Environmental Information exchange Network

EN2017

COMPREHENSIVE ENVIRONMENTAL DATA SYSTEM (CEDS)

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2017 Exchange Network National Meeting

Innovation and Partnership

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Philadelphia, Pennsylvania
#EN2017
http://www.exchangenetwork.net/en2017

ABSTRACT

- VADEQ has completed the modernization of its Comprehensive Environmental Data System (CEDS) application rewrite was initiated to fulfill a requirement for compliance with a Commonwealth security standard but also provided conversion of legacy Oracle Forms and Reports modules to an n-tier, mobile-ready architecture. The new CEDS integrates enterprise content management, geographic information system, Oracle EBIZ financials, and CEDS data allowing a comprehensive view of facilities and permits across agency environmental media. It communicates with DEQ's other applications, the U.S. Environmental Protection Agency and citizens via the web. The scope of the project included internal data management and sharing but also improved the ability of the agency to respond to data requests from citizens, other states and the Environmental Protection Agency.

What is CEDS?

Comprehensive **E**nvironmental **D**ata **S**ystem

Single Repository for Permitting, Compliance , and Inspections data for Air, Water, Land (SW)

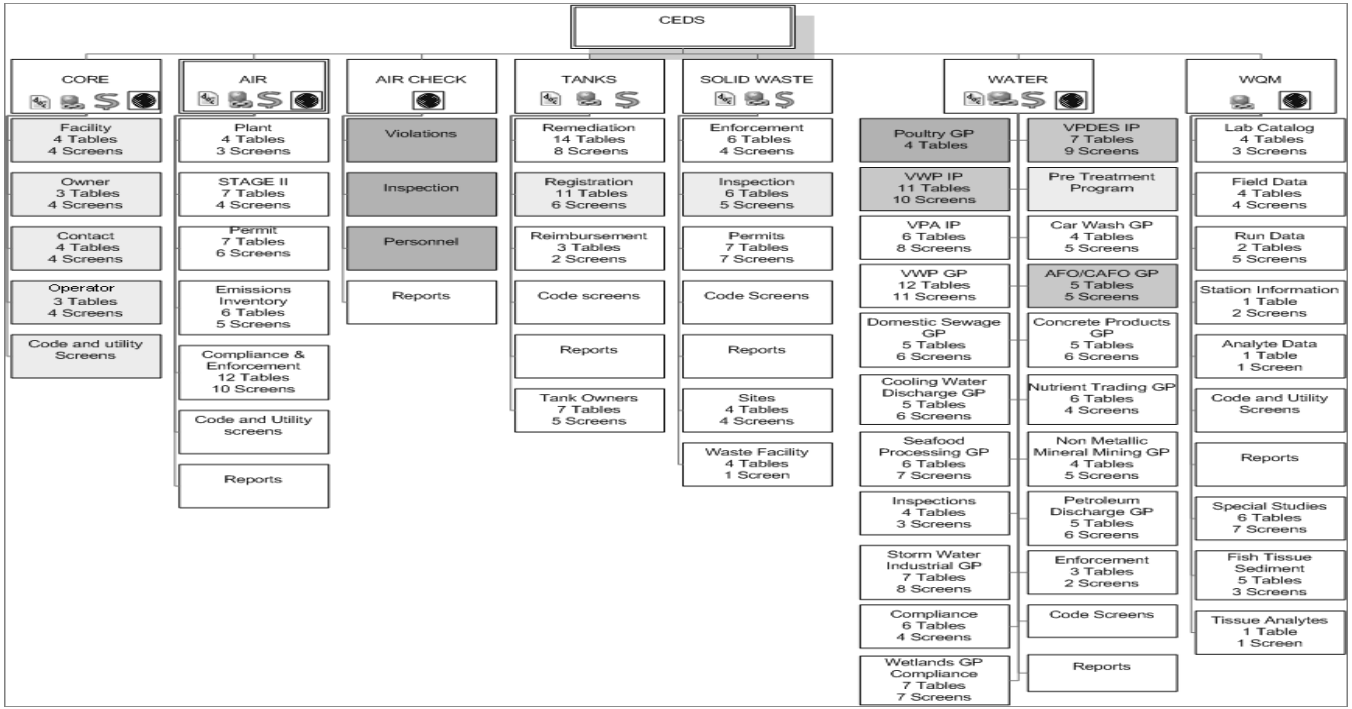
Also includes TMDL, WQMA, Petroleum Tanks, and Enforcement Modules

Y2k Project

Uses “Core Facility Model”….. with some exceptions

Oracle Db with UI originally developed in Oracle Forms and Reports 1997 – 2002

Legacy CEDS Structure



CEDS Modernization Effort

Revamp of entire system (~50 modules / 150 DB tables, 5 schema)

Effort began ~March 2015

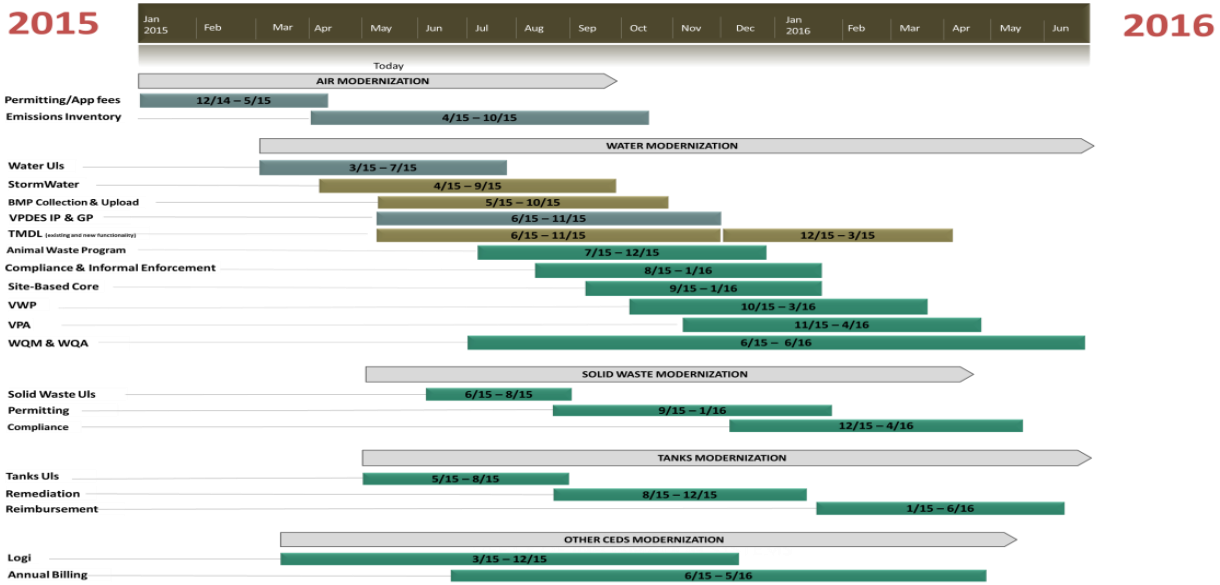
Had to be complete no later than August 2016 due to Virginia Information Technology Agency (VITA) Security mandate

Strategy

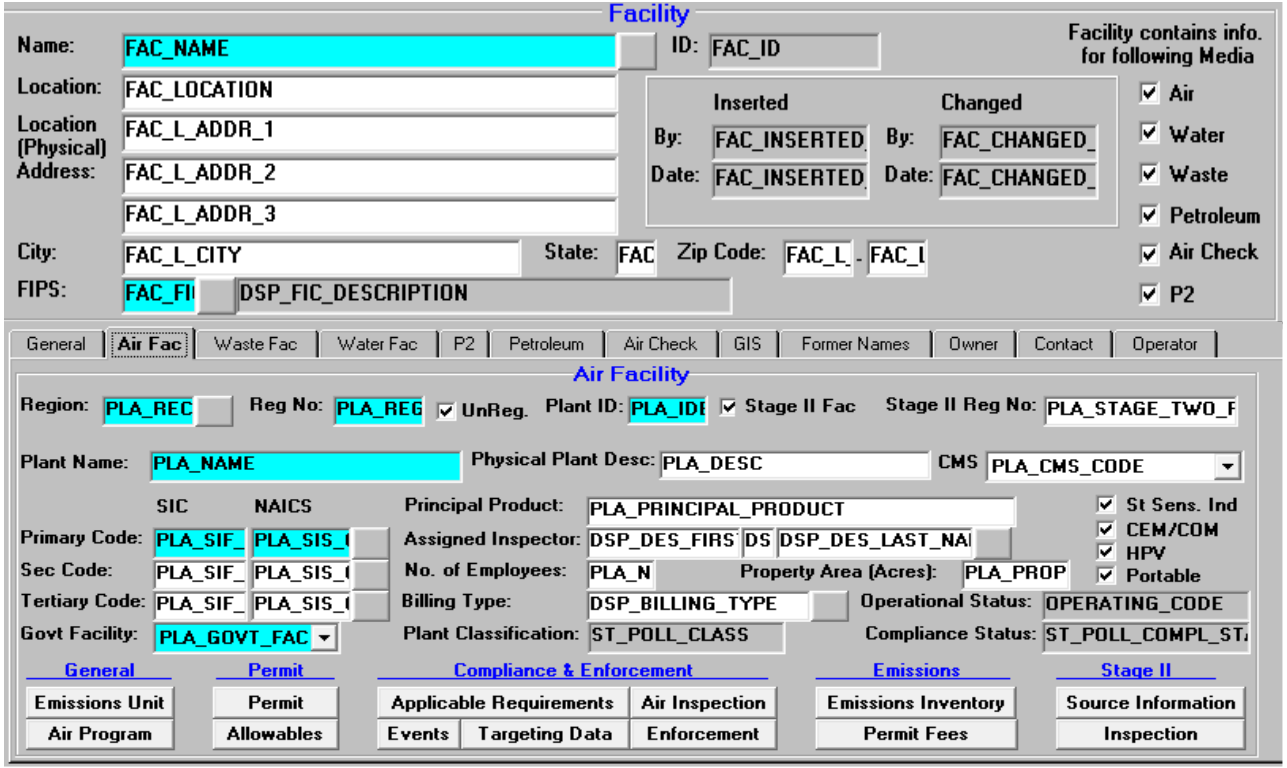
- Use a common framework & reusable patterns
- Break functionality into smaller pieces
- Develop iteratively
- Break down the walls between Business and IT
- Don’t neglect user adoption
- Add/Update Business functionality where practical

Original Plan

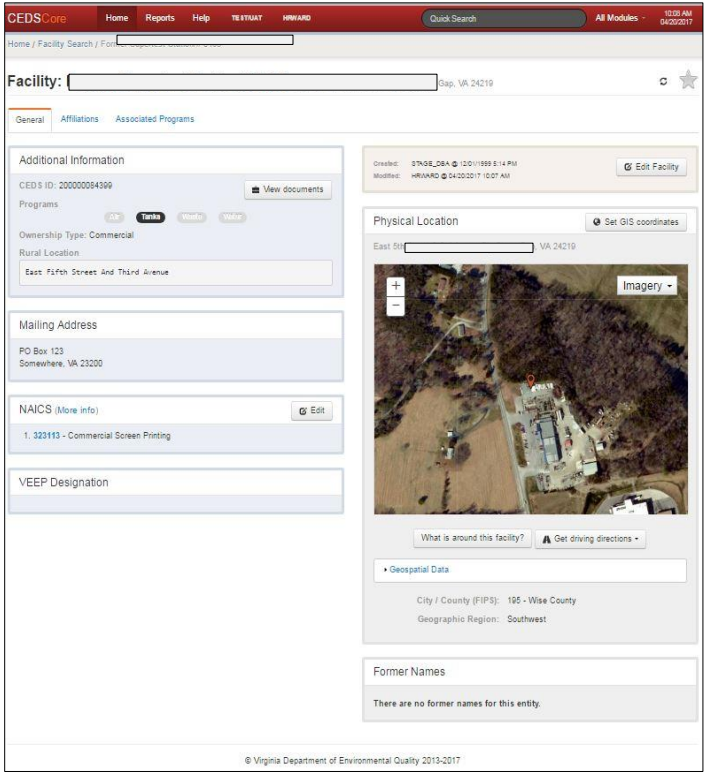
CEDS Modernization-Portfolio Iteration Plan



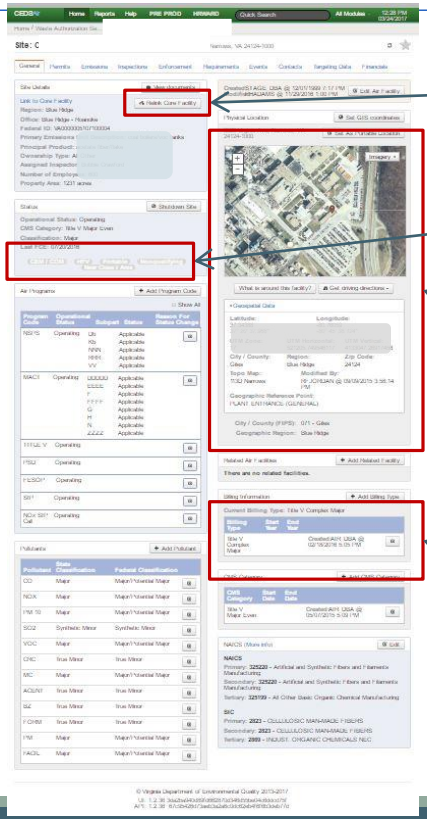
From this ….


Facility
Name: FAC_NAME
ID: FAC_ID
Facility contains info. for following Media
Location: FAC_LOCATION
Location (Physical) Address: FAC_L_ADDR_1
FAC_L_ADDR_2
FAC_L_ADDR_3
Inserted
Changed
By: FAC_INSERTED_
By: FAC_CHANGED_
Date: FAC_INSERTED_
Date: FAC_CHANGED_
Air
Water
Waste
Petroleum
Air Check
P2
City: FAC_L_CITY
State: FAC
Zip Code: FAC_L_ FAC_L
FIPS: FAC_FI DSP_FIC_DESCRIPTION
General
Air Fac
Waste Fac
Water Fac
P2
Petroleum
Air Check
GIS
Former Names
Owner
Contact
Operator
Air Facility
Region: PLA_REC
Reg No: PLA_REG
UnReg.
Plant ID: PLA_IDE
Stage II Fac
Stage II Reg No: PLA_STAGE_TWO_F
Plant Name: PLA_NAME
Physical Plant Desc: PLA_DESC
CMS PLA_CMS_CODE
SIC
NAICS
Principal Product: PLA_PRINCIPAL_PRODUCT
St Sens. Ind
CEM/COM
HPV
Portable
Primary Code: PLA_SIF_ PLA_SIS_
Assigned Inspector: DSP_DES_FIRS DS DSP_DES_LAST_NAI
Sec Code: PLA_SIF_ PLA_SIS_
No. of Employees: PLA_N
Property Area (Acres): PLA_PROP
Tertiary Code: PLA_SIF_ PLA_SIS_
Billing Type: DSP_BILLING_TYPE
Operational Status: OPERATING_CODE
Govt Facility: PLA_GOVT_FAC
Plant Classification: ST_POLL_CLASS
Compliance Status: ST_POLL_COMPL_ST
General
Permit
Compliance & Enforcement
Emissions
Stage II
Emissions Unit
Air Program
Permit
Allowables
Applicable Requirements
Air Inspection
Events
Targeting Data
Enforcement
Emissions Inventory
Permit Fees
Source Information
Inspection

To this….


CEDSCore
Home
Reports
Help
Quick Search
All Modules
Facility:
General
Affiliations
Associated Programs
Additional Information
CEDS ID: 200000084399
View documents
Programs
Tanks
Ownership Type: Commercial
Rural Location
East Fifth Street And Third Avenue
Mailing Address
PO Box 123
Somewhere, VA 23200
NAICS (More info)
Edit
1. 323113 - Commercial Screen Printing
VEEP Designation
Edit Facility
Physical Location
Set GIS coordinates
Imagery
What is around this facility?
Get driving directions
Geospatial Data
City / County (FIPS): 195 - Wise County
Geographic Region: Southwest
Former Names
There are no former names for this entity.
© Virginia Department of Environmental Quality 2013-2017

Innovations in plain sight



Integration with Document Management (ECM)

- Allows user to immediately view documents related to that record

Badges to determine status, associations, etc.

Integration with Geographic Information System (GIS)

- Allows user to plot GIS location when entering the record
- Uses high res (>1:4800) imagery for accuracy of plotting
- Derives location data such as watershed info (Basins, HUCs, etc.), county, zip, lat-Long, topo map, DEQ Region,…..
- Provides buffer to other GIS layers and Driving directions

Ties to Oracle eBusiness Suite

- Billing & payment information for application fees, permit fees, etc.

Hyperlinks to other records, modules, systems

Action Buttons to kick off workflows

Innovations behind the scenes

Overhauled our App Development Process

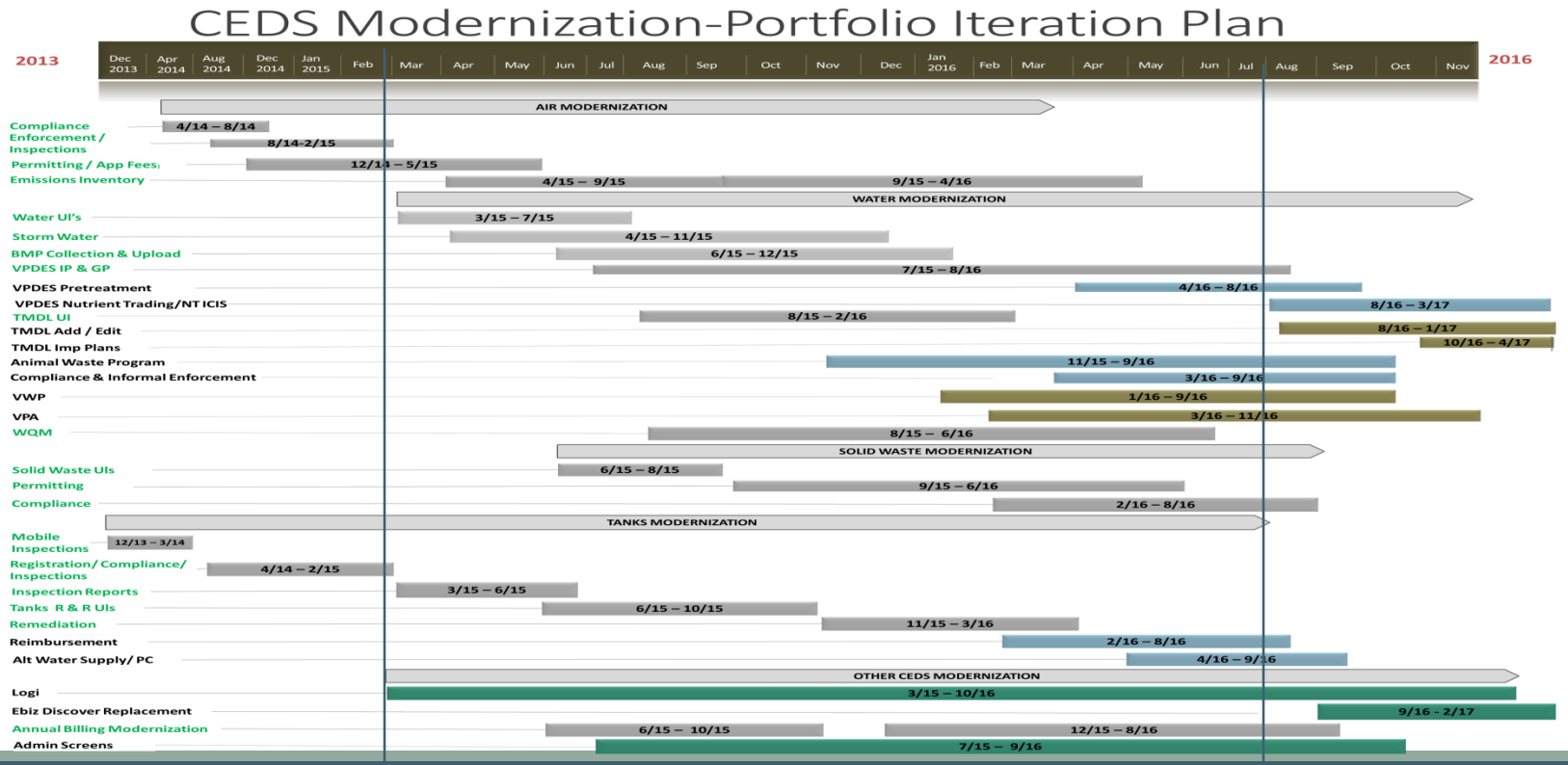
- Established a PMO
  - DEQ PM, BSA, & DEQ “Architect” oversight on contracted projects
- Developed an Agile/Iterative development process
  - 2-4 weeks/”Release” 4- 6 months/”Iteration” until complete
  - Weekly standing meetings (status/demo)
  - 3 week deployment to production cycle
  - View-only version of UI 1st
  - 15 Parallel Dev & Test Environments

Implemented some new tools

- Project Issue Tracker (“the PIT”)
- Portfolio and resource management
- Git - versioning /Team City - builds

Heavy dependence on reusable patterns, processes, components, and APIs

Final Plan


CEDS Modernization-Portfolio Iteration Plan
2013
2016
Dec 2013
Apr 2014
Aug 2014
Dec 2014
Jan 2015
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan 2016
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
AIR MODERNIZATION
Compliance Enforcement / Inspections
4/14 – 8/14
8/14-2/15
Permitting / App Fees
12/14 – 5/15
Emissions Inventory
4/15 – 9/15
9/15 – 4/16
WATER MODERNIZATION
Water UI's
3/15 – 7/15
Storm Water
4/15 – 11/15
BMP Collection & Upload
6/15 – 12/15
VPDES IP & GP
7/15 – 8/16
VPDES Pretreatment
4/16 – 8/16
VPDES Nutrient Trading/NT ICIS
8/16 – 3/17
TMDL UI
8/15 – 2/16
TMDL Add / Edit
8/16 – 1/17
TMDL Imp Plans
10/16 – 4/17
Animal Waste Program
11/15 – 9/16
Compliance & Informal Enforcement
3/16 – 9/16
VWP
1/16 – 9/16
VPA
3/16 – 11/16
WQM
8/15 – 6/16
SOLID WASTE MODERNIZATION
Solid Waste UIs
6/15 – 8/15
Permitting
9/15 – 6/16
Compliance
2/16 – 8/16
TANKS MODERNIZATION
Mobile Inspections
12/13 – 3/14
Registration/ Compliance/ Inspections
4/14 – 2/15
Inspection Reports
3/15 – 6/15
Tanks R & R UIs
6/15 – 10/15
Remediation
11/15 – 3/16
Reimbursement
2/16 – 8/16
Alt Water Supply/ PC
4/16 – 9/16
OTHER CEDS MODERNIZATION
Logi
3/15 – 10/16
Ebiz Discover Replacement
9/16 - 2/17
Annual Billing Modernization
6/15 – 10/15
12/15 – 8/16
Admin Screens
7/15 – 9/16

Results

Provided a standard, modern, scalable, secure, and reliable agency-wide framework that meets DEQ's needs and supports its business processes

Consistent architecture utilizing current .NET technologies and web frameworks leveraged to replace aging systems

Improved the end user experience with a clean design in a consistent and fully integrated application suite

Developed agency outreach strategy to improve end user adoption, communication, and training

Modular development approach to attack large scale rewrite in manageable, less risky, fixed price chunks

Streamlined the deployment process (from **2 hours** to **10 minutes**!)

Won Virginia's 2016 Governor's Technology Award
(Innovative Use of Big Data and Analytics)

Some “Take-Aways”

“Needs” and “Requirements” are in the eye of the beholder

You LEAN before We Build

Change is hard; what was hated becomes loved when you take it away

The more you give, the more they want; and that’s not always a bad thing

Success can be measured by how quickly the phone rings

You can never thank your staff enough, but there actually can be “too much cake”

QUESTIONS?

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