Iowa Department of Natural Resources

Air Quality Bureau

Critical Success Factors

For the

DNR_eAirPermitting Project
Phase I Requirements for Electronic Construction Permit and Title V Applications

Revised

7/22/2016

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Table of Contents

Index of Tables and Charts

Revision History

Author	Date	Change and Reason	Version
LeAnn Larsen	04/15/2016	Critical Success Factors	1.0
LeAnn Larsen	05/04/2016	Changes from Project Team	1.1
LeAnn Larsen	05/12/2016	Changes from Project Team	1.2
LeAnn Larsen	6/27/2016	Changes from Project Team	1.3
LeAnn Larsen	7/22/2016	Correction	1.4

Glossary

Assign Date	Date an Air Quality staff member is assigned to a particular permit application
Benchmark	Recorded state of something at a specific point in time
Greenfield facility	Facility being built on agricultural land, forest land or some other undeveloped site. *Iowa DNR Air Quality Bureau Construction Permit Training Manual*
Middleware	Software that enables two separate programs to interact with each other such as desktop software and internet browser software
NA NSR	New Source Review Permits in non-attainment areas are referred to as Non-attainment New Source Review permits.
PSD	New Source Review Permits in attainment or unclassifiable areas are referred to as Prevention of Significant Deterioration (PSD) permits. *EPA New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting*
Receive Date	Date an application is received at the Air Quality Bureau
SIP	The State Implementation Plan (SIP) identifies how the state will attain and/or maintain the primary and secondary National Ambient Air Quality Standards set forth in the Clean Air Act. *Iowa DNR Air Quality Bureau Construction Permit Training Manual*
SPARS	State Permitting and Air Reporting System
Standard Permits	Construction Permits (New Source Review – NSR) that are <u>not</u> permitting facilities classified such as: *Other Complex* • Greenfield ethanol plants, • PSD / NA NSR netting • PSD / NA NSR synthetic minor projects • State Implementation Plan Maintenance Area Changes • Any other projects involving public comment • Projects involving the Legal Section (Consent Orders, Compliance Orders, appealed projects, etc.) *PSD / NA NSR Complex* • New major sources in both attainment and non-attainment areas • Major modifications at existing sources in both attainment and non-attainment areas

- Amendments to PSD / NA NSR permits (even if the change is not a major modification)
  Iowa DNR Air Quality Bureau Construction Permit Training Manual

Start Date   Date an Air Quality staff member starts the technical review of a particular permit application

Title V   Operating permits are required for those facilities with potential and actual emissions exceeding 100 tons per year of any air pollutant or 25 tons per year of any combination of hazardous air pollutant or 10 tons per year of any individual hazardous air pollutant.
                    Title V Technical Guidance – Operating Permits – General Guidance; Frequently Asked Questions – Operating Permits.

Turn-around Time   Number of days needed to process an application and issue a permit

1.0   Introduction

According to the *Lean Government Metrics Guide* by EPA Lean Government, project metrics enable organizations to:

- Identify and target the right problems
- Establish baselines for process performance and track progress over time
- Communicate results of projects

The purpose of this document is to define the metrics chosen as Critical Success Factors for the eAirPermitting project. These metrics address specific processes and provide information on relevant attributes of the process such as time, cost, quality, usage, and level of effort. Metrics serve as a benchmark of the current state and a baseline for measuring future state.

2.0   Time

Time metrics measure the time to produce and deliver a product or service to customers, whether customers receive products or responses on time, and other time-related considerations.

This document evaluates the time to process an application and issue an air quality permit. It also evaluates time spent keying data from paper applications into the current permit application and project tracking system. Timely and accurate issuance of permits is an integral part of Iowa meeting federal air quality standards, and are necessary for the regulated Greenfield and expanding facilities that are regulated under the federal Clean Air Act.

Faster turn-around time is listed as a benefit in the Project Charter. The impact of the new system will be measured by change in Turn-around Time and On Time Delivery.

2.1   Standard Construction Permits Time

Table 1 evaluates Turn-around Time and On Time Delivery for standard permits using project tracking data for permits issued from January 1, 2013 through December 31, 2015 including:

- New Permit Applications
- Modification Requests

On Time Delivery (<=30 Days) – The Air Quality Bureau has an internal goal to issue Standard Construction Permits within 30 days of receipt. This goal was developed through coordination with external stakeholders during past process improvement events.

Table 1 Standard Construction Permits Time 2013-2015

	Average of Days Receive to Issue	Average of Days Assigned to Issue	Percent On Time Delivery
2013	68	34	23%
2014	79	47	18%
2015	63	41	30%
3 Year Average	**70**	**41**	**24%**

3 Year Best Turn-around Time .... 1 Day
3 Year Worst Turn-around Time .....834 Days

2.2   Title V Operating Permits Time

Table 2 evaluates Turn-around Time and On Time Delivery for operating permits using project tracking data for permits issued from January 1, 2013 through December 31, 2015 including:

- New Permit Applications
- Renewal Permit Applications
- Permits drafted by local programs

The Clean Air Act of 1990 required regulations to establish minimum elements of a Title V Permit program, including expeditious review.

On Time Delivery Federal (<=548 Days) – The Code of Federal Regulations (CFR) addresses this expeditious review in 40 CFR Part 70.4 (b) (6) and is the basis for Iowa Code 567 IAC 22.107 (1)(b) which states that except in specific situations "The permitting authority shall take final action on each complete permit application (including a request for permit modification or renewal) within 18 months of receiving a complete application…" The 18 months for permit issuance equates to approximately 548 days.

On Time Delivery Internal (<=237 Days) – The Air Quality Bureau has an internal goal to issue Title V permits within 9 months of assignment. All Title V permits are issued by the Air Quality Bureau, however the permits are drafted by both the Air Quality Bureau and the local programs (Linn and Polk County). The data tracked for the Air Quality Bureau and the local programs is not the same, so the internal goal of 9 months was reduced to represent the time between the start of the technical review and permit issuance (237 days).

Table 2 Title V Operating Permits Time 2013-2015

	Average of Days Receive to Issue	Average of Days Complete to Issue	Average of Days Start to Issue	Percent On Time Federal	Percent On Time Internal
2013	646	614	231	57%	68%
2014	840	795	301	39%	67%
2015	459	430	175	65%	81%
3 Year Average	**639**	**604**	**233**	**54%**	**72%**

3 Year Best Turn-around Time ....46 Days
3 Year Worst Turn-around Time ..3,412 Days

2.3   Support Time

Table 3 evaluates time spent performing data entry for air quality permits and is measured using timecard activity codes from State Fiscal Year 2013 through State Fiscal Year 2016.

Time spent correcting data consistency errors accounts for a significant portion of time. Recognizing the subjective nature of the statement (because there is not an activity code for this), it is commonly accepted that time spent correcting errors, requesting information initially omitted, and requesting signatures from customers explains some of the backlog of work.

Table 3 Support Time 2013-2015

	Permit Data Entry & Project Tracking Activities	Data System Support, Maintenance, and Coordination Activities*
SFY 2013 (hours)	4,429.50	3,195.70
SFY 2014 (hours)	4,567.00	3,344.30
SFY 2015 (hours)	4,439.70	3,908.00
3 Year Average	**4,478.70**	**3,482.70**

Excludes IT developer and database administrative activities

2.4 Time Measurement Goals

2.4.1 Turn-around Time and On Time Delivery

Noticeable improvement in On Time Delivery is expected with implementation of eAirPermitting. Reducing time spent requesting missing information will lead to earlier technical review and permit writing. DNR anticipates a 25% uplift in On Time Delivery within first three years of deployment.

2.4.2 Data Entry, Project Tracking & Systems Support

DNR anticipates increased use of electronic applications by facilities, reducing time spent by staff keying applications into SPARS. Incorporating Project Tracking with electronic applications reduces time duplicating data entry into independent database. This time savings would be re-invested in other priority projects. Reducing support hours by one-third within first three years of deployment of new eAirPermitting system is a reasonable goal.

Permit Data Entry & Project Tracking Activities
Current State..4,478.7 Hours
Future State ....2,955.9 Hours
Data Systems Support, Maintenance, & Coordination Activities
Current State..3,482.7 Hours
Future State ....2,298.6 Hours

3.0 Usage

Usage metrics evaluate the level of engagement of customers with the current state systems.

This document evaluates the volume of customers using the current system for submitting air quality permit applications. The number of applications submitted in SPARS versus paper is measured from customer login in the application system.

3.1   Standard Construction Permit Usage

Chart 1 evaluates applications for Standard Construction Permits submitted from January 1, 2013 through December 31, 2015.
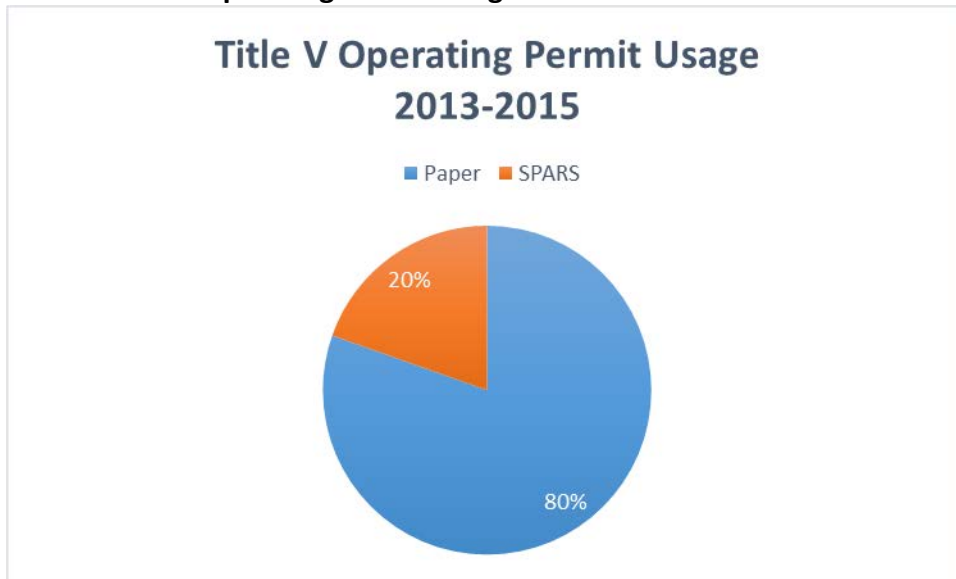
Chart 1 Standard Construction Permit Usage 2013-2015
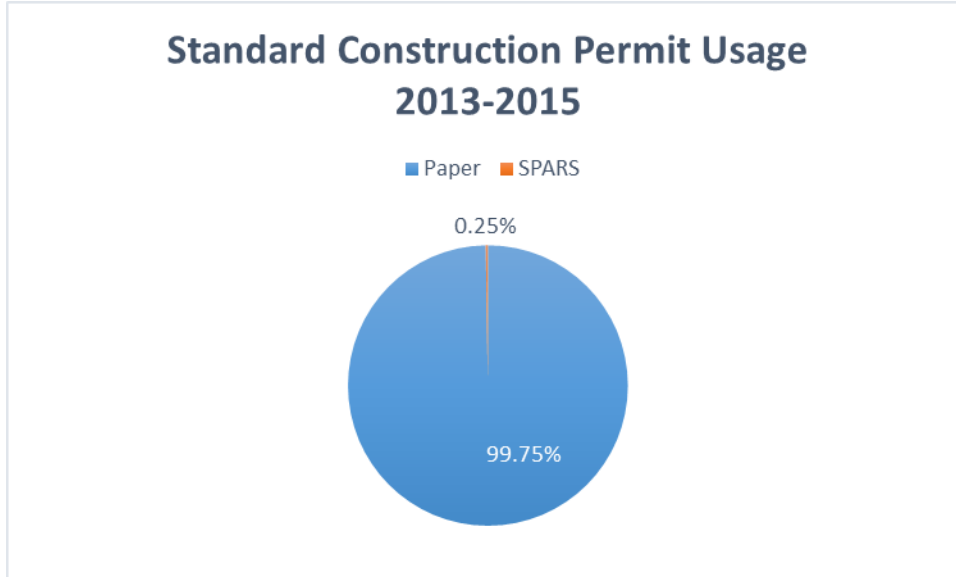
3.2   Title V Operating Permit Usage

Chart 2 evaluates applications for Title V Operating Permits submitted from January 1, 2013 through December 31, 2015.

Chart 2 Title V Operating Permit Usage 2013-2015

3.3   Usage Measurement Goals
The eAirPermitting Project Charter determined to increase the volume of applications submitted electronically to at least 75% for both Standard Construction and Title V Operating Permits.

4.0   Level of Effort
Level of Effort metrics measures the number of clicks, fields, or screens required to enter data into the current state system.
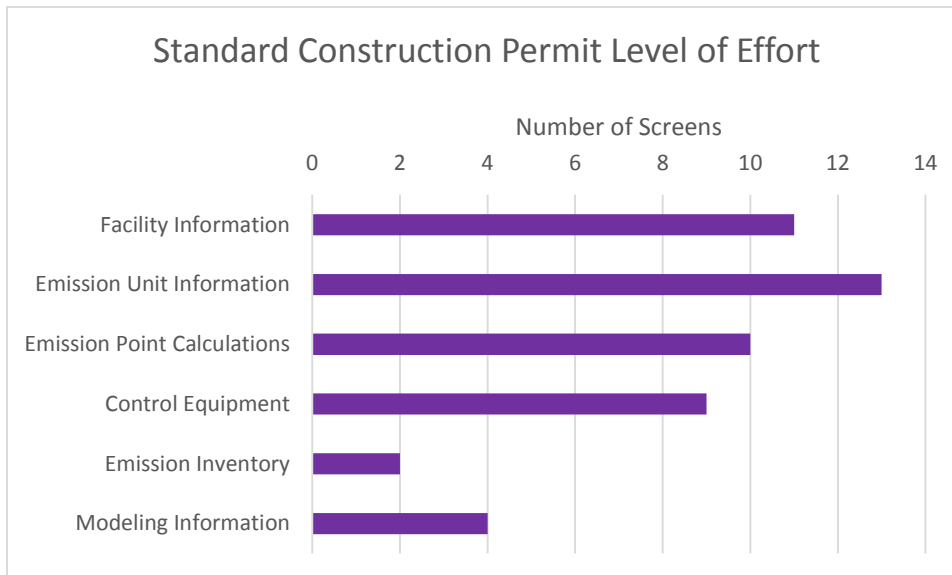
This document evaluates the number of screens, by type of permit and form, required to submit and air quality permit application in the current system.

Reducing the level of effort required to enter an application improves customer interaction with the Air Quality Bureau. Improved Customer Interaction is listed as a benefit in the Project Charter.

4.1   Standard Construction Permit Level of Effort
Chart 3 evaluates Standard Construction Permit application forms and the number of screens required using forms available as of 3/31/2016. Several current construction permit application forms are not included in SPARS and must be completed on paper (e.g. Form AF, Form CP and Form MD). Accordingly these forms have not been evaluated for level of effort.

**Chart 3 Standard Construction Permit Level of Effort**

4.2   Title V Operating Permit Level of Effort

Chart 4 evaluates Title V Operating Permit Part 1 Emission Information application forms and the number of screens required using forms available as of 3/31/2016. Part 2 Requirements and Compliance and Part 3 Application Certification forms have not been evaluated for level of effort.

Chart 4 Title V Operating Permit Level of Effort
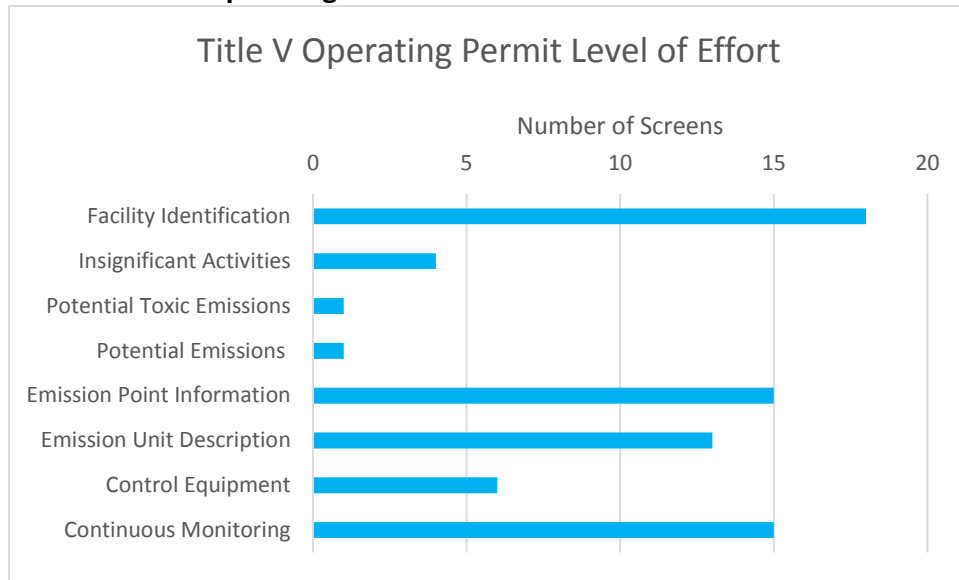
4.3   Level of Effort Measurement Goals

The Air Quality Bureau strives to enhance the customer experience with the permitting application process. The most tangible improvement is seen by reducing frustration with systems. The goal of eAirPermitting is to reduce by one-third the total number of screens required to submit a permit application in the second year of deployment.

Standard Construction Permits
Current State....................................49 total screens
Future State ....32 total screens

Title V Operating Permits
Current State....................................73 total screens
Future State ....48 total screens

5.0   Quality

Quality metrics measure customer satisfaction and the quality of products or services, in this case the products measured are applications received complete versus incomplete.

This document evaluates customer satisfaction with the current state and the completeness of applications received using the current process for air quality permits.

Customer Satisfaction is a component of Improved Customer Interaction listed in the Project Charter and is measured using survey responses from current customers.

5.1   Customer Satisfaction

Chart 5 evaluates customer satisfaction based on a survey sent to air quality permit holders in August 2013, including 164 responses.

Chart 5 Customer Satisfaction with SPARS Features 2013
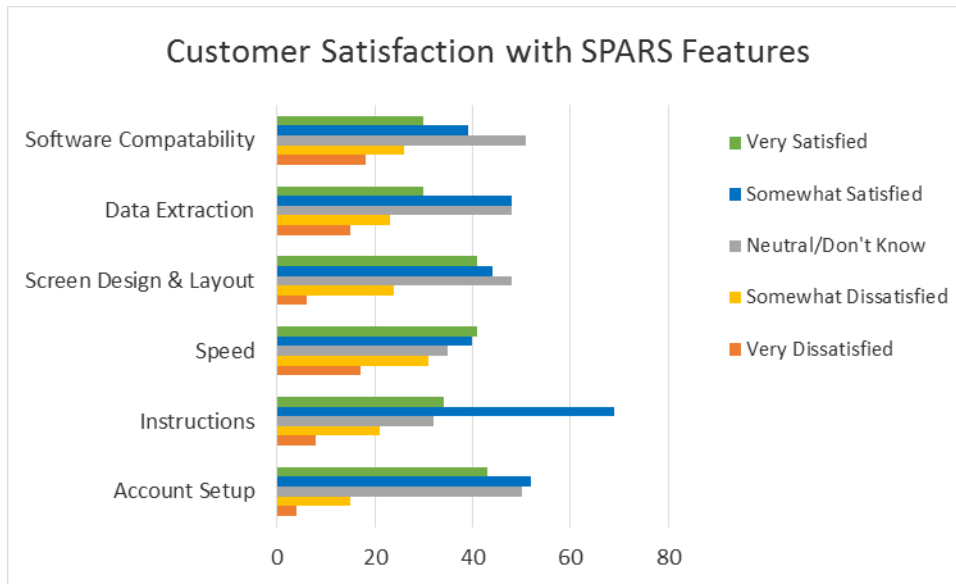
5.2   Complete

Complete metrics measure the number of incomplete applications received and is measured using project tracking data collected by the Construction and Title V Permit Sections. Applications received without all required information for facility location, equipment, emissions, and signatures cannot be processed and increases permit turn-around time.

5.2.1   Standard Construction Permit Complete

Chart 6 evaluates Construction Permit applications for complete versus incomplete using applications for projects completed between January 1, 2015 and December 31, 2015. The construction permit section does not make a formal analysis of whether an application is complete. Instead data is tracked related to any requests for additional information and the reason for the request. Requests for additional information can include both information that was missing from the submitted application (such as missing forms or incomplete forms) and information that is negotiated or changed during the review of the application and drafting of the final permit (such as operating limits and permit language).

Chart 6 Construction Permit Complete 2015
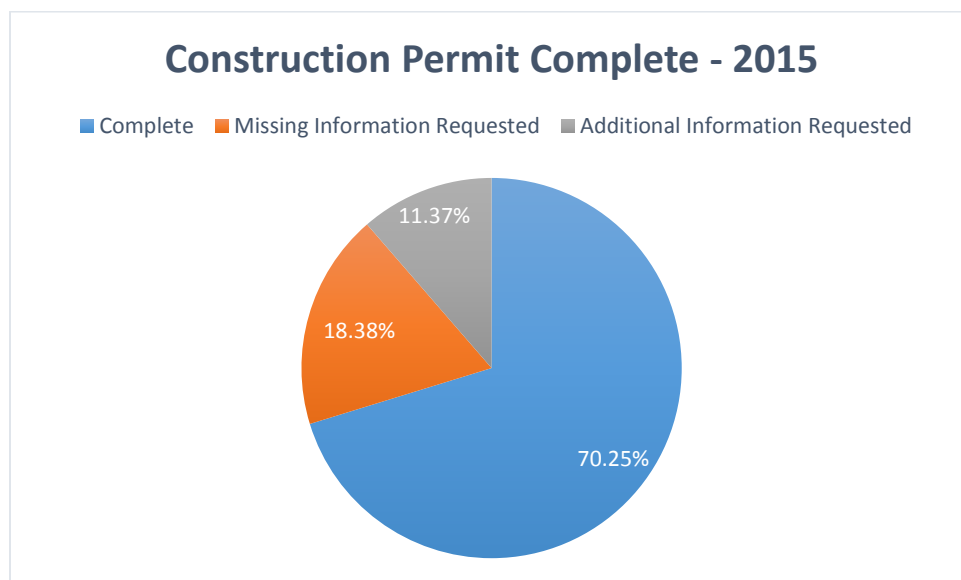

Analysis of the requests for additional information found that 62% of requests for additional information where related to missing or incorrect information could be resolved with improved messaging during data entry and using data validation tools. This results in an incomplete application percentage of 18.38% in 2015. The measurement of future state 4.2.1 will need to compare like data.

5.2.2   Title V Operating Permit Complete

Chart 7 evaluates Title V Operating Permit applications for complete versus incomplete using applications received from January 1, 2015 through December 31, 2015. As previously stated in Section 2.2 Title V Operating Permits Time, Iowa Code 567 IAC 22.107 (1)(b) requires the permitting authority to indicate when an application is complete in order to track turn-around time from date marked complete to date permit issued. In the case when an application is incomplete, Title V staff track the date additional information requested from the applicant.

Chart 7 Title V Operating Permit Complete 2015
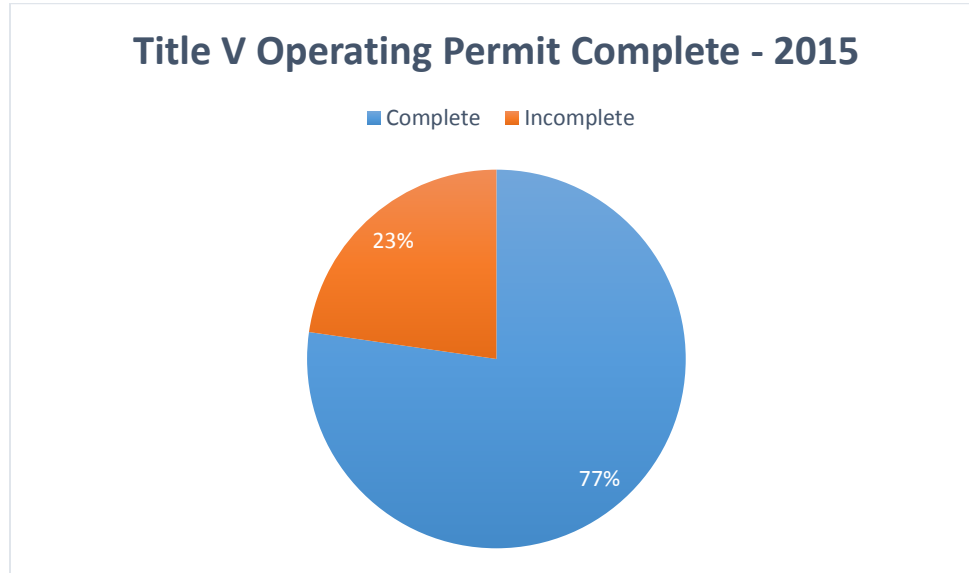
5.3   Quality Measurement Goals

Customer Satisfaction surveys will be conducted periodically throughout the project implementation and warranty period. Increasing the volume of "Very Satisfied" by one-quarter is a reasonable goal.

Data validation in eAirPermitting is expected to significantly increase the number of applications received with all required information at first submission. Recognizing that data validation will not eliminate all mistakes or all instances of incomplete applications, a reasonable goal is to ensure that 90% of submitted applications do not require follow up or clean-up of information.

6.0   Cost

Cost metrics measure product or service expenses, which translate into savings when a product or service is eliminated or modified, such as the cost of software licenses for a process. Due to the unique nature of regulated government agencies, providing a means for industry to submit required information is necessary under Iowa Administrative Code.

The Iowa DNR has jurisdiction to prevent, abate and control air pollution under 567 Iowa Administrative Code (IAC) Chapter 20. New Source Review Permit applications are required under rule 567—22.1(455B) subrule (3)*"b" Construction permits* which states that the owner or operator of new or modified stationary source may apply for a construction permit through the electronic submittal format specified by the department and further defines these requirements in subparagraphs 1-10. Title V permit applications are required under rule 567—22.105(455B) subrule (1) *Duty to apply* which states that an owner or operator of a source required to obtain a Title V permit may submit a complete and timely application through the electronic submittal format specified by the department and further defines these requirements in subrule (2) *Standard application form and required information*.

This document states development and maintenance costs of the current state for informational purposes. Reduced maintenance costs are listed in the Project Charter and are measured using the most recent contract and invoice information from the vendors.

6.1   Expenses to Develop to Current State

Table 4 evaluates investment to develop and upgrade the system to the current state.

Table 4 Expenses to Develop to Current State

SPARS Development by Fiscal Year		
1996	Servers, Oracle Database & Software (Desktop Client)	$1,484,076
1997 – 2004	Computer Consultant	1,784,381
2005 – 2006	Web Client	$260,140
	Total	**$3,528,597**

6.2   Expenses for State Fiscal Year 2016

Table 5 evaluates current state expenses from July 1 2015 through June 30, 2016. Costs include renewing middleware and software licenses and retaining a programmer for critical updates.

Table 5 Expenses for State Fiscal Year 2016

Middleware and Software Expense		
Appeon License & Developer	Yearly	$13,000
PowerBuilder License	Yearly	$3,300
Toad License	Yearly	$1,100
Oracle Database License (AQB)	Yearly	$14,000
PowerBuilder Contractor	Yearly	$70,000
	Total	**$101,400**

6.3   Cost Measurement Goals

The eAirPermitting Project Charter determined cost saving goals to eliminate dependency on obsolete middleware, remove expense of middleware and software licensing, and reduce DNR expense for Oracle licensing by eliminating the Air Quality Bureau portion.

Replacing the current air quality permit application and project tracking system will immediately remove $101,400 in annual costs. It is unknown at this time what the new costs will be for a new eAirPermitting system

7.0   Conclusion

eAirPermitting is a project with high visibility and significant impact within Iowa DNR as well as potential impact with other states. Defining objective measurements is a project task that leads to informed decisions concerning the technology platform and deliverables from the project. The team identified objective and relevant processes to use as a measure of Return on Investment for the new electronic permit application system. The processes measured in this document would be common to other agency permit application processes. It is the desire of the team that this document will be useful as an ROI Framework template for the E-Enterprise for the Environment work group.

APPENDIX A   Methodology

Standard Construction Permit Turn-around Time Methodology
Query section project tracking database for key dates, add a day to account for day 0

Open Project Tracker database
Run Standard query
Change parameter on Date Permit Issued from Is Not Null to Between 1/1/2013-12/31/2015
'this query uses table Construction Tracker as source
'if use results of leadtime expression, must add a day in expression
'I chose to calculate turn around time (leadtime) in Excel, use same logic
Export to Excel
Use Text to Columns function on Data ribbon, convert Date Permit Issued, Application Received
Date and Engineer Assigned Date to date format
Insert column and label Days Receive to Issue
"=(Date Permit Issued – Application Receive Date + 1)
Insert column and label Days Assign to Issue
"=IF(ISBLANK(Engineer Assigned Date),"",(Date Permit Issued - Engineer Assigned Date + 1))
Insert column and label Receive to Issue <= 30 Days
        "=IF(Receive to Issue <= 30, 1, 0)"
Insert column and label Permits Issued   "1"
Create Pivot Table
Select Date Permit Issued as rows and then 'group by' years
Select Days Receive to Issue and Days Assigned to Issue
Summarize values 'Average'
Select Receive to Issue <= 30 Days and Summarize values 'Sum'
Select Permits Issued and Summarize values 'Count'
Insert calculated field and label On Time Delivery
        "= ' Sum of Receive to Issue <= 30 days ' / ' Count of Permits Issued' "
Summarize values 'Sum' and then Format number as Percent
Uncheck Receive to Issue <= 30 Days and Permits Issued
Change "Grand Total" to "3 Year Average"
Change "Sum of On Time Delivery" to "Percent On Time Delivery"

Title V Operating Permit Turn-around Time Methodology
Query section project tracking database for key dates, add a day to account for day 0

Open Permits database
Run Title V Performance TurnAroundDays query
Change parameter on Issued from Is Not Null to Between 1/1/2013-12/31/2015
Export to Excel
'this query uses tables Facility, Review, and Appliction *(sic)* as source
'if use results of TurnAroundDays expressions, must add a day in expression
'I chose to calculate turn around time in Excel, use same logic
Rename 60-Day to StartDate
Insert column and label Days Receive to Issue
"=(Issued – DateReceived + 1)"
Insert column and label Days Complete to Issue
"=(Issued – CompleteDate + 1)
Insert column and label Days Start to Issue
"=(Issued - StartDate + 1)"
Insert column and label Start to Issue <=237 Days
        "=IF(Start to Issue <= 237, 1, 0)"
Insert column and label Complete to Issue <= 548 Days
        "=IF(Complete to Issue <= 548, 1, 0)"
Insert column and label Permits Issued   "1"
Create Pivot Table
Select Issued as rows and then 'group by' years
Select Receive to Issue, Complete to Issue, and Start to Issue
Summarize values 'Average'
Select Complete to Issue <= 548 Days and Start to Issue <=237 Days
Summarize values 'Sum'
Select Permits Issued and Summarize values 'Count'
Insert calculated field and label On Time Delivery Federal
        "= ' Sum of Complete to Issue <=548 days '/ ' Count of Permits Issued ' "
Insert calculated field and label On Time Delivery Internal
        "= ' Sum of Start to Issue <=237 days '/ ' Count of Permits Issued ' "
Summarize values 'Sum' and then Format number as Percent
Uncheck Complete to Issue <= 548 Days, Start to Issue <= 237 Days, and Permits Issued
Change "Grand Total" to "3 Year Average"
Change "Sum of On Time Federal" to "Percent On Time Federal"
Change "Sum of On Time Internal" to "Percent On Time Internal"

Support Time Methodology
Collected timesheet activity codes specific to 1) Permit Data Entry & Project Tracking Activities, and 2) Data System Support, Maintenance and Coordination Activities. The data was filtered by staff who specifically entered data and did project work related to permit applications.

Usage Methodology – Standard Construction Permit Usage Methodology
Data was extracted from SPARS using login credentials. If the permit application was submitted from an external domain user id, it was counted as submitted via SPARS. If the permit application was submitted from an internal user id, it was counted as submitted via Paper.

Construction Permit Usage			
	2013	2014	2015	3 Yr Total
Paper	414	415	390	1219
SPARS	1	0	2	3

Usage Methodology – Title V Operating Permit Usage Methodology
Data was extracted from the Title V Operating Permit Project Tracking Database. Title V indicates in their database if an application was submitted via SPARS or Paper.

Title V Operating Permit Usage			
	2013	2014	2015	3 Yr Total
Paper	56	23	44	123
SPARS	17	7	6	30

Level of Effort Methodology
The number of screens required to complete each application form by type of permit was manually counted. Charts were built based on the manual count.

Standard Construction Permit Level of Effort

Form	Site Management # of screens	Application # of screens	Total
FI Facility Information	6	5	11
EU Emission Unit Information	8	5	13
EP/EC Emission Point Calculations	7	3	10
CE Control Equipment	3	6	9
EI/GHG Emission Inventory	0	2	2
MI-2 Modeling Information	0	4	4

Title V Operating Permit Level of Effort

Form	Site Management # of screens	Application # of screens	Total
1.0 Facility Identification	12	6	18
1.3 Insignificant Activities	1	3	4
1.4 Potential Toxic Emissions	0	1	1
1.5 Potential Emissions	0	1	1
2.0 Emission Point Information	7	8	15
3.0 Emission Unit Description	6	7	13
CE-01 Control Equipment	2	4	6
ME-01 Continuous Monitoring	6	9	15

Customer Satisfaction Methodology
Used Survey Monkey to gather feedback from users in 2013. Answers to Question 4 from the survey were charted and used as a measurement of Customer Satisfaction.

How would you rate your satisfaction with SPARS regarding the following features?						
Answer Options	Very Dissatisfied	Somewhat Dissatisfied	Neutral/Don't Know	Somewhat Satisfied	Very Satisfied	Response Count
Account Setup	4	15	50	52	43	164
Instructions	8	21	32	69	34	164
Speed	17	31	35	40	41	164
Screen Design & Layout	6	24	48	44	41	163
Data Extraction	15	23	48	48	30	164
Software Compatability	18	26	51	39	30	164
					answered question	164
					skipped question	14

Complete Applications Methodology – Construction Permit Complete 2015
Data was extracted from the Construction Permit Project Tracking database and analyzed based on the number of requests for additional information sent to applicants.

Year	Projects	Incomplete	Complete	Total Requests for Information	Requests Based on Missing Information	Percent Requests Based on Missing Information	Incomplete Based on Missing Information	Incomplete Based on Change
2015	474	141	333	191	118	0.617801047	87.11	53.89

The number of projects deemed Incomplete Based on Missing Information calculation:
Incomplete x Percent Requests Based on Missing Information

The number of projects deemed Incomplete Based on Change calculation:
Incomplete – Incomplete Based on Missing Information

Chart 2 represents Complete + Incomplete Based on Missing Information + Incomplete Based on Change and shows the percent of the whole for each piece of the pie.

Complete Applications Methodology – Title V Operating Permit Complete 2015
Data was extracted from the Title V Permit Project Tracking database. Projects are either marked complete or marked additional information was requested from the applicant.

Year	Applications Received	Complete	Incomplete
2015	44	34	10

Chart 3 represents Complete + Incomplete and shows the percent of the whole for each piece of the pie.

Cost Methodology
Collected annual invoices for middleware and software used to maintain SPARS.