



# Rapid Growth and Damage Prevention: Our Journey Into One Call Automation Using GIS

GeoGathering  
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# Presenter Information



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# Exponential Growth



## Currently at Chesapeake Energy

12,100 total miles of pipeline in one call



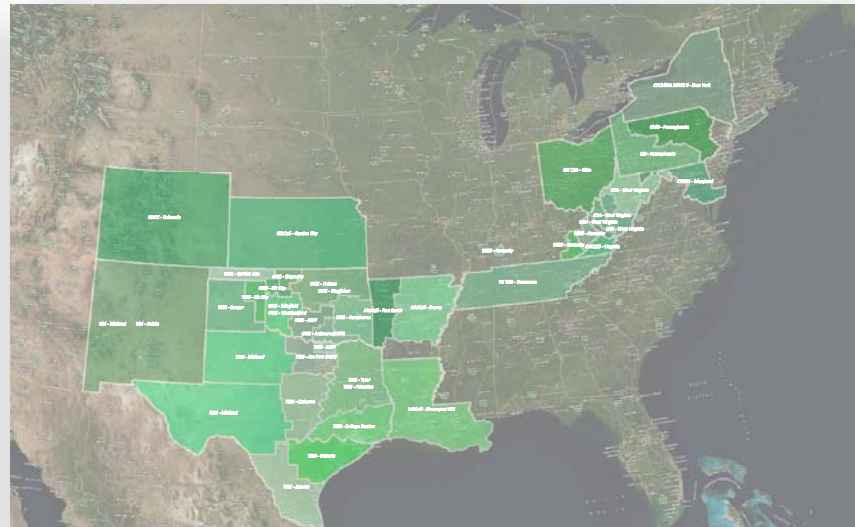
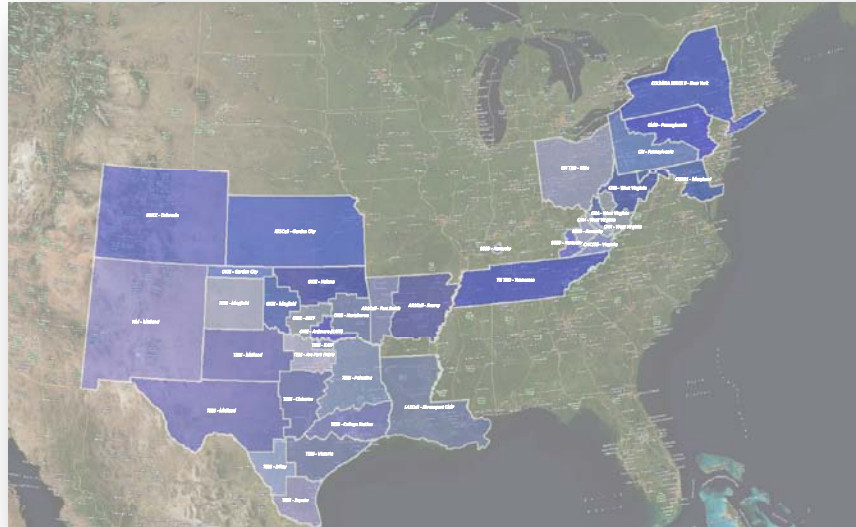
### Chesapeake Midstream

5560 miles of pipeline in one call



### Chesapeake Operating

6540 miles of pipeline in one call



~900 total miles in GIS in 2006!



# One Call Process Analysis



## Call Distribution Center (CDC) Management

How are the CDCs and their contact information maintained?

## Database Submissions

How are the CDC-asset data submissions handled from Chesapeake out to the various state one call systems?

## Ticket Response

How are locate requests currently received and processed by the line locate technicians?

## Ticket Tracking/Reporting

How are the tickets documented and archived for future reference?



# CDC Management

- **CDC (Call Distribution Center) – Defined code for a field office/work group that receives and responds to one call tickets**
  - A new CDC must be established for any office that will be receiving one call locate requests
  - Chesapeake (CHK) currently manages 50 CDCs across 16 states (up from 8 CDCs and 5 states in 2006)
  - Chesapeake Midstream GIS manages CDCs for both Chesapeake Midstream and Chesapeake Operating, Inc

CDC Tracking		
State	Organization	Number of CDCs
Oklahoma	OKIE	10
Texas	Texas811	16
Arkansas	Arkansas One Call	3
New Mexico	NMOC	2
Kansas	Kansas One Call	1
Louisiana	LA One Call	2
Colorado	UNCC	1
New York	Dig Safely New York	1
Pennsylvania	Pennsylvania One Call System, Inc.	3
Maryland	Miss Utility	1
Ohio	Ohio Utilities Protection Service	1
West Virginia	Miss Utility of West Virginia, Inc.	4
Kentucky	Kentucky Underground Protection, Inc.	2
Virginia	Miss Utility of Virginia	1
Tennessee	Tennessee One-Call System, Inc.	1
Wyoming	Wyoming One Call Systems	1



# CDC Management Improvements



OLD METHOD

New CDC requests were sent directly from field office



Each CDC was submitted with upwards of 20 individual contacts. Employee edits/additions/removals were done manually via email to the one call agency.

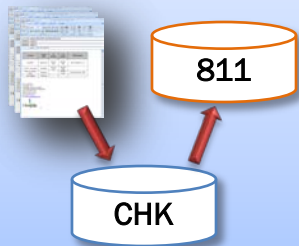


CDC contact information was tracked on "master" spreadsheet



NEW METHOD

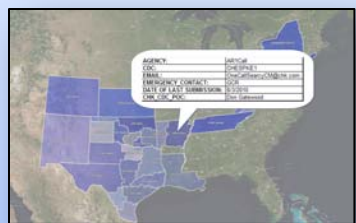
All CDC requests are filtered and managed at the corporate level.



One call distribution groups created internally. CHK controls employee additions/subtractions/changes internally.



One call contact information tracked inside GIS as an SDE feature class



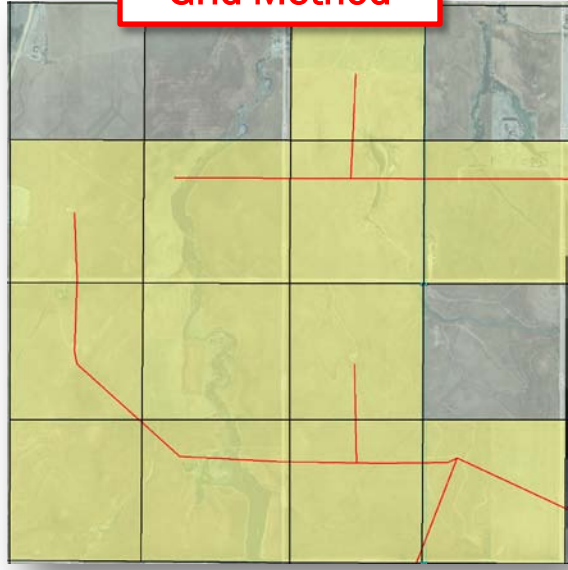
# Database Submission – “Grid Based”



- Database submissions must be made in order for assets to be associated with a given CDC.
- Originally submissions were done by field office employees using hard copy forms.
- Forms were based on quarter sections.

State One Call Systems Databases

**Grid Method**



Hard Copy Form

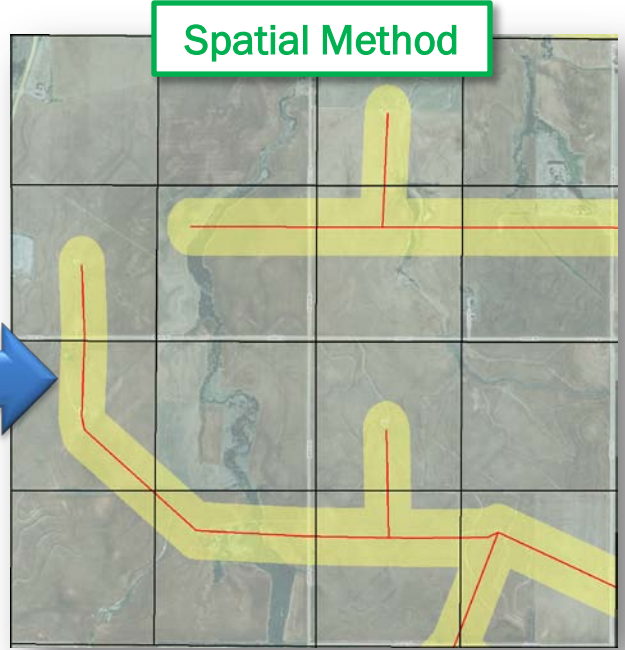
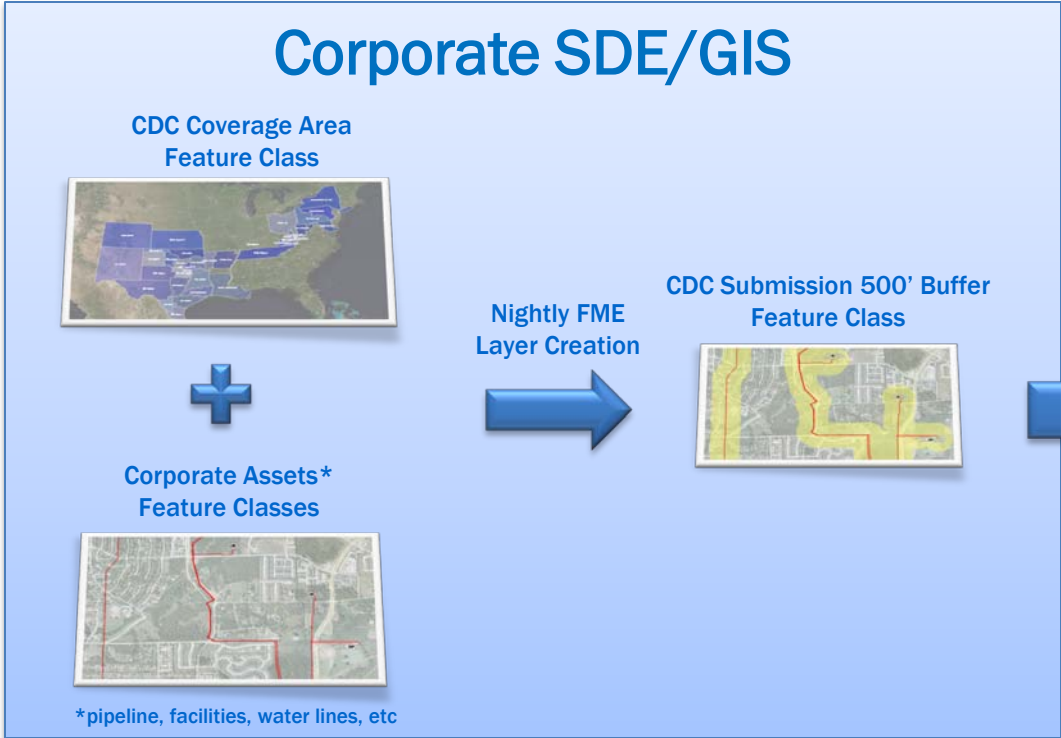
Field Office Data Generation



# Database Submission – “Spatial Based”



- Current process leverages FME data translation to buffer, intersect, and dissolve 10 different asset layers into a single “One Call Submissions” layer with 500’ buffers

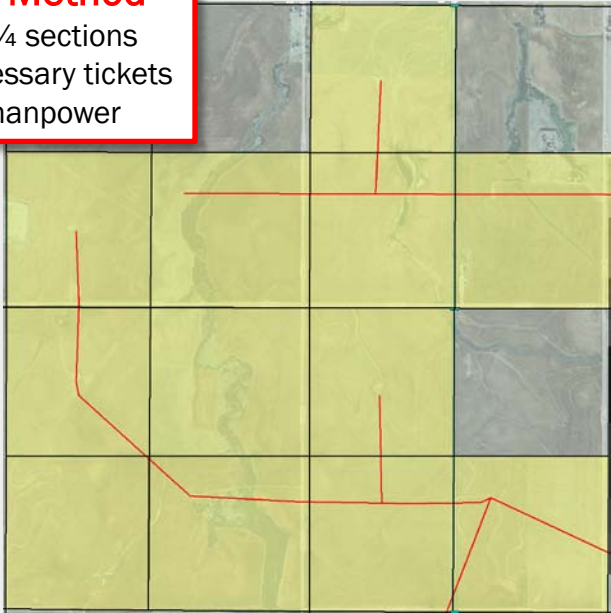




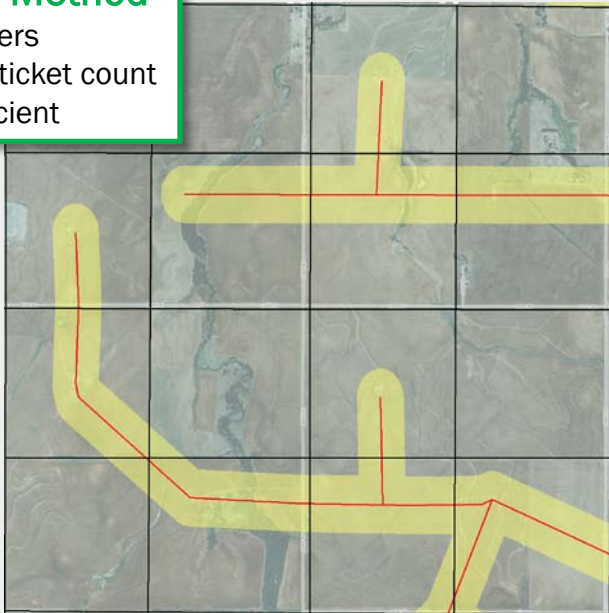
# Database Submissions - GIS

- New process generates a spatial buffer layer that reduces the number of total tickets dispatched while also reducing the number of non-threatening tickets. This decreases ticket cost and the office time needed to clear tickets that are not endangering an asset location.

**Grid Method**  
-Entire 1/4 sections  
-Unnecessary tickets  
-More manpower



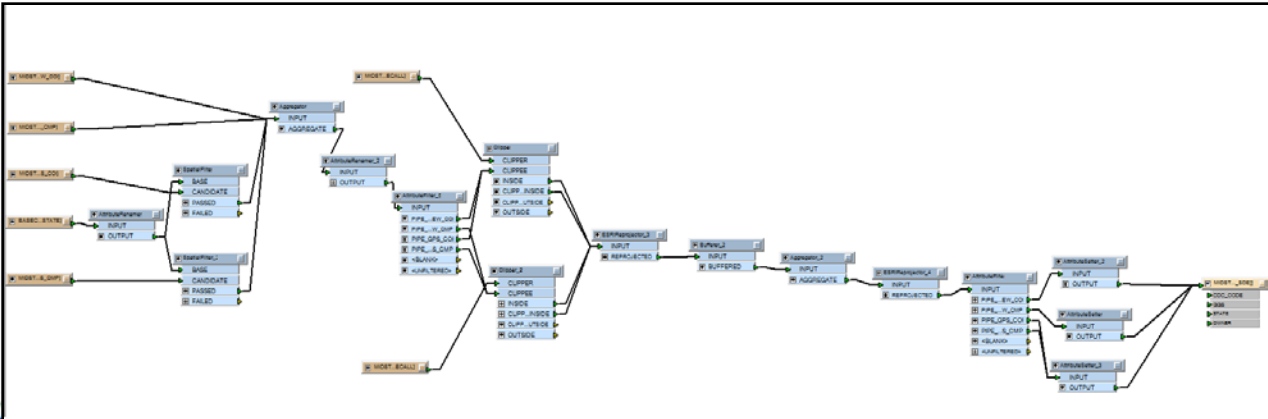
**Spatial Method**  
-500' buffers  
-Reduced ticket count  
-More efficient





# Layer Creation Logic

- FME is used for over 50 different nightly routines to create various derived GIS datasets at Chesapeake. One call is one of those processes.
- FME Logic
  - Collects from the following SDE layers:
    - MIDSTREAM.Pipe\_OVERVIEW, PIPE\_WATER, PIPE\_ABANDONED, PIPE\_GPS, ONE\_CALL\_AREA\_CM, ONE\_CALL\_AREA\_COI, COMPRESSOR STATION, WELL, ASSET, PAD\_SITE
  - Add where clauses to distinguish the COI and CM assets by status and owner of the asset layer attributes
  - Aggregates the asset layers by the GGS and State field
  - Asset layers intersect with the One Call Area layers and the assets gets clipped by area. CDC\_Code field is derived from one call area layers
  - Add a buffer of 500 ft
  - Aggregates GGS, STATE, and CDC\_Code fields
  - Generates new layer MIDSTREAM.ONE\_CALL\_SOURCE



# Ticket Response



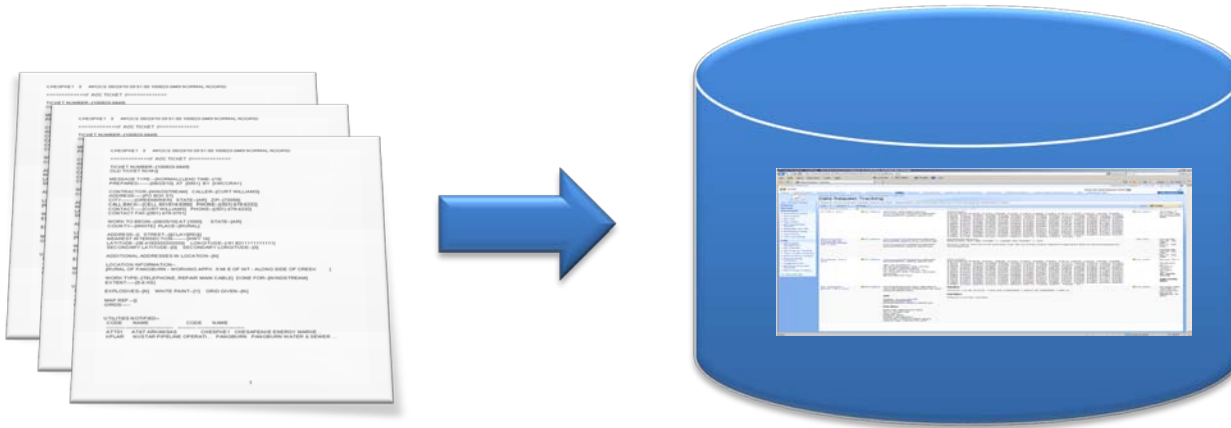
- Each CDC has personnel assigned for ticket response and closure
- ESRI ArcGIS/ArcReader, Delorme Xmap, and ArcServer/ArcIMS are all deployed to the field employees for locating assets and viewing data/maps
- Xmap Updates: Monthly Openspace files are sent to our field users via email and FTP
  - These exports contain asset layers, one call buffers, and various base datasets
  - New functionality is being tested to allow for on-demand SDE syncs via subscription service
- Tickets that can be cleared from the office are done so using these softwares





# Ticket Management/Archiving

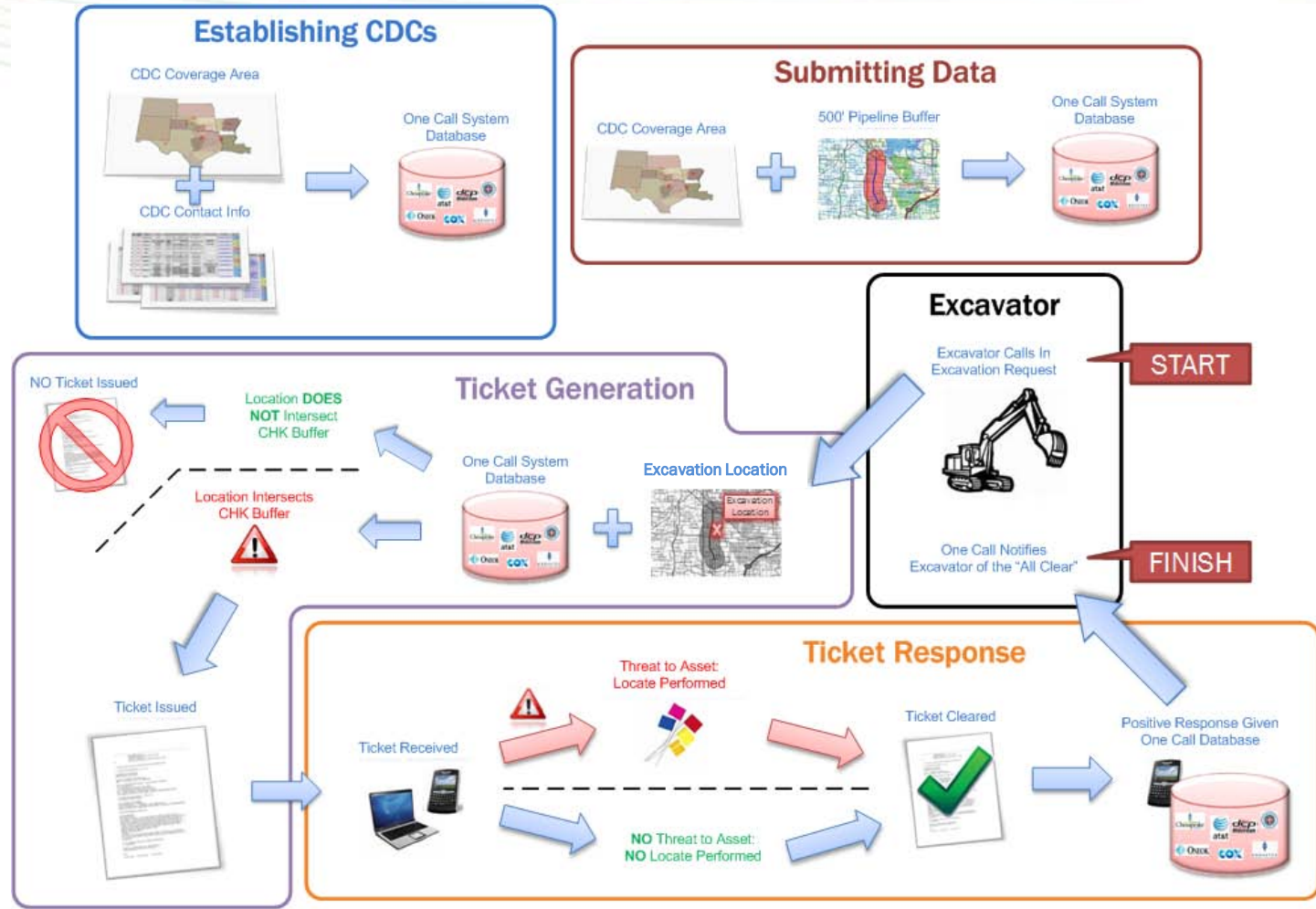
- **Historically tickets were sent via fax or phone call (emergency locate) only.**
  - After implementation of the group distribution e-mail accounts, digital based tickets became standard for all CHK CDCs.
- **Ticket archiving and tracking is currently done with shared lists maintained from the field office locations through a corporate SharePoint site.**



- **CHK is evaluating ticket management solutions for centrally driven ticket management.**



# One Call Process Overview



Thank you!



# Q & A