HOLD IT!
WHAT IS THIS?

AM FM  A Confirmed fit
Methods and Actions

Robert D. Borchert
GIS Technician
This just goes to show that QA/QC is important.

Robert D. Borchert
GIS Technician
Did you just check to make sure you are in the correct room?

Robert D. Borchert
GIS Technician
I would even be willing to bet you may have double checked before you entered this room.

Robert D. Borchert
GIS Technician
Now that verified we are in the correct room (QA/QC)... let's talk about... QA/QC: A checklist for Quality and Control

Robert D. Borchert
GIS Technician
Biographical Information

- GIS Technician for nine years
- Major – Geography, Minor in GIS
- E911 and Electrical Distribution GIS
- Currently a GIS team member with United Services Group in Elk River, Minnesota
- Project Coordinator
- ArcGIS, ArcSDE, MapInfo, and AutoCAD Map
QA/QC

- Discuss QA/QC
  - What is QA/QC?
  - What QA/QC is not
- Developed a checklist
- Developed a procedure
- Examples of our QA/QC checklist and things to be aware of in QA/QC
ABC Cooperative

- ABC Cooperative is a fictitious entity that was created for this presentation and has no relation to any known entity.
- Except where noted the content of this presentation is the opinion and ideas of the presenter and his co-workers at United Services Group.
Do you need QA/QC?

- Fueling your car?
  - Diesel or Gas?
- Submit a Papar
  - Czech spelling
- Create an Enterprise GIS
  - QA/QC
Do you need QA/QC?

- Fueling your car
  - Separate Pumps
  - Labeled
- Submit a Paper
  - Spell Check
  - Grammar Check
- Create an Enterprise GIS
  - Not a lot of built in tools
  - No universal answer for QA/QC
QA/QC for GIS

- Built in QA/QC
- Significant Tools
  - There is no QA/QC button or hot key
  - How you use the tools you have
- Educate the GIS Technicians
  - What to look for
  - Knowledge of existing tools
  - Checklist
  - Procedures
What is QA/QC

From the "WordNet: An Electronic Lexical Database" following are defined as:

- Quality: “a degree or grade of excellence or worth”
- Assurance: “freedom from doubt”
- Control: “the activity of managing or exerting control over something”

From these definitions, I take:

Quality Assurance/Quality Control: “An activity intended to give something a level of excellence that you know will work”
How does this apply to GIS?

- Standardized Methods
  - Checks
  - Balances
  - Corrective Actions
- Produces a Stable Product
  - Correct
  - Consistent
  - Reliable
Accuracy and Precision

- US Navy School
  - Accuracy & Precision
- Accuracy in determining the correct details
- Precision on how well you can make those determinations every time
QA/QC Checklist...

• Not a static document
• Change and grow
• Start Small
  – Big picture items
• Grow your checklist
  – New situations
  – Concerns from customers
• Encourage new ideas and methods
QA/QC Checklist...

Twelve main categories

1. Documentation and File Structure
2. Project Checklist
3. Data Checklist
4. Data Structure Checklist
5. Attributes Checklist
6. Data Conversion Checklist
7. Network Checklist
8. Relationship Checklist
9. Annotation Checklist
10. Custom Applications Checklist
11. Wall Map/Map Book Checklist
12. Project Checklist for Clients
Documentation and File Structure

• All pertinent documents
  – Contain a brief description of the project
    • What client requested
    • How it was completed
  – Original abstract
    • Outline of steps taken
  – Metadata
  – Standardized file structure
  – Any other documentation
    • Spatial references
    • Specific output types
    • Any paper documents used
Project Checklist

• Relevant Name

• Opening the Project
  – Open with no errors
  – Desired location
    • Extent of system
    • Specific location
  – Correct drawing order
  – Layer States or definition queries
  – Symbols

• Does the GIS do what it is supposed to do?
Data Structure Checklist

• Relevant Data
• Correctly Named
  – Naming Conventions
• Proper Location
  – i.e. C:\AMFM\ABC_Cooperative
• Pre-Defined Model
  – Other billing or staking programs
Data Checklist

• Data in Correct Layer
  – All fuses in fuse layer
  – All transformers in transformer layer
  – Etc…

• Viewable when it should be

• Document
Attributes Checklist

Actual Data

• Symbolize from an attribute
  • Is that field value complete?
    – Subtype or block reference?

• Label from an attribute

• Document
Data Conversion Checklist

• Converted or imported to GIS from another platform
• Check for lost data
• One to one match
• Proper Conversion
  – Polygon to polygon
  – Point to point
  – Polyline to polyline
  – Same relative location
• Document
Network Checklist

- Connectivity
- Loops
- Direction of Flow
  - Sources or sinks
- Rules in place and working
- Document
Relationship Checklist

• Relationships to Other Datasets
  – One to one
  – One to many
  – Database connections
• Document
Annotation Checklist

• Visible
  – When and where it should be
• Relative
• Dynamic or stored in a database
• Multiple copies
• Document
Custom Applications Checklist

• Do they load?
• Do they work on the clients hardware?
  – Plot Routines
Wall Map/Map Book Checklist

- Common Output Formats
- Only contact with GIS for some
  - Base opinion of what they think
  - Education
- Page Numbering
  - Correct Order
- Scale
- Symbols
  - Size
  - Color
- Effective use of the page
- Is annotation visible?
Project Checklist for Clients

- Point of Delivery
- Correct File Path
- All Layers Available
- Correct View
- Correct Features On or Off
- Printers and Other Hardware Configured
- QA/QC Checklist for Client
QA/QC: A Checklist for Quality and Control

• Never Ending Process
• All Stages of GIS
  – Development
  – Deployment
  – Maintenance
• Creating a Checklist
  – Discussions and Team Meetings
  – Feedback from Clients
QA/QC: A Checklist for Quality and Control

• Tool Not an Answer
  – All Inclusive
  – Not All Consuming

• Main Intent
  – Develop and maintain a reliable GIS that you know works
Best Practices

1. Train Your People and Your Customers
   Notice right from wrong
   Use of GIS
   Use of Tools
   Techniques and Practices

2. Develop Tools
   Automate repetitive tasks
   Automate bulky tasks
3. Encourage Dialog
   Discussions
   Panel Sessions
   Etc…

4. Use Your QA/QC Program!
Questions?