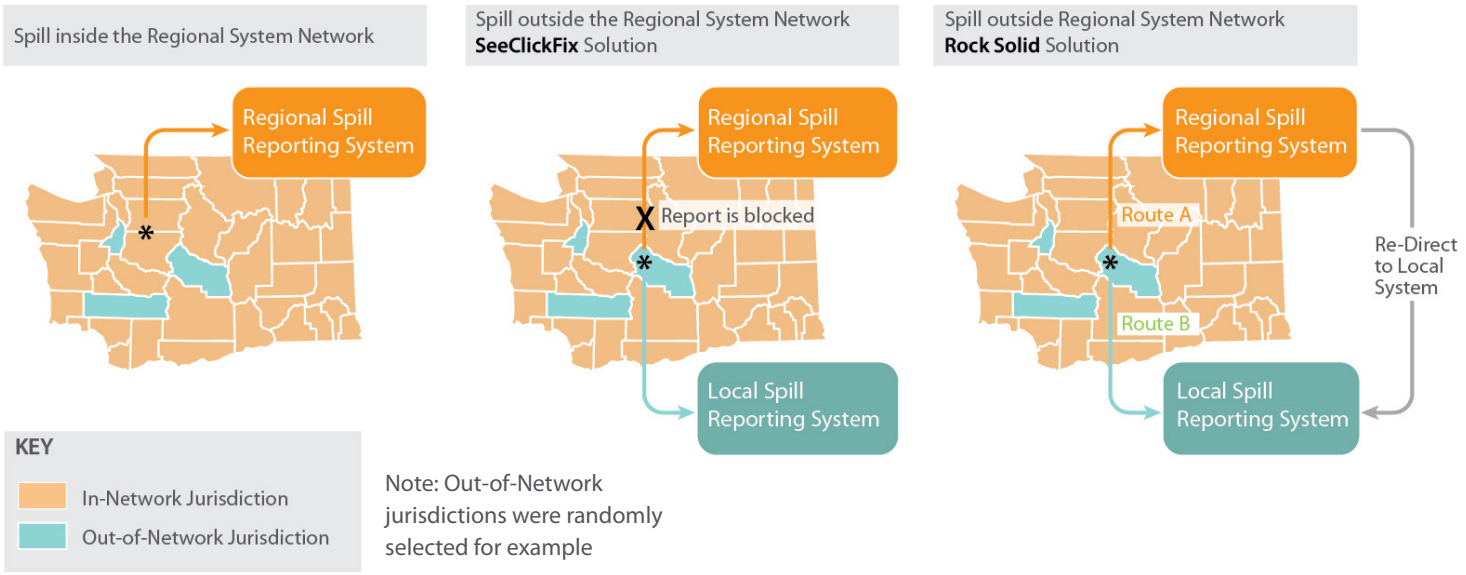
Interview Quote (Hardwick Research):
"We have our region set up so it would be disappointing if we had to abandon what we've worked on to this point. We've had a lot of conversations about standardizing data with a bunch of jurisdictions in the region and people just don't want the State telling them what to do down to the minutia." [County]

A **hybrid system** would follow the centralized system structure but allows jurisdictions the flexibility to retain local integrations (i.e., GIS, asset management), custom web forms, or to exist outside the regional network as a separate neighboring system.

These options are technically feasible (unique to certain vendors) and can accommodate jurisdictional preference to maintain their existing systems. However, hybrid features are not a primary recommendation of this study due to added complexity and cost for local implementation of advanced configurations and processes.

How are notifications directed to non-participants of a hybrid regional spill reporting system?

Hybrid Scenario: Coordinating with Out-of-Network Systems



Note: Out-of-Network jurisdictions were randomly selected for example

Hybrid system features (available at additional cost) are outlined below based on jurisdictional preferred features (See Options Matrix, Appendix 2):

- Legacy data integration for migrating existing mobile applications (volume-dependent)
- Custom front-end mobile application or web form (to meet jurisdiction-specific data collection needs or maintain established program branding)
- Separate back-end data management and custom integrations for 3rd party systems via custom API (asset management systems)
- "Re-direct" option to send notifications and basic reports (text, e-mail) to jurisdictions outside the regional spill network to address gaps in regional coverage

Example Hybrid Scenario

Integrating Local Data (Multiple Back-Ends)

Spill response reports submitted via web form are routed to local jurisdictions. Within a hybrid system, it is possible for the report to be integrated into a specific jurisdiction's workflow and/or local asset management system(s). If Jurisdiction A primarily uses ESRI, Jurisdiction B primarily uses Cartegraph, and Jurisdiction C uses CityWorks, in a hybrid system, all jurisdictions could maintain local asset management systems and receive/update reports within the regional spill system.

What are the cost factors for implementation?

Vendors have different approaches for determining system cost based on participation, system use, and data access permissions (see Appendix 2).

RECOMMENDATIONS:

Further cost evaluation for regional implementation would require a preliminary structure (e.g., system components, participants, and hybrid features) to address unknown cost variables.

Key cost factors and considerations:

- The number of participating jurisdictions
- Population coverage within participating jurisdictions
- Potential for group cost savings (dependent on vendor and number of participating jurisdictions)
- Confirmation of hybrid system configurations at additional cost (unique to specific jurisdictions)

Note: The cost variables provided in this report are not an exhaustive list of cost considerations.

What about ERTS?

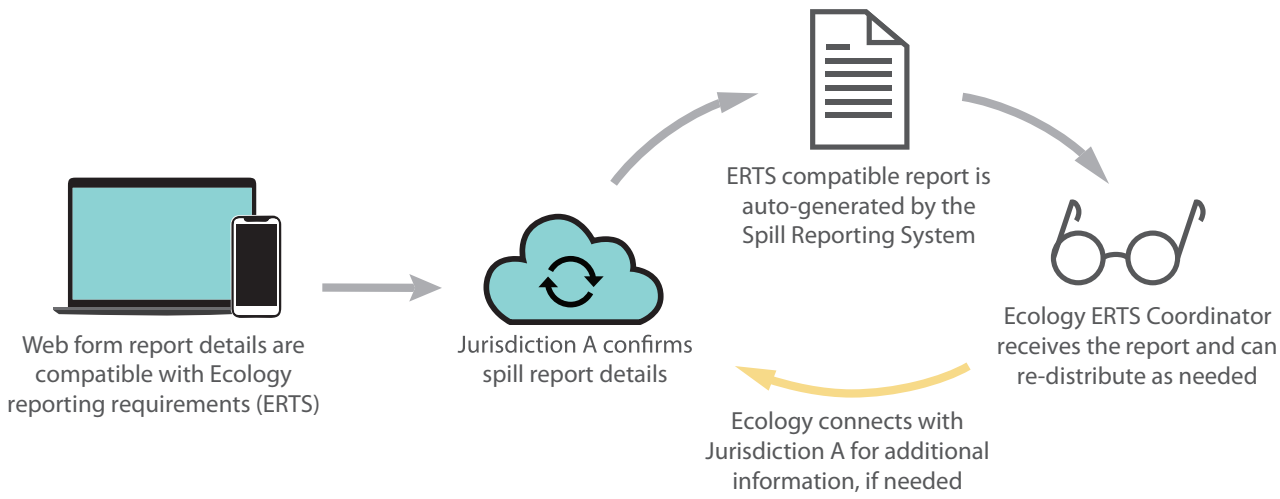
Recommendations from this study related to ERTS include the following:

RECOMMENDATIONS:

Ecology should post clarifying language on the purpose, function, and limitations of ERTS on their website.

The regional spill reporting system, if implemented, should be configured for compatibility with ERTS and WQWebIDDE reporting to avoid confusion or duplication of permittee reporting efforts. Ecology could participate directly in the regional system or could receive reports in a preferred format.

Regional Spill System: Example Integration with ERTS (or other statewide permit reporting such as IDDE)



Note: These recommendations are based on the findings from the survey and interviews conducted as part of this study. This study does not have any influence on modifications to or the future operation of ERTS.

What are the recommended next steps?

1. Re-survey jurisdictions to determine level of interest and whether any opinions have changed based on vendor capabilities.
2. Form preliminary structure with centralized entity to begin inter-jurisdictional coordination and define cost variables.
3. If broad regional implementation is still not desired, consider local or sub-regional (several jurisdictions pooling resources together) implementation of strategies and options identified in this study (see Appendix 1 and 2).
4. Survey public for community input on what would make spill reporting easier. Consider jurisdiction statements regarding need for more support with public outreach.

APPENDICES

Appendix 1 Regional Spill Hotline Feasibility Study Interview Summary Report

- Survey Results
- Case Studies (Technical Interviews)
- In-Depth Municipal Interview Summary Report
- In-Depth State Agency Interview Summary Report

Appendix 2 Options Matrix Narrative for the Regional Spill Hotline Feasibility Study

- Vendor Research
- Implementation Considerations
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