Alaska Department of Environmental Conservation
Division of Water

NPDES eReporting Rule Scoping Assessment

Requirements Document

June 3, 2019

Version 1.0 - Final

WINDSOR SOLUTIONS | Environmental + Health Information Systems

This page intentionally left blank

Contents

This page intentionally left blank

Version Control

Version	Date	Author	Notes
1.0	04/26/2019	Windsor Solutions, Inc.	Final version incorporating feedback from DEC review.
0.5	04/03/2019	Windsor Solutions, Inc.	Initial draft version for review.

This page intentionally left blank

1 Introduction

The Alaska Department of Environmental Conservation (DEC) is conducting an assessment of the data systems and processes currently used by ADEC's Wastewater Discharge Authorization Program (WDAP) and Cruise Ship Program and the ability of those existing systems to meet the requirements of the 2015 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting (eReporting) Rule.

This assessment will help DEC to determine whether these new requirements are currently adequately supported by existing tools and business processes, or if new systems and processes should be established. While the immediate focus of this effort is on the eReporting Rule, the assessment will also consider the broader needs of Division of Water (DOW) programs, including, Wastewater Discharge Authorization, Engineering Support Plan Review, Cruise Ship, Inspections, Enforcement, Compliance Data Management, Water Information Management, and Water Quality Standards, Assessment and Restoration.

DEC has contracted with Windsor Solutions, Inc. (Windsor) to assist with this scoping assessment and to define an implementation plan for future information systems investments to enable the agency to meet the requirements of the eReporting Rule, and as well as to provide comprehensive support for the WDAP and Cruise Ship Program.

1.1 Project Approach

To better understand the current business workflows and information systems in each program area, Windsor met with representatives from each program between February 20 and March 13, 2019. Meetings were held via a series of Web conference calls. Windsor was further assisted in these discussions with supporting documentation provided by DOW.

The purpose of this document is to present the findings from the workflow and system analysis based on these meetings and review of supporting documentation, and to describe the key requirements for future information management.

In addition to this requirements analysis document, a second implementation plan document will be provided separately which will evaluate alternative approaches that may be taken to meet the defined information system needs.

1.2 Document Organization

The document is organized into the following sections, each of which discusses the current business processes and information systems used in support of the relevant program areas, and also reviews current challenges and future information system needs.

- Permitting
    - Domestic and Industrial
    - Oil and Gas
    - Mining
    - Stormwater
    - Seafood Processing
    - Engineering Plan Review

    - Cruise Ship Program
- Compliance and Enforcement
    - Inspection
    - Compliance Data
    - Enforcement
- Program Support
    - Invoicing
    - Water Quality Standards and Restoration (WQSAR)
    - Water Information Management (WIM)
- Summary

Note that the broad organization of the document into Permitting, Compliance and Enforcement, and Program Support sections is intended to generally represent functional groupings rather than representing the DOW organization. In practice, the Cruise Ship Program has both permitting and compliance responsibilities but is included in the Permitting section purely for presentation purposes.

2 Permitting

The Alaska WDAP, or APDES program, was established when DEC assumed full authority to administer the wastewater and discharge permitting and compliance program for Alaska on October 31, 2012. With the APDES program, DOW permits discharges for industries in the following six main areas:

- Domestic and Industrial
- Oil and Gas
- Mining
- Stormwater
- Cruise Ship
- Seafood Processing

All of the permitting sections receive extensive support from the Compliance Data Section (CDS) to capture and manage the permitting information in the Discharge Results and Online Permit System (DROPS) and further enter this information into the EPA ICIS-NPDES system.

In addition to issuing permits covering these main sectors, DOW also supports engineering reviews of new facility construction plans.

The remainder of this section outlines the operation of each of these permitting program areas.

2.1 Domestic and Industrial

2.1.1 Overview

The Domestic and Industrial Wastewater Permitting Section is managed by Earl Crapps, with Jeanie Swartz in Anchorage, and Marie Klingman in Fairbanks. Shonda Oderkirk (Fairbanks) is the direct liaison between the permitting unit and the DROPS system. Amber Bennett (Fairbanks) manages the data entry of these permits into ICIS-NPDES, and reporting effluent monitoring data to NetDMR and ICIS-NPDES. This group manages both individual permits and general permit coverages for domestic and industrial wastewater facilities.

Of the domestic wastewater facilities, approximately 25 publicly-owned treatment works (POTWs) have individual permits which are considered major or minor depending on the discharge volume. The remainder of the domestic wastewater facilities are covered under two master general permits; small treatment plants (approx. 110 authorizations) and lagoon systems (approx. 43 authorizations).

Of the industrial wastewater facilities, approximately 10 have individual permits. The remainder are covered under two master general permits; drinking water backwash (approx. 13 authorizations) and non-contact cooling water (approx. 10 authorizations).

DEC does not issue permits to facilities subject to the pretreatment program. This is delegated to the domestic POTW facilities that receive discharges that are subject to pretreatment.

Only a few new domestic and industrial wastewater permits are issued each year, and fewer still are ever terminated. The majority of the focus of this program is therefore on the reissuance of existing permits and authorizations, along with the permit review and drafting/public notice required of this process.

2.1.2 Workflow

The business workflow varies depending on whether an individual permit or a general permit authorization is being issued, with the latter process being generally simpler.

Individual Permits

Applicants for a new or reissued permit must go to the DEC website to download a fillable PDF application. Permits are issued for 5-year periods, and applicants must apply for renewal within 180 days of the expiration of their current coverage.

The applicant fills out the application and sends it along with all required attachments to DEC either through email or (less commonly) hard-copy in the mail. The Online Application System (OASys) portal is not used for domestic and industrial permits.

CDS manually reviews each application for completeness and accuracy. Upon determining that the application is complete, CDS manually enters all information from the application into DROPS that can be supported by the DROPS system.

DEC then begins the review process to determine whether existing limits and mixing zone definitions are adequate or require adjusting. This requires a comprehensive study of discharge limits and effluent data from the previous permit cycle along with other reports. Discharge limits are available in DROPS but the effluent data is obtained from ICIS-NPDES reports generated by the Compliance Data Section.

Data is entered into the Reasonable Potential Analysis (RPA) tool, an Excel workbook that helps to determine appropriate limits, by determining the impact on water quality and includes evaluation of technology-based effluent limits (TBELS) and water quality-based effluent limits (WQBELS). Additional analysis is provided by the CORMIX mixing zone modeling software that provides a dilution factor for the RPA tool. Effluent limits from the RPA tool and other required limits, such as TBELs, are entered into DROPS.

A draft permit document is created using the data compiled from the spreadsheets as well as text from the previous permit document. The permit will include limits and mixing zone delineations if appropriate. The permit drafting process is entirely manual with no routines to assist with copying data from DROPS or from previous permit documents.

The draft permit document is provided simultaneously to the applicant and other interested agencies (including US EPA) for a 10-day review process. After the review period, DEC responds to feedback and makes adjustments to the draft permit as needed. The revised draft permit then goes to a 30-day public notice. Any comments received during the public notice are responded to in a formal Response to Comments document, and the draft permit is further adjusted as needed. The final draft permit is subject to a 5-day review by the permittee, after which time the permit is signed by the Program Manager, Gene McCabe, and the permit is considered “issued.” This starts an appeal period for the issued permit that lasts a minimum of 30 days. The permit is considered effective on the first of the next month following the 30-day appeal period. For example, a permit issued on 3/11/2019 would not go into effect until 5/1/2019.

Finally, the effective permit is published to the DEC Web site. The permit and related data such as facility details, outfalls, and limits are flowed automatically from DROPS to ICIS-NPDES over the Exchange Network, and this data is then reviewed and corrected as needed by CDS. Additional data not supported by DROPS or the automated data flow are manually entered into ICIS-NPDES by CDS, including certain outfall information, some effluent limits, and narrative conditions.

General Permits

Applicants for a new or reissued general permit coverage again use the DEC website to download a fillable PDF application. General permit authorizations are issued for the life of the general permit and must be renewed when the general permit is renewed.

The applicant fills out the general permit Notice of Intent (NOI) to obtain coverage and sends it along with all required attachments to DEC either through email or (less commonly) hard-copy in the mail. The Online Application System (OASys) portal is not used for domestic and industrial permits.

CDS manually reviews each application for completeness and accuracy. Upon determining that the application is complete, CDS then manually enters all information from the application into DROPS that can be supported by the DROPS system.

Once information is entered, DEC then begins the review process to determine whether the limits and mixing zone definitions specified by the general permit are adequate or require adjusting. If the authorization necessitates delineation of a new mixing zone or a change to that included in the general permit, then the revised general permit goes to a 30-day public notice. Any comments received during the public notice are responded to in a formal Response to Comments document, and the draft authorization is further adjusted as needed.

The authorization is then developed along with any specific limits, and includes a copy of the general permit itself. The permit drafting process is entirely manual with no routines to assist with copying data from DROPS or from previous authorizations.

The final authorization is then sent to the permittee, and finally, the effective authorization is published to the DEC Web site. The authorization and related documents are filed in the WPC electronic record keeping system.

The authorization and related data such as facility details, outfalls, and limits are flowed automatically from DROPS to ICIS-NPDES over the Exchange Network, and this data is then reviewed and corrected as needed by CDS, with additional data not supported by DROPS or the automated data flow again being manually entered into ICIS-NPDES by CDS.

2.1.3 Challenges

The following challenges were identified during the requirements gathering session:

- All application information is copied from the PDF application manually into the DEC systems of record. These applications have extensive detail, so automated capture would save considerable time.
- Not all information from the application can be entered into DROPS. For example, narrative conditions are not currently supported in the DROPS interface, so these must be manually entered directly into ICIS-NPDES by CDS which represents a significant resource burden.
- The automated Exchange Network data flow is not complete and data extracted from DROPS is not always loaded correctly to ICIS-NPDES. The results of the automated data flow must be manually checked by the CDS by CDS which again represents a significant resource burden.
- Because not all information is entered into DROPS, a number of capabilities are not available:
    - Permit documents and authorizations cannot be automatically generated because they lack the narrative conditions.

  - Reports are limited to the information that is locally available[1].
  - Lack of narrative conditions means there is no way to automate reminders to DEC staff to track compliance with narrative condition schedules.

- There are currently no automated reminders going out to the regulated community letting them know that (for example) the 180-day deadline for renewals is approaching. This requires DEC staff to use alternate means for keeping on top of the permits, increasing overhead.
- Permit documents include both data from the permit application as well as (predominantly) narrative text that should be the same across permits with similar conditions. This information must currently be copied from permit to permit. An error that is not caught will end up in many permit documents, necessitating extensive quality assurance processes.
- Some information that is important to DOW permitting (e.g., mixing zone data), but is not explicitly part of what is tracked for Alaska's compliance with the Clean Water Act, does not have any system supporting this data (i.e., it cannot be entered directly into ICIS). This information must currently be tracked in spreadsheets.

2.1.4 System Needs

The following capabilities should be provided by the future information system:

- Online applications to be filled out by the permit applicant with data inherited where possible from prior submissions.
- Automated flow of application information from the online reporting system to the system of record.
- Comprehensive, automated flow of all information in the local systems to the ICIS-NPDES system that is complete and requires little or no manual quality assurance.
- Capture of all data elements pertinent to the domestic and industrial permit program in DEC, not only those related to compliance with the CWA. This would include data for mixing zones that currently cannot be stored in any system.
- Automated generation of permit documents and correspondence. This includes the management of boilerplate text that is common to multiple permits.
- Full integration of information downloaded from ICIS with information in the system-of-record if ICIS will remain the system-of-record for certain data elements (e.g., DMRs).
- Comprehensive reports containing all data captured from the regulated community, as well as information downloaded from ICIS.
- Ad hoc reporting capability.
- Automated correspondence to regulated community informing them of certain deadlines (e.g., 180-day renewal reminder).
- Notifications to DEC staff of upcoming or late submittals.

[1] An automated outbound Exchange Network data flow is used to extract selected data from the ICIS-NPDES data warehouse to a local repository which can be reported against alongside DROPS. Feedback from participants was mixed in regard to the usefulness of these reports.

2.2 Oil and Gas

2.2.1 Overview

The Oil and Gas Permitting Section is managed by Gerry Brown with a staff of five people; four in Anchorage and one in Juneau. The team is responsible for permitting Oil and Gas activity that results in wastewater discharges to groundwater and surface water.

The majority of oil and gas facilities are permitted under one of three APDES general permits which address permitted discharges to surface water on a geographic basis.

- North Slope region general permit
    - There are approximately 40 existing authorizations that renew every five years
    - Roughly 3-5 new authorizations are issued each year
- Cook Inlet region general permit
    - There are 17 existing facilities with three new facilities expected to apply for coverage
    - The current general permit for this region has expired and DOW is working to reissue the permit for a new term
- Statewide Pipeline (discharge from oil and gas pipelines)
    - There are three current coverages that renew every year in contrast to the typical five-year term.
    - This permit will also cover the possible new 800-mile gas pipeline being considered for development to run from the North Slope region to the Cook Inlet

In addition to the facilities having coverage under one of the above general permits, individual APDES permits have been issued to 18 oil and gas facilities that have a five year renewal cycle.

Finally, there is an additional state-issued general permit for groundwater discharges by Class 1 underground injection wells.

2.2.2 Workflow

General Permits

Applications for coverage under the North Slope region general permit, as well as modifications and reissuances, can be made online through OASys. Work is underway to bring add the Statewide Pipeline general permit to OASys, as well. There are no plans to add the Cook Inlet region general permit application into OASys as the effort to do so would likely exceed the value, given the low volume and complexity.

Permit modifications can be made at any time either through OASys (for North Slope pipeline only) or through PDF/hard copy. The data entered in OASys does not currently flow automatically into DROPS and must be manually entered by CDS.

For the Statewide Pipeline and Cook Inlet region general permits, the permit application and modification forms are received primarily in hard copy form but also sometimes by email as PDF attachments. Hard copy documents are scanned and saved along with those received electronically to the WPC document repository and are also printed out and stored in a hard copy format to meet requirements for public records requests.

Authorizations are developed or updated manually, and the final documents are sent to the permittee.

Processing of an authorization under the Cook Inlet general permit may involve changes to the mixing zone definitions in the permit which would then subject the updated general permit to Public Notice.

Fees for North Slope can be done in OASys at the time of application, which covers support/maintenance. Pipeline fees are determined through a negotiation process which includes the application and maintenance, fees are reassessed at yearly authorization.

The authorization and related data such as facility details, outfalls, and limits are flowed automatically from DROPS to ICIS-NPDES over the Exchange Network, and this data is then reviewed and corrected as needed by CDS, with additional data not supported by DROPS or the automated data flow again being manually entered into ICIS-NPDES by CDS.

The Statewide Pipeline general permit authorizations are always entered manually into ICIS-NPDES by CDS owing to complications due to the location of discharge points which makes it difficult to track this information in DROPS.

Individual Permits

All individual permit applications are received in hard copy form or via email as PDF attachments. Very large application files may be transmitted through a server based file transfer process. Again, hard copy documents are scanned and saved along with those received electronically to the WPC document repository and are also printed out and stored in a hard copy format to meet requirements for public records requests.

Each application is reviewed for completeness and accuracy. If it is determined to be administratively complete, this triggers the creation of a notification to the permittee informing them that the processing clock has started. A permit will be automatically extended if not issued by the current expiration date. The permit writer then creates a preliminary draft permit and fact sheet and works with the applicant to obtain the necessary information. Various guidelines and internal Excel workbook tools are used to develop appropriate effluent limits.

The draft permit document is provided simultaneously to the applicant and other interested agencies for a 10-day review process. After the review period, DOW responds to feedback and makes adjustments to the draft permit as needed.

Any comments received during the public notice are responded to in a formal Response to Comments document, and the draft permit is further adjusted as needed. The revised draft permit is then subject to a 30-day public notice period during which time the EPA also does a full review.

Any comments received during the public notice are responded to in a formal Response to Comments document, and the draft permit is further adjusted as needed. The final draft permit is subject to a 5-day review by the permittee, after which time the permit is signed by the Program Manager, Gene McCabe, and the permit is considered “issued.” This starts an appeal period for the issued permit that lasts a minimum of 30 days. The permit is considered effective 30 days after issuance if there are no appeals.

Fees for individual permits are negotiated on a case-by-case basis, but do not include the costs of maintenance of the permit.

Finally, the effective permit is published to the DEC Web site. The permit and related data such as facility details, outfalls, and limits are flowed automatically from DROPS to ICIS-NPDES over the Exchange Network, and this data is then reviewed and corrected as needed by CDS. Additional data not supported by DROPS or the automated data flow are manually entered into ICIS-NPDES by CDS, including certain outfall information, some effluent limits, and narrative conditions.

2.2.3 Challenges

The following challenges were identified during the requirements gathering session:

- The DROPS system does not support current data reporting needs. For example, it is difficult to see a complete picture of all the individual permits in a given geographic region.
- The DROPS Windows client server application can be unstable for some users. There are few training tools available to users.
- There is currently no automated interface DROPS and the agency billing system CRITTS (previously BillQuick) which causes issues that require extensive reconciliation work to resolve.
- Naming conventions for NetDMR precludes pipeline permit coverages from being managed through NetDMR, so CDS manually enters all information from paper submissions into ICIS-NPDES.
- There are currently no automated reminders going out to the regulated community letting them know deadlines are approaching for things such as renewals or compliance reporting. There are also no notifications to DOW staff to schedule pre-application meetings.
- The need for manual document management is resource intensive and can lead to data not being available in the correct location.

2.2.4 System Needs

The following capabilities should be provided by the future information system:

- Comprehensive reports containing all data captured from the regulated community, as well as information downloaded from ICIS-NPDES.
- Ad hoc reporting capability.
- There is a desire to provide spatial access to data about permitted facilities to both DOW staff and the public.
- System should provide automated notifications to permittees informing them of deadlines for renewals or compliance reporting.
- System should provide automated notifications to DOW staff of upcoming or late submittals.

2.3 Mining

2.3.1 Overview

The Mining Permitting Section is managed by Allan Nakanishi with a staff of four people; two in Fairbanks, one in Anchorage, and one in Juneau. The team is responsible for four types of permit governing mining activity in the State.

DOW has established four placer mining general permits based on the type and size of operation; small suction units, medium suction units, dredges, and mechanical facilities. There are approximately 450-500 total active authorizations under these general permits, with around 50 new authorizations each year. Of this total, approximately 250 authorizations are for small placer mine who renew their registrations annually. The remaining authorizations are issued for the life of the general permit.

Individual wastewater permits are issued to 10 hard-rock mining operations, all of which are classified as major permits under the NPDES program.

Related to the individual APDES wastewater permits, the Mining Permitting Section also manages solid waste management permits issued to 9 of these mining operations outside of the APDES program. These permits govern the management of mine tailings and other solid material outputs from the mining process.

Finally, the Mining Permitting Section also manages two additional general permits issued to log transfer facilities. There are approximately 40-50 active authorizations under these two general permits, with five new authorizations issued each year.

2.3.2 Workflow

General Permits

As noted above, small suction placer mining operations comprise the majority of all placer mines. These are not issued authorizations, but must register each year by filling out an online application in OASys and paying a $25 fee. Once the registration is entered and the fee is paid, the operation is considered covered under the AKG375000 permit with no further action required of DOW or the facility.

None of the other general permits are currently supported by OASys. Instead, applicants must submit an Application for Permit to Mine in Alaska (APMA) to the Alaska Department of Natural Resources (DNR). This form includes an option to request a surface water discharge permit. DNR will then forward the application to the Mining Permitting Section as either an email attachment or a paper forms. Some applications come to DOW directly from the applicant.

Once the application is received, it reviewed to first determine whether or not the facility is already permitted. This can be a time-consuming due to the volume of current authorizations. Once DEC confirms that the facility is not already permitted, a new permit is entered manually into DROPS and a permit coverage document is developed manually from a Word template. The document is reviewed and finalized and then the permittee is sent a cover letter, the authorization, and copy of the master general permit.

The authorization and related data such as facility details, outfalls, and limits are flowed automatically from DROPS to ICIS-NPDES over the Exchange Network, and this data is then reviewed and corrected as needed by CDS, with additional data not supported by DROPS or the automated data flow again being manually entered into ICIS-NPDES by CDS.

Individual Permits

Only a small number of applications for individual permits for hard-rock mining facilities are received each year, but the permitting process for each one is intensive. Applications for renewal or modification must be received within 180 days of the permit expiration, but the process usually begins with a pre-application discussion between the facility and DOW to review the changes in operation that will need to be considered on the permit renewal or modification. An application is received as both an email attachment and hardcopy, along with all required attachments.

A draft permit document is developed, along with the permit fact sheet, and effluent limits. Effluent limits are developed, as with other individual permits, using EPA and State water quality standards and utilizing Excel workbook calculations.

DOW issues early notifications of permit applications to affected tribal communities. Once the draft permit is developed, it is reviewed by the permittee and EPA, is then subject to public notice for not less than 30 days. DOW formally responds to all comments in writing and a final permit is drafted for review by the permittee. After this final review, the permit is then issued with an effective date of the 1st of the

month that occurs no less than 30 days after the issuance date. During the period between permit issuance and the effective date the permit may be appealed.

Finally, the effective permit is published to the DEC Web site. The permit and related data such as facility details, outfalls, and limits are flowed automatically from DROPS to ICIS-NPDES, with Amber making manual updates as needed, and adding additional data not supported by DROPS or the automated data flow, such as narrative conditions.

Finally, the effective permit is published to the DEC Web site. The permit and related data such as facility details, outfalls, and limits can in theory be flowed automatically from DROPS to ICIS-NPDES over the Exchange Network, but, owing to the small number of these permits and their complexity, historically most of the data for these permits is manually entered into ICIS-NPDES by CDS.

Solid Waste Permits

Hard rock mines are also required to obtain solid waste management permits issued outside of the APDES program in addition to their wastewater permits. The Mining Permitting Section manages these permits in cooperation with the DNR, with the permit being issued for a five-year period. For these permits, instead of a permit application, the facility submits a plan of operations which is subject to modification based on DOW review. The permitting process results in a separate solid waste management permit (using a different numbering scheme to APDES permits), but otherwise it follows the same general workflow steps as for an individual wastewater permit.

In addition to the permitting processes described above, DOW provides a high level of compliance assistance to the hard-rock mines under a reimbursable service agreement that is negotiated with the mine operators. Mines are visited at least once a year by DOW to review and understand the particular circumstances of these operations, which undergo frequent change due to the nature of mining.

General permits other than small placer mines (covered by the $25 annual registration fee) are assessed an annual fee. Information regarding permit fees is tracked in both DROPS and CRITTS.

2.3.3 Challenges

The following challenges were identified during the requirements gathering session:

- The invoicing process for general permits requires intensive efforts to reconcile the information stored in DROPS and CRITTS (formerly BillQuick). If an annual billing cycle is missed for a permit, there is not a process to go back and collect the missing fees. It is thought that a substantial amount of fees go uncollected each year as a result.
- The permit data entry process into DROPS is labor-intensive and inconsistent. This is partly owing to the fact that almost all information is received as attachments or hardcopy instead of through OASys as form entries. The individual permits are highly complex and require specialized knowledge of how to enter them into DROPS.
- The program experiences significant difficulties with extracting information out of DROPS for reporting purposes. This is due to both the fact that fields are used inconsistently as well as inadequate reporting options within DROPS itself.
- Creating the permit document requires an intensive manual process. General permit authorizations in particular can and should be automatically generated. DROPS has this capability in the past but modifications were needed that DROPS did not accommodate, so DOW staff now create these authorizations largely by hand with some mail merge assistance.

2.3.4 System Needs

The following capabilities should be provided by the future information system:

- An improved invoicing process that integrates DROPS and the billing system without the need for intensive reconciliation efforts and without the possibility of missed permit fees.
- Electronic capture of all permit information into OASys and flow of permit data into DROPS. This will alleviate the need for staff to manually enter information into DROPS as well as make for more consistent data entry.
- Automatic generation of permit documents, replacing the current labor-intensive process.
- Improved reporting and data access, due to improved data entry by flowing information from the application as well as better reporting options.

2.4 Stormwater

2.4.1 Overview

The Storm Water and Wetlands Section is managed by James Rypkema with a staff of four people; three in Anchorage and one in Fairbanks. The Section is responsible for permitting storm water discharges that are generated by runoff from land and impervious areas during rainfall and snowmelt events. The Section is responsible for authorizations issued under one of five APDES general permits.

- AKR100000: Construction General Permit for Storm Water Discharges for Large and Small Construction Activities (about 50 NOIs are submitted each month)
- AKR060000: Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activity (About 3 NOIs are submitted each month)
- AKG002000: General Permit for Excavation Dewatering
- AKG003000: General Permit for Hydrostatic and Aquifer Pump Test (aquifer pump testing authorizations are only required for mineral mining facilities)
- AKG870000: General Permit for Discharges from the Application of Pesticides (1 or 2 NOIs are submitted each quarter)

In addition to authorizations under the above general permits, the Section also issues CWA Section 401 Certificates of Reasonable Assurance, following review by DOW of a project receiving a federal permit under CWA Section 404. About 10 such projects are reviewed each year.

Finally, the Section also manages six individual APDES permits issued to Municipal Separate Storm Sewer (MS4) systems.

2.4.2 Workflow

General Permits

The following application forms for authorizations under the storm water discharge general permits are available through the OASys online form submission system:

- **Construction General Permit (CGP)**
    - CGP Notice of Intent (NOI)

  - CGP Notice of Termination (NOT)
  - CGP NOI modification
- **Multi-Sector General Permit (MSGP)**
  - MSGP Notice of Intent (NOI)
  - MSGP No Exposure Certification
  - MSGP Report
- **Excavation Dewatering General Permit**
  - Notice of Intent (NOI)
  - Notice of Termination (NOT)
- **Hydrostatic General Permit**
  - Notice of Intent (NOI)
  - Notice of Termination (NOT)
- Aquifer **Pump Test** *(Mineral Mining & Development only)* **General Permit**
  - Notice of Intent (NOI)
  - Notice of Termination (NOT)

NOIs for the Pesticides General Permit which are received in hard copy format. Depending on the type of application, various attachments are included such as stormwater pollution prevention plans (SWPPPs) and best management practices (BMPs), among others.

About 10% of applications are completed entirely online through in OASys, including submission of form data and attachments, electronic signature, and online payment. In these cases, OASys also automatically issues the authorization document, loads the authorization data into the DROPS database, uploads the electronic copy of the authorization document, and makes the authorization available through the publicly-available Water Permit Search application (https://dec.alaska.gov/Applications/Water/WaterPermitSearch/Search.aspx).

When an authorization cannot be issued automatically by OASys, the application and attachments are manually reviewed by CDS for completeness and accuracy, including the cross-checking of discharge locations against the impaired water bodies list. Approximately 10-20% of the applications received are incomplete and need further follow-up with the applicant. If discharges may impact an impaired water body, DMR reporting requirements will need to be included in the authorization. This typically only occurs for larger construction projects.

Once the submission record is complete in OASys, CDS releases the record and it is then automatically processed by OASys as above.

It was noted that the CROMERR requirement for notarized wet-ink signature approval prior to obtaining electronic signature authority in OASys often limits the use of the OASys system for construction stormwater applications because the time and effort needed to gain the electronic signature authority is more than submitting the form on paper.

Modifications to construction stormwater general permit authorizations are common as project dates change. While these modifications can be received through OASys, the changed authorization data is not automatically loaded into DROPS and must therefore be manually entered.

DROPS includes a notification function which automatically emails anyone whose authorization is expiring to let them know they need to modify or extend their coverage.

MSGP authorizations and related data (such as facility details, outfalls, and limits) are flowed automatically from DROPS to ICIS-NPDES over the Exchange Network. Manual updates are entered directly into ICIS-NPDES by CDS as needed, as well as additional data not supported by DROPS or the automated data flow (e.g., narrative conditions).

Construction stormwater general permit authorizations are only entered into ICIS-NPDES if some enforcement action is taken. Other types of authorizations are not entered into ICIS-NPDES.

MS4 Permits

Only a small number of renewal or modification applications for permits for MS4 systems are received each year. The permitting process generally follows the permit development process for other types of individual permits. Applications for renewal or modification must be received within 180 days of the permit expiration, and are received in hard copy along with all required attachments.

A draft permit document is developed, along with the permit fact sheet, and effluent limits. Effluent limits are developed, as with other individual permits, using EPA and State water quality standards and utilizing Excel workbook calculations.

DOW issues early notifications of permit applications to affected tribal communities and other interested agencies. Once the draft permit is developed, it is reviewed by the permittee and EPA. Depending on the nature of any modifications, the draft permit may also be subject to public notice for 30 days or more. DOW formally responds to all comments in writing and a final permit is drafted for review by the permittee. After this final review, the permit is then issued with an effective date of the 1st of the month that occurs no less than 30 days after the issuance date. During the period between permit issuance and the effective date the permit may be appealed.

Finally, the effective permit is published to the publicly-available Water Permit Search application. The permit and its related data are flowed automatically from DROPS to ICIS-NPDES over the Exchange Network. Manual updates are entered directly into ICIS-NPDES by CDS as needed, along with additional data not supported by DROPS or the automated data flow, such as narrative conditions.

Section 401 Certificates

Applications for Section 401 Certificates are received in hard copy format. The Section reviews the project, coordinates with other state and federal agencies and local governments, reviews any public comments, and either approves, approves with conditions, waives, or denies the project.

2.4.3 Challenges

The following challenges were identified during the requirements gathering session:

- The design of the OASys system allows applicants to create duplicate facilities through OASys submissions with slightly different names, creating confusion and requiring data reconciliation and clean-up.
- No validation checks are performed in OASys that a reasonable facility location or discharge location has been entered.

- Data related to modifications of construction stormwater general permit authorizations does not flow to DROPS automatically, requiring manual data entry.
- Although construction stormwater general permit authorizations are well-supported by OASys, the system does not support the other authorization types as well.
- The CROMERR requirement for notarized wet-ink signature approval prior to obtaining electronic signature authority in OASys often limits the use of the OASys system for construction stormwater applications because the time and effort needed to gain the electronic signature authority is more than submitting the form on paper.
- DROPS does not support all of the data elements that can be captured by OASys, which means users have to look in two different systems for information about the permit.
- The proximity of a facility or discharge to an impaired waterbody must be evaluated manually.
- The program experiences significant difficulties with extracting information out of DROPS for reporting purposes. This is due to both the fact that fields are used inconsistently as well as inadequate reporting options within DROPS itself.
- Currently large files that are submitted along with an application cannot be accepted by OASys and must be transferred to the agency using the ZendTo Web-based file transfer tool. These files must then be manually downloaded and managed locally.

2.4.4 System Needs

The following capabilities should be provided by the future information system:

- The system should provide a mapping interface to allow them to accurately locate their discharge points.
- The system should allow an applicant to view the location of impaired water bodies in relation to their project.
- The system should allow an applicant to view nearby existing authorizations on a map before allowing a new facility to be created through a submission so users would be more likely to select an existing, correct facility before creating a new one.
- The system should ideally include a reconciliation tool to allow duplicate facilities to be identified and resolved.
- The new system could possibly include integration with the LexisNexis identity validation tool offer through shared services by US EPA to automate the process of confirming a new user's identity and potentially allowing electronic signature approval to be automated.
- Comprehensive reports containing all data captured from the regulated community through OASys and in DROPS.
- System should support upload of large attachment files.

2.5 Seafood Processing

2.5.1 Overview

The Seafood Processing and Hatchery Section is managed by Earl Crapps with a staff of three people; one each located in Juneau, Anchorage and Wasilla. The Section issues permits to the seafood industry state-wide with primary activity locations in the Aleutians, Bristol Bay, Kenai Peninsula, Kodiak, Prince William Sound, Southeast Alaska and some in Norton Sound area.

The Section is responsible for authorizations issued under one of four APDES general permits which collectively cover approximately 140 processing facilities:

- AKG520000: Seafood Processors in Alaska General Permit
- AKG523000: Alaska Offshore Seafood Processors General Permit
- AKG528000: Seafood Processors Operating Shorebased Facilities on Kodiak Island General Permit
- AKG130000: Aquaculture Facilities in Alaska General Permit

The Seafood Processors in Alaska General Permit (AKG520000) has expired and is currently administratively continued. This permit previously covered both shore-based and offshore facilities. Authorization for new offshore facilities is now provided under the Alaska Offshore Seafood Processors General Permit (AKG523000). Authorization for new shore-based facilities will eventually be provided by the new Remote Onshore Seafood Processors in Alaska General Permit (AKG521000) which is currently under development.

In the meantime, new onshore processors obtaining coverage under the extended Seafood Processors in Alaska General Permit (AKG520000) are not issued a true authorization with a standard APDES permit number. Instead, these facilities are sent a No Action Assurance memo that provides authority for them to operate under the extended permit. This currently affects 15 seafood processors.

In addition to the managing authorizations under the above general permits, the Section also manages individual APDES permits issued to approximately 7 large onshore processing facilities.

Permits are issued for a five year term.

2.5.2 Workflow

General Permits

The OASys system currently only supports the submission of NOIs for coverage under the Offshore Seafood Processors General Permit (AKG523000). Due to their mobile nature, these processors tend to frequently modify their authorizations. Therefore, modifications comprise most of the volume of submissions received by the Section. When creating a new application, users can copy previous application data into new application, but only for data that is entered into form fields. The rest of the information has to be manually re-entered and attachments must be reattached each time. Once an NOI has been received in OASys, Section staff download the application packet from OASys and save the application materials into the WPC document repository.

NOIs for all of the other general permits are received by email or in hard copy format, and the application materials are again saved into the WPC document repository.

Authorizations issued under the seafood processor general permits are generally complex to develop and the Section commonly uses Microsoft Excel and Outlook Tasks to track the progress of applications through the workflow. An NOI checklist is used to validate the contents of the application and to ensure that all required information has been provided, for example, BMPs or maps of discharge locations. The Section relies heavily on the use of spatial mapping tools to validate the information provided in the application packet, including the location of fishing areas, discharge locations, and the proximity to natural resources, or critical habitat areas using maps provided by the Department of Fish and Wildlife and the National Oceanic Atmospheric Administration. The Section works with the facility to correct the application and negotiate discharge sites where needed.

Once the application is complete, the permit writer manually develops the authorization document, including the approved discharge locations, limits, and other conditions. In the case of modifications to existing authorizations, the prior compliance history of the facility is reviewed, and the permit writer also verifies that the appropriate fee has been received. The draft authorization is then sent for management review, sometimes public noticed depending on proposed discharge locations, and the final authorization is issued along with a link to the relevant general permit.

Information from the authorization is manually entered into DROPS by CDS, including facility information, discharge points, and limits. Template permits are set up in DROPS with limits that can be copied to new authorizations. Seafood processor authorizations and related data (e.g., facility details, outfalls, and limits) are flowed automatically from DROPS to ICIS-NPDES. Manual updates are entered directly into ICIS-NPDES by CDS as needed, as well as additional data not supported by DROPS or the automated data flow (e.g., narrative conditions). Facilities that have been issued a No Action Assurance memo under the continued Seafood Processors General Permit are entered into DROPS but not entered into ICIS-NPDES unless an inspection is conducted.

The definition of limits and discharge points in ICIS-NPDES is more complex for offshore processors since it is a more recently re-issued permit. As such, limits vary by type of discharge, as well as location, and actual discharge locations change frequently. DMRs are typically required quarterly for the Alaska Offshore Seafood Processors General Permit (AKG523000) and monthly for the AKG528000 general permit, and are reported to the US EPA NetDMR system. Facilities under the Aquaculture Facilities in Alaska General Permit (AKG130000) and the Seafood Processors in Alaska General Permit (AKG520000) do not report on DMRs.

Other types of annual compliance report are received by the Section through OASys, by email, or hardcopy, and are saved to the WPC document repository.

Facilities with active authorizations under one of the general permits are required to pay an annual permit fee which varies based on the permit type. Information about the active authorizations is extracted manually from DROPS and provided to the Budget Support Section for entry into the agency CRITTS system (previously BillQuick). Invoices are then generated from the CRITTS system.

Individual Permits

Applications for individual permits are received by email or in hard copy format, and the application materials are manually saved into the WPC document repository. Applications for new individual seafood processing permits are very rare, with no new permits being issued since 2003. If a new permit application was received, it would be subject to a similar process as that followed for other types of individual permit issued under the WDAP, and would involve Public Notice.

Most existing individual permits are administratively continued, and the facilities have provided updated individual APDES permit applications. Minor modifications to the permit would be handled

administratively, while major modifications would result in a new permit being drafted and subject to Public Notice.

Information about the individual permit is manually entered into DROPS by CDS. The permit and its related data are flowed automatically from DROPS to ICIS-NPDES, with manual updates made as needed by CDS.

DMRs are not required for most administratively continued individual permits, but other types of annual compliance report required under an individual permit are received by the Section by email, or hardcopy, and are saved to the WPC document repository.

Facilities with individual permits are required to pay an annual permit fee. As with general permit authorizations, permit information is extracted manually from DROPS and provided to the Budget Support Section for entry into the agency CRITTS system (previously BillQuick). Invoices are then generated from the CRITTS system.

2.5.3 Challenges

The following challenges were identified during the requirements gathering session:

- Information received through OASys must be manually re-entered into DROPS by CDS, and documents and attachments have to be manually saved to the WPC folders.
- The lack of an automated interface between DROPS and the agency billing system causes issues that require extensive reconciliation and can result in inaccurate invoices being issued, where, for example, contact information has changed or where an authorization was terminated. A lengthy manual reconciliation process is required before invoices are issued each year.
- No validation checks are performed in OASys that a reasonable facility location or discharge location has been entered.
- No validation checks are performed in OASys that ensures all required attachments are attached. OASys, or other system could be programmed to intake the data instead of requiring an attachment.
- Only a single general permit is currently supported through the OASys system for online applications, and only partial support is provided for online compliance report submissions. Other applications and must be received and processed manually by CDS which is labor intensive and represents a significant resource burden.

2.5.4 System Needs

The following capabilities should be provided by the future information system:

- The system should provide a mapping interface to allow the applicant to accurately locate their current or proposed discharge points.
- As is the case with the currently public Seafood Facility GIS resource, the system should allow an applicant to view the location of impaired water bodies and other sensitive areas, and offer the ability to compare these sites in relation to their proposed discharge points.
- Comprehensive reporting functions should be developed to provide easy access to information about facilities, permits, authorizations and compliance data that is compatible with e-Reporting data flows.

- The system should support automatic generation of draft authorization documents.
- The system should provide support for electronic database submission and acceptance of all application and compliance report types that are received by the Section.
- The system should include an automated interface to the agency billing system to eliminate the need for manual reconciliation of data.
- The system should support:
    - The tracking of incomplete applications and violations identified during permit file review,
    - A means to track permitting pending actions where staff is waiting on information to be submitted by the permittee, milestones of the applicants submitting information,
    - A means to accurately track and refer violations to the Compliance section,
    - A means to track permittee compliance assistance/follow-up actions taken by DEC Permitting staff.

2.6 Engineering Plan Review

2.6.1 Overview

The Engineering Support and Plan Review Section (ESPR) is managed by Tonya Bear with staff located in in Fairbanks, Anchorage, Wasilla, Juneau, and Soldotna. The program ensures that plans for new septic systems either meet the requirements of a conventional onsite system or are reviewed prior to construction.

Conventional onsite systems are intended to support single-family homes, duplexes, or small commercial facilities (discharging less than 500 gallons a day) and must meet the prescriptive construction requirements. Septic installations meeting these criteria do not go through a formal plan review and are instead required to notify DEC within 24 hours of construction and provide a detailed report of the installation after construction is complete. The construction report is then subject to an abbreviated review. There are roughly 1,500 of these plans submitted each year.

A more comprehensive plan review is required for any installation that does not meet that description, ranging in size from single-family homes with alternative septic tank construction, to larger community treatment systems. There were 107 active plans in 2015, and each year roughly 250-300 new plans are received across all offices.

2.6.2 Workflow

For conventional onsite systems, the septic system installer must notify DEC that they are about to begin work within 24 hours of starting construction. DEC creates a record in the Certified Installer Database, an access database maintained by staff, with a minimum of information needed to identify the site and its physical location. Once construction is completed, the installer must submit a hardcopy Documentation of Construction form containing the detailed information regarding the septic tank implementation. The Certified Installer Access database is updated with information about when the document was received and reviewed. A scanned PDF copy of this form is then uploaded to the SEPTS database and a unique identifier is created. These documents are available online via

https://dec.alaska.gov/Applications/Water/Septs/. Detailed information about each conventional septic system is not otherwise entered into a database.

Non-conventional septic tank system construction requires plan review approval of an "engineered system." The process begins when an engineer submits the required forms necessary to describe the intent to construct the system, including a plan intake form, an owner's statement form, sealed engineering plans, as well as an invoice with payment. All forms are submitted as hardcopy, as there is no method to submit these electronically at this time.

DOW must respond to the plan submission within 30 days of receiving both the application and the associated fee. The Section reviews the engineering plan and addresses any potential issues before issuing an Approval to Construct document to the owner.

The system is then constructed per the submitted plans and the construction is inspected by the design engineer. Once construction is complete, the engineer submits a Certification of Construction form, record drawings, and any additional information required with a request for Approval to Operate. These are reviewed by DEC staff to determine whether or not to approve the operation of the system. DOW issues an Approval to Operate document which generally concludes the plan review process. A very small percentage of facilities will require coverage under a domestic wastewater discharge general permit (roughly 6 per year).

Plan review is managed in Plan Tracker, a custom-built web application created by the WIM team in 2016. This system replaced an Access database containing plans from 1999 to 2015. Creating a new plan generates a unique identifier and provides a form with five tabs: Plan Details, Plan Activity, Notes, Invoices, and Waivers. Information from the forms submitted by the engineer is manually entered into Plan Tracker and the workflow is managed by entering milestone dates when they occur. Other than generating the unique identifier, the system does not provide any other functions aside from collecting information from the forms.

Fees for plan reviews are based on a standard rate schedule generally depending on the type and size of facility. A small number of systems will be charged based on an hourly fee to be determined by the agency based on complexity (about 5% of total).

Fees are specified as line-items on an invoice form which is compiled by the applicant and submitted along with the plan review package, or compiled by ESPR following review. Fees are generally collected as checks with the hardcopy application forms or the applicant calls with a credit card number for payment. There is one person in Fairbanks who can accept credit card payments over the phone and that person must be in the office to accept payment. Fee information is recorded in Plan Tracker and also in the agency CRITTS system.

2.6.3 Challenges

The following challenges were identified during the requirements gathering session:

- Conventional septic system Documentation of Construction forms are only stored as scanned information and the detail cannot otherwise be queried.
- Engineering plan information is stored in detail, but must be inputted into Plan Tracker manually from the plan intake form, a time-intensive activity.
- The Plan Tracker system does not provide notification reminders for when DEC must respond to the applicant or when the applicant must provide a report. Currently these must be managed through third-party reminders (e.g., Outlook).

- Plan information is currently split into three systems: SEPTS for conventional construction, the current Plan Tracker database, and a much larger repository of historical plan tracking information stored in SQL Server database which is accessible through a Microsoft Access interface. The Access database can only be loaded on Tonya's laptop, thus significantly restricting the ability to retrieve this information.
- Plan fee collection requires manual processes to generate invoices and enter mailed-in payments (only one DEC staff member can accept credit card payments over the phone).
- Conventional septic system installers are required to provide 24-hour notification prior to beginning construction. This notification is received through a variety of channels (email, fax, phone, in person), and them must be manually entered into the Certified Installer database .

2.6.4 System Needs

The following capabilities should be provided by the future information system:

- Merge all content of the current Plan Tracker, SEPTS, and the Access database into one unified system, or at a minimum make all data available for reporting across the systems.
- Online forms to capture all information for 24-hour notifications, conventional septic tank registrations, and engineering plan requests.
- Automated processes to import information captured from online forms into the system of record.
- System-generated notifications for when DOW must respond to the applicant.
- Automatic correspondence emailed to applicants when additional information is still needed or when reports are due.
- Online payment that captures all fees at the time the application is submitted (where possible), thus alleviating the need for manual invoicing and fee collection processes.
- A system to link facility plan reviews with the DROPS database information for domestic and industrial permittees to ensure Plan Review has been completed and applicant has applied for any required permits.
- A public side that allows them to see the progress of a plan review including viewing documents that were submitted with the application.

2.7 Cruise Ship Program

2.7.1 Overview

The Commercial Passenger Vessel Environmental Compliance Program (Cruise Ship) is a program under the Compliance and Enforcement Section and is managed by Ed White with a staff of three people all located in Juneau. The Program manages all discharges (except oil) from cruise ships sailing in State waters, including air emissions, wastewater discharges, and generated solid wastes.

Approximately 1.2 million passengers visit the State by cruise ship each year. The Cruise Ship Program was originally established in 2001, and therefore pre-dated the State's NPDES program delegation in 2006. As a result, the program's business workflows, especially with respect to compliance activities,

historically aligned to the practices followed by air emissions regulatory programs, but this is now changing.

Cruise ships are regulated by the Program under federal law which specifically gives the State of Alaska authority to regulate discharges from these vessels outside of the Clean Water Act, and they are not therefore issued APDES permits. Instead, all vessels are required to submit a registration to DEC. To get approval to discharge wastewater the larger ships must also obtain authorization to operate under a state general permit issued by DEC, while smaller ships are required to submit a Best Management Practices (BMP) plan to document their pollution control systems and safeguards.

- Large cruise ships are required to register and then obtain individual authorizations with specific conditions under the Large Commercial Passenger Vessel Wastewater Discharge General Permit (2013DB0004) prior to discharge. Authorizations are valid for the length of the permit, but registration must occur each year. (about 5 new authorizations are processed each year, with 40 registering).
- Small cruise ships that discharge wastewater are required to register with DEC and file a BMP (about 16 cruise ships and 5 passenger ferries file BMPs per year).
- Small cruise ships with less than 250 passengers and which do not discharge wastewater are simply required to register with DEC (there are 2 vessels that file these registrations).

In addition to managing the above authorizations and registrations, the Program has other responsibilities including research and analysis of the impacts of the cruise ship industry on the waters and communities of the State. This analysis might include assessing the shoreside impacts of large numbers of cruise ship passengers visiting very low-population towns. They also advise ship operators on the development of effective BMP plans, which can allow some to avoid the need to obtain a permit authorization.

The Program also manages the Ocean Rangers program. This program sends marine engineers onto cruise ships to monitor, inspect, and provide reports back to the Cruise Ship Program regarding the vessel's compliance with the terms of their authorization or BMP. The Program provides a significant amount of training for the Ocean Rangers. The program is funded through a $4 per-passenger fee collected by the State from all commercial cruise ships. This fee also partially funds the larger Cruise Ship program, along with the additional Commercial Passenger Vessel Environmental Compliance (CPVEC) program fee of $1 per passenger.

Finally, the Program also operates a small onboard inspection program to monitor operations and take discharge samples. Enforcement actions are taken primarily in response to discharge (air and water) violations.

2.7.2 Workflow

All cruise ship registrations are received through the OASys online application system, which also tracks the registration fees that are due and allows for online payment. If the ship will discharge, they must file the NOI or submit their BMP plan by email at least 30 days before the expected discharge date. Additional documents must also be provided either during the registration process or with the NOI/BMP. Examples include waste offload plans, sampling information, and quality assurance project plans (QAPPs). Federal rules do not require the operator to provide this documentation in a standard format and Program regulations require acceptance of alternative formats, so reviewing the amount of information provided can be a significant burden on the Program.

The Program reviews the information submitted and will reach out to the operator to revise applications or gather more information if required. For coverage under the general permit, if the NOI is approved, then a formal authorization is generated and sent to the operator along with a copy of the general permit.

No registrations, general permit authorizations, or BMPs are currently managed in DROPS. Although a module in DROPS was used at one time, data management is now done using Excel spreadsheets. No data is entered into ICIS-NPDES for the cruise ship program. The agency CATS system is used for public complaint tracking, with the majority related to air emissions.

General permit authorization documents are also uploaded annually to the publicly-available Water Permit Search application (https://dec.alaska.gov/Applications/Water/WaterPermitSearch/Search.aspx). The Program also provides written summaries of sample results and compliance activities on the agency web site. Sample result summaries are manually input from ship supplied sample reports.

Larger cruise ships (over 250 passengers) which obtain coverage under the general permit are required to submit DMRs for their discharges, and for ships over 500 passengers,the Coast Guard requires sampling to be conducted by independent contractors rather than crew.

Smaller vessels operating under a registration with a BMP filed with the Program do not file DMRs but do have to send in sample results on a periodic basis as a condition of their BMP.

The volume of discharge sampling reports and other types of compliance report received from the vessel operators is significant, with approximately 10,000[2] reports being received annually via email or in hard copy format.

2.7.3 Challenges

The following challenges were identified during the requirements gathering session:

- Discharge limits are defined in a unique way for mobile cruise ships and this makes it impossible to use typical electronic reporting solutions for DMRs such as NetDMR. This also contributed to the previous difficulties encountered when trying to use the DROPS system to manage these authorizations. For example, permit limits and permitted types of discharge are defined based on operating circumstances such as vessel speed. For example, treated sewage discharge is only permitted when the vessel is travelling at greater than 6 knots, otherwise only greywater can be discharged. Permit limits may also change based on the vessel location. For example, Skagway may have different discharge limits than Juneau.
- There is no integrated data store that consolidates registration data with authorizations and compliance reports. Registration data for online submissions is managed in OASys and authorizations and compliance reports such as BMPs are tracked in Excel. DMRs and sampling data is only available in hard copy form. This makes access to data and reporting about the program as a whole very difficult.
- Applicants sometimes have issues uploading documents to OASys, possibly as a result of size limitations, and end up emailing them to the Section.

[2] This will drop to approximately 2,500 reports with the abolition of the Ocean Rangers program.

- Although the Section collects a large volume of compliance reports and monitoring data, this data is received almost entirely through email or hard copy, making oversight of compliance reporting requirements very difficult.
- Fee information collected in OASys is not automatically integrated with the agency CRITTS system, leading to inconsistencies in billing.

2.7.4 System Needs

The following capabilities should be provided by the future information system:

- The system should provide a consolidated source of information for the entire cruise ship program including information on registrations, authorizations, BMPs, monitoring reports, and DMRs.
- The system should provide comprehensive data access and reporting to allow effective oversight and management of the program.
- The system should support online reporting for all types of compliance reports and monitoring data submissions. The system should also enable the Section to collect air emissions data electronically.
- The system should enable automated generation of authorizations and other correspondence. This includes the management of boilerplate text that is common to multiple documents.
- The system should include an automated interface to the agency billing system to eliminate the need for manual reconciliation of data.

3 Compliance and Enforcement

3.1 Inspections

3.1.1 Overview

The Compliance Program is managed by Tiffany Larson and includes four sections; Enforcement, Inspections, Compliance Data Management, and the Cruise Ship Program. The Inspection Section is managed by Katrina Chambon with a total staff of six inspectors with four located in Anchorage and one in each of Fairbanks and Juneau, although all inspectors have statewide responsibilities.

The frequency and targeting of APDES facility inspections is clearly impacted by the geography and climate of the State of Alaska, with inspections of discharging facilities generally only conducted during months when receiving waterbodies are unfrozen. Facilities with permits that are oriented more towards the use of best management practices, rather than discharge limits, can be inspected year round.

Compliance has set an internal goal of 30 inspections annually for each inspector, for a total or around 168 for the 2019 calendar year. DOW permits approximately 60 major facilities with half being inspected every other year. The remaining inspections prioritize repeat violators, specific industries, and previously uninspected sites.

Few ad hoc inspections are conducted currently, although an onsite inspection may be scheduled in response to complaints received which appear to be valid.

Finally, the Inspections Section also provides significant compliance assistance to permitted facilities to help them maintain compliance with the terms of their permits. This work can involve onsite visits or telephonic assistance, both that take time from the other work of the Inspection section staff. Inspection staff also provide a significant amount of time taking complaints from the public regarding unpermitted facilities and on-site septic tanks.

3.1.2 Workflow

Inspection Preparation

When preparing for an inspection, the inspector will gather and review information from a variety of data sources:

- Water Solution/DROPS is used for information about the facility's permits and the permit conditions
- WPC is an electronic document repository on a shared network drive which is used to review permit documents, general permit authorizations, and related compliance reports. WPC can be reached directly from Water Solution.
- The publicly available Water Permit Search system is used to obtain general permit documents
- The US EPA ICIS-NPDES and ECHO systems are also used to review information about facilities, most notably for reported DMR data and DMR violations

DOW has developed a series of different inspection checklists for different types of facility, and the inspector will begin recording initial information on the relevant checklist for the type of facility they plan to visit.

Each inspector builds a printed hard copy of all of this information and complies a folder so that they have the information they need available when in the field.

Finally, the inspector will schedule a specific date for the inspection with the facility and will arrange travel logistics.

The inspector may provide advance notification to the facility prior to the inspection. Announced/unannounced inspections are the discretion of the inspector.

Conduct Inspection

The inspector begins by interviewing the facility representative, and reviewing operating and maintenance records and other paperwork.

The inspector will then inspect the facility with the representative and assess compliance with permit conditions, Best Management Practices, and other permit requirements. The focus of the inspector's work is on ensuring that the staff at the facility understand permit requires and applicable regulations. For example, the inspector will ensure that sampling is being conducted at the locations, and using the appropriate protocols. The inspection checklist or field logbook is used to record observations made during the inspection of the facility.

Inspections only rarely include sampling, although there is a desire to conduct more sampling in the future. Most inspections can be completed within approximately three hours, although can be longer when sampling is conducted or the complexity of the facility require additional time.

Finally, the inspector will meet with the facility representative to review the results of the inspection and consider any compliance issues that may have been encountered.

Prepare Inspection Report

Upon returning to the office, the inspector will write up the inspection report. This must be completed within 30 days of the inspection date for regular inspections, or 45 days if sampling was conducted during the inspection.

The inspection report includes observations made during the inspection of the facility and the review of facility reports and other materials, as well as photos taken while onsite, and identification of any compliance violations.

The completed report is sent to the facility by both email and hard copy along with one of three types of cover letter, with the last two being sent via certified mail:

1. If no compliance issues were found, a general acknowledgement letter in the form of an inspection report cover letter is provided
2. If minor compliance issues were found, the letter, in the form of a compliance letter, will identify these issues and specify actions needed to be taken by the facility by a specified deadline to resolve the issues
3. If significant compliance issues were found, a formal Notice of Violation is provided which will again identify the issues and specify actions needed to be taken by the facility to return to compliance as well as a deadline for compliance deliverables

The inspector enters data about the inspection into Water Solution and the inspection report is uploaded to the WPC folder. The inspector also emails CDS the inspection report and other details and CDS manually enters this information into ICIS-NPDES.

90% of major facilities that are inspected are typically in full compliance, but some 65% of minor facility inspections will identify some administrative violation, the majority of these being facilities with coverage under the multi-sector stormwater general permit.

Where specific compliance actions were documented in an inspection report, compliance letter, or Notice of Violation (NOV), these will be tracked by CDS in Water Solution/DROPS. The violations themselves are not tracked in Water Solution/DROPS, but schedules of compliance can be recorded. Violations are manually recorded in ICIS-NPDES by CDS, along with any informal enforcement actions that are taken.

Where a compliance issue or violation was identified during an inspection, the inspector will continue to work with the facility to ensure that the necessary compliance actions are completed, and once all required actions have been taken, CDS will close out the compliance schedule in Water Solution/DROPS and close out any violations in ICIS-NPDES.

If a facility fails to complete the actions required to return to compliance, a violation may be referred for formal enforcement. Formal enforcement activities will be conducted by the Compliance Program Enforcement Section (see below).

3.1.3 Challenges

The following challenges were identified during the requirements gathering session:

- Access to Water Solution/DROPS requires the user to be connected to the DEC network environment making it difficult to access information from the field.
- Violations are not currently tracked in Water Solution/DROPS and this information is therefore not readily available to the Inspection Section. This information must also be manually entered into ICIS-NPDES by CDS.
- Informal enforcement actions are not currently tracked in Water Solution/DROPS and this information is therefore not readily available to the Inspection Section. This information must also be manually entered into ICIS-NPDES by CDS.
- Compliance assistance visits are not currently tracked in any system, although this work represents a significant amount of time spent by the Inspection Section.
- Reporting and access to the information needed by inspectors in the existing systems is perceived to be limited.
- The information used by inspectors to prepare for inspections is managed in a variety of existing data sources making it time consuming and labor intensive to gather the data needed, although the implementation of Water Solution has improved this situation.

3.1.4 System Needs

The following capabilities should be provided by the future information system:

- The system should include an inspection planning component that can be used to streamline the process of identifying the facilities to be inspected during a given calendar year based on the dates of prior inspections and other factors (currently being added to Water Solution).
- The system should support the tracking of violations identified during inspections and informal enforcement actions that are taken in response to those violations.
- The system should be fully Web enabled and accessible from outside the DEC network environment. Certain data and functions in DROPS are now available through the new Water Solution Web interface, but other functions are only available through the DROPS Windows application interface, and all functionality is only available within the DEC network or over VPN.
- The system should provide a consolidated repository of all information needed to support the APDES program, including the data currently managed separately in DROPS and ICIS-NPDES, as well as applications, permits, compliance reports, and other documents.
- The system should provide improved access to data and reporting when compared to the existing systems. Reporting capabilities should include support for data analysis and the provision of key program performance metrics.
- A dashboard should be included for inspectors to be able to easily view their schedule of inspections, the timing for any required compliance actions, and other key activities and responsibilities.
- Document generation capabilities should be provided to allow inspection reports and cover letters to be pre-populated with information from the database about the facility, the permit, the inspection, any violations, and other information.
- The system should be able to track logistical information about inspections, including the time taken and other expense information.
- Although of less importance, the ability to record inspection observations in the field using mobile devices would also potentially be valuable.
- The system should be able to track all types of compliance monitoring activity conducted by DOW staff, including regular and complaint inspections, and compliance assistance visits.
- All data managed in the local system should be automatically reported to ICIS-NPDES with no need for manual data management in the EPA system.

3.2 Compliance Data Management

3.2.1 Overview

The Compliance Data Section (CDS) is managed by Lisa Hart, and serves as the primary conduit between WDAP and the Compliance and Enforcement Section-to ensure that all permit, inspection, and enforcement information is accurately captured where possible in the DROPS system and also reported to the EPA ICIS-NPDES system in a timely manner to meet DEC's reporting obligations under the delegated NPDES program.

This Section is also responsible for managing the collection, review, and submission of compliance reports required of facilities permitted by DOW under the NPDES program. These include discharge monitoring reports (DMRs) as well as annual reports submitted by Municipal Separate Storm Sewer

Systems, facilities subject to pretreatment requirements, and municipal facilities with periodic Sanitary Sewer Overflows.

Collection of DMRs is handled primarily through NetDMR, a system hosted by US EPA. Other compliance reports are collected through various means, most received as paper hardcopies with some received via DEC's OASys online reporting solution. Limited information about each report is managed as compliance schedules in DROPS and as narrative conditions manually entered into ICIS-NPDES by CDS.

Beginning in December 2020, Phase 2 of the eReporting Rule will require that all program compliance reports be submitted to DEC electronically by facilities unless a waiver is specifically granted to the facility. Additionally, more detailed information will need to be reported to ICIS-NPDES. These new requirements will necessitate changes to the current business workflow described in the following section.

3.2.2 Workflow

Discharge Monitoring Reports

Discharge monitoring reports (DMRs) are required from facilities to demonstrate compliance with permit limits. DMRs are required on an annual, quarterly, or monthly schedule, with most being submitted annually. As permits are issued, there is typically a great deal of interaction between the relevant permitting section and CDS to ensure that the correct reporting requirements/schedules and limits/parameters are captured correctly in DROPS so that the information will either be uploaded correctly to ICIS-NPDES through the Exchange Network data flow, or where be manually entered in to ICIS-NPDES correctly.

To meet the electronic reporting requirements of Phase 1 of the eReporting Rule, DOW began requiring DMR reports to be submitted through the US EPA NetDMR system starting in 2017. The majority of DMR reports are now received through NetDMR, which handles both the collection of reports as well as the submission of report data to ICIS. A small number of facilities continue to send in paper DMR reports which are then manually entered into ICIS-NPDES.

At the same time a permit goes into effect, if the facility has DMR reporting requirements,CDS will provide outreach (via email and followed up with telephone calls) to the facility to ensure the DMR reporting requirements are understood. This often requires assistance with NetDMR registration and utilization.

ICIS-NPDES automatically generates violations for non-reporting of a required DMR, or where a reported DMR value exceeds a permit limit. Certain of these violations will be categorized as Reportable Non-Compliance (RNC). ICIS-NPDES will flag those facilities who show repeated RNC violations, and where limits and standards are exceeded consistently as being in a state of Significant Non-Compliance (SNC).

The Data Management Section may refer SNC facilities to the Compliance Program Enforcement Section for formal enforcement if appropriate.

Program Reports

Program reports that are required to be submitted to DOW as conditions of various types of permits are currently received in several ways. Most required reports are mailed to the agency as hard copies, or emailed as PDFs. The Stormwater Industrial Permit Annual Report can be received electronically through OASys. Reports can also be submitted as attachments to annual DMR submittals, although this is not common.

The program reports are reviewed for compliance with permit conditions and are filed in the WPC document repository.

The receipt of a program report is tracked in DROPS as a compliance schedule, with scheduled due date and actual receipt date. Detailed program report information is not collected in DROPS currently. The report is then manually entered into ICIS-NPDES by CDS as a narrative condition.

Self-Reporting

Facilities may self-report instances of non-compliance (e.g., unplanned discharges) to DOW, either by mailing or emailing a notice or by submitting a notice through OASys. When submitted through OASys, these notices are not automatically integrated with DROPS.

The notice is saved to the WPC document repository in the compliance tracking folder for the facility, and may also be logged to the Complaint Automated Tracking System (CATS).

ICIS-NPDES Data Entry

Compliance reports received by DOW are currently entered manually into ICIS-NPDES by CDS as narrative conditions.

3.2.3 Challenges

The following challenges were identified during the requirements gathering session:

- Although OASys is technically capable of electronically collecting a wide range of compliance report documents, additional resources will be needed to support additional report types beyond the Stormwater Industrial Permit Annual Report received currently.
- Data about the Stormwater Industrial Permit Annual Reports that are received through OASys today does not integrate with the DROPS database and is therefore not readily available to DOW staff.
- The existing automated data flow to ICIS-NPDES does not support the extract of the compliance schedule information that represents the receipt of program reports, meaning that this data has to be manually entered into ICIS-NPDES by CDS.
- DROPS does not support the full range of detailed information that is to be collected on program reports in order to meet the requirements of Phase 2 of the eReporting Rule. Either DROPS will need to be enhanced to include these fields or CDS will need to manually enter the additional detailed information in addition to the narrative conditions entered today.
- DMR data that has been reported to the EPA NetDMR system is not readily available to DOW staff who do not have access to the ICIS-NPDES system. The DMR data download that was previously developed from ICIS-NPDES to DROPS is not used by staff.
- There is currently no clear way to view all of the program report requirements under a given permit and the status of those reports, i.e., whether a report has been received, whether it was acceptable, and so on.

3.2.4 System Needs

The following capabilities should be provided by the future information system:

- The new system must support electronic submission of all types of required program reports and notices of non-compliance.

- Information collected online via OASys should be automatically flowed into DROPS to alleviate the need for CDS having to manually key in these submissions.
- All data managed in the local system should be automatically reported to ICIS-NPDES with no need for manual data management in the EPA system by CDS.
- The system should provide improved access to data and reporting when compared to the existing systems. Reporting capabilities should include support for data analysis and the provision of key program performance metrics.
- A dashboard should be provided to be able to easily view the schedule of expected reports for each permit as well as the status of the report.

3.3 Enforcement

3.3.1 Overview

The Compliance Program Enforcement Section is managed by acting supervisor Jon Wendell with a total staff of three enforcement officers with one located in Anchorage and two in Juneau, although all enforcement officers have statewide responsibilities.

Enforcement actions may be taken against a facility when it is found to be out of compliance with a regulatory requirement of the APDES program. Enforcement actions can be broadly defined in two categories: Informal and Formal. The type of action that is appropriate will depend on the specific type of compliance issue, the degree of non-compliance, and whether the issue is recurring, among other factors.

Informal Enforcement Actions

The Compliance Program Inspection Section will initiate and manage informal enforcement actions that may be taken against a facility based on the observations made during an inspection. Notices of Violation (NOV)[3] may be issued requiring specific actions by the facility in order to return to compliance. The facility's responses to the requirements of the NOV will be reviewed by the inspector.

In cases where the facility does not respond to the requirements fully or completely, the inspector may refer the compliance issue or issues to the Enforcement Section.

CDS or other sections may also refer instances of significant non-compliance to the Enforcement Section for formal enforcement. For example, violations that may be identified on reported DMRs can be referred for formal enforcement if deemed appropriate.

Formal Enforcement Actions

Prior to the separation of compliance and enforcement responsibilities, formal enforcement becomes necessary for approximately 10% of inspections.

The Enforcement Section is responsible for developing and managing formal enforcement actions that may be taken against a facility under certain circumstances when a violation of some APDES program requirement is not addressed adequately or in a timely way. Formal enforcement actions often specify a schedule of specific actions to be taken by the facility to return to compliance. These actions typically

[3] Technically an NOV is considered formal enforcement according to the APDES Compliance and Enforcement Manual. However, EPA regards these actions as informal enforcement and they are presented as such here.

also establish some penalty for the incidence of non-compliance, and in some cases will involve legally binding agreements with the facility.

3.3.2 Workflow

When a referral for formal enforcement is requested, the inspector will draft a referral letter that is reviewed with the Inspector Manager. After confirmation, the referral is sent to the Enforcement Manager for review. Approved referrals will have an enforcement officer assigned to the case, The Program Manager will send a separate referral letter to the Department of Law (DOL) requesting the assignment of an Assistant Attorney General (AAG).

During a subsequent DOL briefing meeting, the inspector and enforcement officer will brief the AAG on the specifics of the case, and the type of enforcement action to be taken will be agreed.

There are three types of formal enforcement action that may be taken:

Settlement Agreement (SA)

A Settlement Agreement is a formal enforcement action taken after violations are observed and documented, the permittee or responsible party addresses the noncompliance, the noncompliance no longer exists, and the activity is no longer occurring. Rather than taking the case to court, all parties agree to a settlement.

Expedited Settlement Agreement (ESA)

This type of action provides for a streamlined process which does not involve formal legal adjudication of a case, and will be used for compliance issues where some penalty is involved. Templates have been developed for some general permits that will cover the typical terms and conditions of the action and associated penalties.

If an Expedited Settlement Agreement (ESA) is deemed appropriate, the enforcement officer will develop a formal ESA document that lays out the penalties. This process does not involve discussions with the facility. This offer is then presented to the facility with the understanding that formal enforcement through other avenues will be more costly.

If the ESA penalty amount is agreed upon, the ESA document is sent to the facility responsible party for approval and signature, followed by the DOW Director, and finally the DOL AAG. The final document is then issued to all parties with signatures.

Compliance Order by Consent (COBC)

This type of action will be used in more complex or serious situations which require a legal settlement between the agency and the facility.

If a Compliance Order by Consent (COBC) is deemed appropriate, a request to DOL is made for the assignment of an AAG in a similar fashion explained above. Once an AAG is assigned and briefed on the specifics of the case, an Offer to Confer letter is then sent to the facility from the Department of Law inviting them to engage in discussions with the agency to review the violations and possible next steps.

Once the violation(s) and compliance schedule have been negotiated with the facility, the DOL attorney develops the formal COBC document that lays out the required compliance actions and penalties.

The final document is issued once the COBC has been signed by the facilities responsible party, the Division of Water Director, and finally the Department of Law AAG. The final document is then issued to all parties with signatures.

Post-Issuance Processes

Regardless of the type of action that is taken (SA, ESA, COBC), the enforcement officer then monitors the facility's compliance with the terms of the settlement. Information about formal enforcement actions is tracked by the Enforcement Section using an Excel spreadsheet and, in limited fashion, in Water Solution.

CDS will also record the compliance schedule in DROPS and will record the formal enforcement action and compliance schedule into ICIS-NPDES. In instances where the enforcement action is being taken against an unpermitted facility, then an AKU permit number is first assigned to the facility to allow entry of data into DROPS and ICIS-NPDES.

3.3.3 Challenges

The following challenges were identified during the requirements gathering session:

- Some formal enforcement action information can be tracked in Water Solution/DROPS, but some supporting data is not supported and is instead tracked in an Excel spreadsheet, and in ICIS-NPDES. This makes it difficult for staff and management to have a view of the status of all enforcement activities being undertaken by DOW, or to be able to view the full enforcement history for a facility.
- Because DROPS does not support all the information that is needed about formal enforcement actions, CDS must manually enter this information into ICIS-NPDES in order to meet reporting obligations.

3.3.4 System Needs

The following capabilities should be provided by the future information system:

- The new system should support comprehensive tracking of all types of enforcement actions, penalties, and associated compliance schedules. The system should also be able to record discussions with the facility.
- The system should provide improved access to data and reporting when compared to the existing systems.
- A dashboard should be included for enforcement officers to be able to easily view the status of their enforcement actions and the schedule for any required compliance actions.
- Document generation capabilities should be provided to allow enforcement documents to be created and pre-populated with information from the database about the facility, the permit, the inspection, any violations, and other information.
- All data managed in the local system should be automatically reported to ICIS-NPDES with no need for manual data management in the EPA system.
- The system should include automated notifications to both agency staff and the facility for scheduled compliance submittals or actions.
- The system should provide a consolidated repository of all enforcement related information, including the data currently managed separately in DROPS and ICIS-NPDES, as well as the enforcement documents currently managed in WPC.

- Security must be provided to ensure that only certain staff can see an enforcement action until it has been issued.
- The system should easy access to the current status of active enforcement actions.

4 Program Support

4.1 Invoicing

4.1.1 Overview

The Financial and Administrative Management Program is managed by Amber LeBlanc and includes three sections; Budget Support, Grants and Contracts, and Administrative Support. The Budget Support Section in Juneau is responsible for managing invoicing processes for the APDES program and interfaces between DOW and the DEC Division of Administrative Services (DAS). The primary financial data management system used by DAS to support DEC operations if the Cost Recovery Invoicing and Time Tracking System (CRITTS) which is used to track fee invoices issued for various agency programs. The CRITTS system replaced the BillQuick system at the beginning of 2019.

In general, fees are due with all applications for coverage under a general permit, as well as for plan reviews and certain other actions that may be required from DOW during processing of applications for individual permits. Fees are then also charged annually for permit authorizations that remain active.

4.1.2 Workflow

General permit authorizations and individual permits are entered into DROPS either manually by the permit writer, or in some cases are loaded automatically from OASys. Permitting staff must remember to notify the Budget Support Section about a new permit being issued or a new annual fee being due. A template report is available within DROPS that can be used to export the necessary information.

The Budget Support Section reviews and validates the required fee information which may require follow up with the permitting staff. They will then update the applicable fee information for the responsible organization in the agency CRITTS system, where for example, the applicable fee type changes. If a new responsible organization needs to be created, then the request is passed on to DAS staff for attention, although the Budget Support Section will then manage fees for the organization once it has been established.

The Budget Support Section is responsible throughout the year for reconciling information about organizations and fees that may be necessary due to events such as permit changes, terminations, name changes, and transfers of ownership. They are also responsible once a year for a manual reconciliation of information between DROPS and CRITTS with significant input from permitting staff.

Fees are initially due when an application is received. The fee amount varies for general permit authorizations based on the general permit type. Specifically for general permit authorizations, the full annual fee is due if the application is submitted on or before September 30th, but only 50% of annual fee is due if the application is submitted after September 30th. Fees are then charged annually on January 1st for all general permit authorizations and individual permits that remain in effect. For individual permits, the amount varies based on the actions required from DOW during application processing.

The invoices are generated by the CRITTS system upon request from the Budget Support Section and are mailed to the responsible organizations by DAS staff, with some being emailed.

Check payments are received by DAS by mail or hand delivery, and credit card payments can be made online or by phone. Payments are recorded in CRITTS.

The OASys system also supports online payment for the fees due with submission of some general permit NOIs. When this is supported, OASys transfers the user to the CRITTS online payment processor which handles the payment process and then passes the user back to OASys. Of the six NOI types supported by OASys, approximately 90% of the NOIs are accompanied by an online payment.

Invoice and payment information can be reported from CRITTS, although there is currently no automatic feed of this information to the DROPS system.

4.1.3 Challenges

The following challenges were identified during the requirements gathering session:

- The lack of an automated interface between DROPS and CRITTS can result in invoices being issued to the wrong responsible party, or with the wrong fees included, resulting in manual rework to correct.
- Fee schedules are not well maintained in DROPS and incorrect fees sometimes get applied on invoices.
- The need to manually reconcile information about responsible organizations and the applicable fees between DROPS and CRITTS also represents a significant resource demand for the Budget Support Section.
- Permitting and compliance staff do not have ready access to the status of invoices and payments in CRITTS and so this information cannot easily be referenced during permitting and compliance enforcement activities.

4.1.4 System Needs

The following capabilities should be provided by the future information system:

- The new system should be able to support two-way integration with the agency CRITTS system. This would allow information about responsible parties and fee schedules to be exchanged automatically, thereby eliminating the potential for mistakes or omissions in data entry.
- The new system should provide enhanced access to data and reporting capabilities, allowing permitting and compliance staff to easily see the status of invoicing and payments.
- The new system should provide better support for the management of the fee schedule across permits types and billing periods.

4.2 Water Quality Standards and Restoration

4.2.1 Overview

The Water Quality Standards, Assessment and Restoration Program (WQSAR) is managed by Nancy Sonafrank and includes four sections; Non-Point Source, Quality Assurance, Water Quality Standards, and Water Quality monitoring. WQSAR has a wide variety of responsibilities, including; collecting, analyzing, and reporting ambient monitoring data across the State, development of TMDLs, development of 303(d) and 305(b) reports, and development of water quality standards.

WQSAR and the Wastewater Discharge Authorization Program have a two-way data sharing dependency.

Support for Permitting

When developing permit limits and other conditions, permit writers will rely heavily on information provided by WQSAR about the water quality in the State. This includes Important information is provided to the permitting process, including; water quality standards, the designated uses of water bodies, and the location of impaired water bodies, and pollutant loading information (TMDLs), and other information. The permit writer may call upon WQSAR staff when there is a need to develop site-specific criteria for a permittee, or if standards adjustments are desired through variances or reclassifications.

WQSAR uses the Ambient Water Quality Monitoring System (AWQMS) database to manage ambient water quality information for use by DOW and for reporting to EPA's WQX database, and provides spatial tools for access to the data housed in the system.

Support for Water Quality Analysis

In return, the permitting process provides WQSAR with important information that is used when developing assessments of the condition of water bodies of the State. This includes the location of outfalls, the shape of mixing zones, the permit effluent limits, about the location and the types of discharges to the State's water bodies. This information is used when developing assessments of the condition of water bodies of the State. This information about permits and limits is used by WQSAR to understand pollutant loading impacts on receiving water bodies, as is the location of outfalls and the shape of mixing zones when defined by the permit writer.

As such, WQSAR has a keen interest in the information systems used by the permitting programs.

4.2.2 Challenges

The following challenges were identified during the requirements gathering session:

- Although DROPS can track the location of permitted features, HUC codes, and receiving water body, this information is often poor quality.
- There is currently no way to track the shape and location of discharge mixing zones.
- WQSAR staff does not have ready access to permit conditions beyond the basic limit data that is defined in DROPS.
- Ambient monitoring data that is provided by permittees along with applications and/or as a requirement of a permit (independently of DMR reporting requirements) is typically maintained in spreadsheets and is not readily available. This is especially relevant for oil and gas wells and mining facilities.
- It is often difficult to determine cumulative loading impacts of multiple permitted facilities on a common waterbody.

4.2.3 System Needs

The following capabilities should be provided by the future information system:

- The system needs should provide spatial mapping tools to allow users to accurately locate points of discharge and monitoring points, as well as the specific receiving water body.
- The system should also be able to track mixing zone polygons when defined by the permit writer.

- The system should provide a comprehensive repository of all permit condition information and provide ready access to that information through reporting.

4.3 Water Information Management (WIM)

4.3.1 Overview

The Water Information Management (WIM) Team consists of three staff, all based in Juneau: Anton Doiron (manager), Forrest Wilcox, and Travis Michel. The team is charged with supporting DOW information technology requests, which range from individual user technical support to full system development. They report directly to the Division Director.

The WIM Team develops and manages the following portfolio of applications:

- Discharge Results and Online Permit System (DROPS)
    - The water permitting system of record, first established in 2011.
    - Windows application with a SQL Server database backend.
- Online Application System (OASys)
    - DOW's electronic reporting web application. Receives all online submissions from facilities, including applications for construction stormwater permit coverages.
- Water Solution
    - A Web-based user interface for managing information stored in the DROPS database. This system is continuing to be developed, with functions being gradually implemented as they are completed.
    - Initial focus was on supporting the inspection program where it is presently used. The current focus is on extending functionality to include all permitting functions, with the eventual goal of fully replacing the DROPS user interface.
- Water Flow
    - A Windows application whose primary purpose is to move data from one database to another. This is used by OASys to send the data it receives into DROPS.
- Water Notify
    - A Windows application that sends out notifications (e.g., emails) when certain events occur. This can be used for example to send out an email when a permit is due to expire and the facility must apply for a renewal within 180 days of the expiration date.
- Water Schedule
    - A Windows application that manages scheduled tasks within Water Notify.
- Reportal
    - A web interface allowing the public to access reports developed in SQL Server Reporting Services (SSRS).
- SEPTS
    - An online application that stores scanned septic tank Documents of Construction and makes them available to the public.

- Water Permit Search
    - An online portal allowing the public to view scanned water discharge permits.
- Plan Tracker
    - An online application used by the Engineering Plan program to enter facility and project information for proposed septic tank installations.
- Alaska Clean Water Actions (ACWA)
    - Internal web application that tracks waterbodies and their statuses, used by the WQSAR program.

In addition, the WIM Team may have a small amount of involvement with applications developed or externally managed by third party contractors::

- AWQMS
    - Tracks water quality information and provides information to satisfy WQX reporting requirements.
    - AWQMS is provided and supported by Gold Systems, Inc.
- Loans and Grants Tracking System (LGTS)
    - Payment requests, loans, and grants information is flowed from OASys to the LGTS database by the Water Flow application.
- OpenNode2
    - Online application that manages DEC's Exchange Network flows: BEACHES Notification, ICIS-NPDES, and ICISDA.
- OPCERT
    - Tracks operator certifications.
    - License with Wostmann & Associates, Inc.

4.3.2 Workflow

The WIM team uses an Agile-based approach to managing incoming information system support requests. Requests are entered into Jira, a third-party issue management tracking system. At the beginning of each month, the WIM team meets to review existing requests and priorities for that month based on email and phone communications with the managers of the various requesting Sections within DOW. Based on these priorities, a month-long sprint is planned to address these requests in priority order. The compliance group has been particularly engaged with the WIM Team recently, so that has helped to determine their focus over the most recent sprints. Resources are allocated with time to spare in order to allow for the team to address urgent tasks that come up during the month that cannot wait for the next sprint.

The sprints are managed on two Jira boards, one for Water Solution (due to the volume of requests) and one for everything else. During the month, the team will work on the stories (i.e., development tasks) scheduled for the sprint. As questions arise about a given story, the team will attempt to contact the requestor for more clarification via phone conversations. If more clarification cannot be obtained, the team will move on to the next task until that question can be resolved.

No formal "Product Owner" has been appointed for the portfolio of systems supported by the WIM Team as would be the case in a typical Agile development environment. As a consequence, the WIM Team works independently during each sprint according to the priorities that are understood from the sprint planning meeting.

The WIM Team established an entity framework data access layer for the DROPS database that other applications utilize in all communications to/from DROPS. This enables quick mapping of data elements between systems so long as the data elements are well-understood and already exist in DROPS. In theory, a new data form could be established in OASys and mapped into DROPS very rapidly. This assumes however that the requestor is able to quickly respond to questions and that the data element already exists in DROPS. In reality, the OASys form designing process tends to take significantly longer.

Once a function is completed, it is made available in a testing environment and validated by the team that requested the functionality, and then rolled out to the production application. The WIM Team promotes quick development and transparency through iterative releases.

4.3.3 Challenges

The following challenges were identified during the requirements gathering session:

- Water Solution is a work in progress and does not yet address the needs of all stakeholders. As a result, the permitting functions must still be carried out in DROPS, which is not well understood by all users. Water Solution is intended to eventually fully replace the DROPS user interface, so any issues with DROPS will only be addressed if they are particularly urgent.
- There are concerns that reports that present inaccurate data have not yet been corrected and are displaying in Water Solution. This is because the reports displayed in Water Solution are in fact the original DROPS reports, and this gives the impression that data quality issues may persist since the original code behind the reports has not yet been updated.
- Requests for new reports must go to the WIM Team and be prioritized amongst the stories for new development in Water Solution and other more urgent support requests. There is also a need for additional ad hoc reporting capabilities to enable users more independence in pulling data from DROPS to support daily work activities and special data requests.
- Based on our discussions, it appeared that the lack of a formal Product Owner impacts the efficiency of the development lifecycle, with the Compliance Section being a notable exception. Functions must be released in order for users to use them and for the WIM Team to then get feedback on what needs to change. These change requests then get added to the Jira backlog and must be prioritized amongst other potentially more urgent requests. It was noted during some of the requirements sessions that these competing priorities would on occasion lead to issues with newly developed functions remaining unresolved, thereby limiting use of potentially valuable new functionality.
- Prioritization of WIM Team tasks is performed across all tasks and all stakeholders. While this approach is fair and objective, DOW does not appear to have defined an overall road map aligning all tasks with clear stakeholder goals. Some tasks are not conducive to a month-long sprint and may require a longer timeframe and involve several different systems.
- Inspectors noted that they would like to be able to access Water Solution when they are in the field so they can obtain information that they didn't initially anticipate needing before departing for the inspection. This can be useful for situations when an inspector is in the field and discovers a potential compliance issue for a different site or when they are weathered-in and

have the opportunity to perform an inspection for a different permittee. Water Solution can only be accessed on Alaska's network or through VPN, neither of which are options available to inspectors in the field.

4.3.4 System Needs

- The Agile methodology recommends that a Product Owner be actively engaged with the development team on a regular (i.e., daily) basis. This person is empowered to speak on behalf of the business user stakeholders of the system under development, and can therefore make decisions regarding priority of development tasks (i.e., "stories"), how the features under development should work, and whether a feature can be considered to be "done." Engaging a Product Owner for the overall DOW systems portfolio of existing systems and the related development efforts would yield significant benefits to the WIM Team in terms of efficiency as well as completeness of efforts.
- A clearly-articulated and well-communicated roadmap for the systems being developed and supported by the WIM Team would promote sustained attention to larger development objectives. For example, if data quality issues are due to insufficient data capture in an online form, then a roadmap can express the priority of online forms in the context of the larger goal of improving data quality. This would then allow the WIM Team to prioritize online forms ahead of more reactive efforts to address the problems caused by insufficient data capture.
- Stakeholders have shared concerns with their inability to access the data in DROPS as well as the accuracy of the data provided by the available reports. These concerns would be best met through dedicated involvement of the Product Owner and a holistic approach to managing data. Issues with data access could be due to many reasons, including lack of sufficient existing reports, lack of understanding of how the existing reports should work, or lack of sufficient functions for users to independently query the data (i.e., "ad hoc" reports). Issues with data accuracy could similarly be due to many reasons, including inaccurate or insufficient data capture, misunderstandings of how the data is managed in DROPS (e.g., putting the right data into the wrong field), or errors in the queries used to generate the reports. A product owner with sufficient understanding of program metrics should be able to assist the WIM Team in reviewing the entire process of capturing, managing, and presenting data so that the issues are understood and can be addressed as actionable development stories.
- The permit management features planned for Water Solution will address some of the most critical issues voiced during other requirements sessions in regards to difficulties getting information into DROPS. These features should be implemented as soon as possible.
- Water Solution is a web application, but it cannot be used outside of the DEC intranet or VPN. Many stakeholders make frequent field visits to facilities where an intranet connection is unavailable. Making certain features available to users who authenticate over the public internet (e.g., reports) would provide field users access to valuable facility information that must otherwise be printed in advance of the field visit.

5 Summary

DOW operates a diverse and complex set of permitting and compliance programs under federal NPDES and State regulations including, Wastewater Discharge Authorization, Engineering Support Plan Review, Cruise Ship, Inspections, Enforcement, Compliance Data Management, Water Information Management, and Water Quality Standards, Assessment and Restoration. These programs are managed by well-established business processes and are supported by a set of information systems that provide important functionality which assists with the program implementation.

However, these DOW programs are currently facing two key challenges; first, the need to meet the requirements of the NPDES eReporting Rule, and second, the need to modernize and enhance the existing information systems infrastructure to better support today's business needs.

eReporting Rule

With the implementation of the NPDES eReporting Rule, including the Phase 2 implementation deadline of December 2020, EPA requires DEC to make changes to information systems and business practices in order to meet the new reporting requirements, including supporting additional data elements, providing electronic reporting capabilities, and enhancing data submissions to the national ICIS-NPDES system.

Systems Infrastructure

The information systems that currently support the WDAP and Cruise Ship program are not well integrated and in some cases rely on outdated technologies. Program staff find the systems inefficient to use, with duplication of data entry often being required, and lacking important functionality.

The purpose of this project is to assess how the data systems and processes currently used by the WDAP and Cruise Ship Program can be enhanced to meet both of these two challenges, and to address the following critical data management system requirements:

- Centralized Entity and Facility Management Integration
- Centralized Invoicing
- Compliance and Enforcement Management Integration
- Data Management
- Discovery Management
- Document Management Integration
- Mobile Technology
- Online Portal for Applicants and Regulated Community
- Online Public Portal
- Permit and Authorization Administration
- Plan Review and Tracking
- Reporting to EPA

The purpose of this phase of this project is to assess the current business workflows and information systems used to support the WDAP and Cruise Ship programs. This was accomplished by working with each of the individual organizational sections with responsibility for these programs to understand the current operations and the challenges facing those operations, with a view to defining the critical needs for a new information system environment.

A number of key observations can be made by considering the conclusions detailed earlier in this document.

Comprehensive and Integrated Data Management

A common observation across most of the individual sessions was that the primary current system, DROPS, does not support all of the data elements needed by the programs. For example, compliance violations identified during inspections, or the non-limit or narrative conditions defined by a permit. Participants noted that better support for critical program data elements would greatly improve the utility of the systems.

Similarly, another common requirement was for greater integration between the existing systems. For example, the OASys online submission system collects a significant amount of information from NOIs but, in all but a few cases, this information is not automatically loaded into the primary DROPS system, requiring CDS staff to manually enter information which is time consuming and inefficient.

Online Application and Report Submission

As noted above, the OASys online submission system supports the electronic collection of data in a number of program areas. However, not all general permit NOIs are supported and not all periodic program compliance reports are supported.

Being able to collect applications and reports electronically is important to DOW in terms of general program efficiency and meeting demands from the regulated community for eBusiness, this is also a key requirement of the eReporting Rule.

Data Access and Reporting

Participants in the working sessions universally highlighted access to data as a critical challenge in the current information systems environment. The existing DROPS and OASys systems lack comprehensive reporting capabilities, and staff have limited confidence in the data that is available through the reports that do exist. In addition, access to the DROPS and ICIS-NPDES systems, where most program data is managed, is limited, with requests for information often having to go through a few people.

The lack of easy access to quality information about the program causes inefficiency, wastes considerable effort, and could potentially impact the effective implementation of the program.

Leverage Spatial Tools and Resources

Reliable, accurate location information is a critical need when managing the impacts to natural resources associated with wastewater discharges. This includes good information about the location of discharges, as well as good information about the location and condition of natural resources, such as protected species habitats, impaired water bodies, and so on.

Participants noted that greater use of spatial mapping tools and accurate spatial data in information systems would greatly enhance permitting decisions as well as better supporting water quality assessments. These tools should be available both to the regulated community during the application process and to staff during permit development.

Billing System Interface

DEC has recently migrated billing systems from the BillQuick System to the CRITTS system and the DROPS system has no automated interface to either of these systems. This presents CDS staff with a

significant manual data entry burden to ensure that the primary program system and the billing systems have consistent records of permittee contact information and the appropriate fees.

In addition to the cost to DOW in terms of staff labor needed to duplicate data in the two systems, there is also the very real risk that fees are not being assessed correctly.

EPA Data Reporting

The existing automated data flow from the DROPS system to ICIS-NPDES was initially established in 2015. For a number of reasons, the current data flow does not support the full range of data currently managed in DROPS, and there are a number of unresolved issues in the translation of data from DROPS into the data format required by ICIS-NPDES. This necessitates manual data entry into ICIS-NPDES by CDS which is time consuming and inefficient.

Further, as additional program data elements are supported by the DOW information systems, and new data elements are required by the ICIS-NPDES Exchange Network data flow, the current data flow will need to be extended to support these elements.

These observations and the other requirements identified during this first requirements analysis phase will be used to direct the second phase in the project, which will explore alternative approaches that may be taken to meet the defined information system needs. Different options will be considered that can both support the business workflows described in this document and ensure compliance with the eReporting Rule. Such approaches might include development of a new custom solution, extension of the existing systems, or selection of an existing COTS solution, among others.