Sierrita SPCC Inspection Project

Project Team

- Ned Hall, Project Sponsor
- Joseph Mitzel, Business Team Lead / GIS Support
- Tamra Newberry, Business Team GIS Support
- Debra Vian Brown, Enterprise GIS Development / Support

Project Goals

Create tools and training to facilitate a more efficient inspection process

- Reduce potential for error
- Increase data management efficiency
- Automate time consuming, repetitive tasks
Spill Prevention, Control & Countermeasure Plan (SPCC)

Compliance with EPA petroleum storage and spill response regulations

Annual, semi-annual, quarterly inspections

Objectives:
- Keep container contents out of water systems
- Track condition of containers
- Record locations of containers
The Challenges

- 400 bulk storage containers
- 200 oil containing transformers
- Containers locations distributed across the site
- Data collection – a manual process using standard paper forms
- Time lags between stages of data collection & manager QA review
  - Field inspection cycles
  - Processing the paperwork
  - Quality assurance checks
Collecting SPCC Data – Inventory

A Traditional Approach

Containers, content, locations can change

Details for each container verified periodically

Manually maintained in spreadsheets

Organized by site “area”

XY coordinates are captured
Collecting SPCC Data – Inspections

A Traditional Approach

- All sites use the same standard forms
- Standard questions YES / NO / NA
- Manually maintained in spreadsheets
- Details captured from inventory records
- Archive spreadsheets 3 years
Maintaining Standards while Addressing Challenges

Manually refresh inspection records from current inventory
GIS tools refresh inspection records with current inventory
- Load to a geodatabase
- Convert XY coordinates to map points

Field data collection – paper forms
- Standard questions / answers
Mobile tablet application - The Collector
- Standard questions / answers

Container records organized by site area
Collector search, bookmarks, GPS
- Map bookmarks zoom to site areas
- Search zooms to containers by ID
- Locator – I am here, container is there
- Efficient navigation, way finding

Field tech bring updated paper forms back to the office
Collector sync updated inspection records to master geodatabase

SPCC Manager Dashboard
- View records immediately on a map
- Manager can query the map, review record details
- Manager can communicate with field tech if any issues – field tech can revisit
Maintaining Standards while Addressing Challenges

- Field tech bring updated paper forms back to the office
- Record the data in a spreadsheet
- Results maintained in spreadsheets
- Once all completed inspections are sync-ed to the master geodatabase
- Manager GIS tools
  - QA / QC
  - Sort, query, extract
  - Export data to standard spreadsheet format for reporting
  - Archive GIS records

Training / Documentation / Support

- Collector
  - Tablet operation training
  - Field tech workflow scenarios
- SPCC Manager Dashboard
  - Dashboard operation training
  - ArcGIS Online training
- Manager data management tools
  - ArcGIS development tools
  - Pre / Post inspection workflow scenarios
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SPCC Inspections Support

SPCC Inspection Data Maintenance Stages & Support Protocol

INVENTORY SCRUB & LOAD
- Container Inventory Spreadsheets
- QA/QC the inventory records
- Convert XY Spreadsheet Data to Container Inventory Map Layer
  - Local TO LOCAL GIS Geodatabase (GDB)
- STANDARDS & TOOLS
  - ArcMap / ArcCatalog
  - Standard Project Folders
  - Standard Table Formats
  - Map Templates
  - QA/QC the data
  - Select subset of data for this inspection cycle

Site SPCC Manager - OR - GIS Support Team

REFRESH INSPECTION RECORDS
- Container Inventory Map Layer
  - LOCAL GDB
- STANDARDS & TOOLS
  - ArcMap / ArcCatalog
  - Standard Project Folders
  - Standard Table Formats
  - Map Templates
- Refresh inspection records readying for new inspection cycle

Site SPCC Manager - OR - GIS Support Team

REFRESH INSPECTION WEB SERVICE
- SPCC Inspection Map Layer
  - LOCAL GDB
- STANDARDS & TOOLS
  - ArcMap / ArcCatalog / ArcGIS Online
  - Standard Project Folders
  - Standard Table Formats
  - Map Templates
- Refresh and test Inspection web service used by field collector and Manager Dashboard applications

GIS Support Team

INSPECT / MONITOR EXTRACT / REPORT ARCHIVE
- Ongoing SPCC Inspections
  - WEB GDB
- TOOLS
  - Collector Application / Field Tablet
  - SPCC Manager Dashboard
- Completed SPCC Inspection Data
  - WEB GDB
- STANDARDS & TOOLS
  - ArcMap / ArcCatalog
  - Standard Project Folders
  - Standard Table Formats
  - Map Templates
- Extract from the web and load completed inspection records to local geodatabase
  - Export to spreadsheet and format for reporting
  - Archive records as required

Site SPCC Manager

ALLOW MINIMUM 1 WEEK LEAD TIME FOR QA/QC & GIS TEAM SUPPORT REQUESTS
Relatively short development process ~ 3 to 4 months

Samsung Galaxy Tab4 (SM-T230NU) ~ $110

Mobile device approved by MIS

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<th>Oct 20</th>
<th>Oct 27</th>
<th>Nov 3</th>
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SPCC Collector + Manager Dashboard Demo
Thank You

Questions and comments most welcome...