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MEMORANDUM FOR: Germain E. LaRoche
 Fuel Cycle Safety Branch
 Division of Fuel Cycle, Medical, Academic &
 Commercial Use Safety, NMSS

FROM: Donald L. Chery, Jr., Section Leader
 Hydrology Section
 Technical Review Branch
 Division of High-Level Waste Management, NMSS

SUBJECT: RESPONSE TO FICCDC SURVEY
 (EDO TICKET #0003762)

As you asked, I have completed the survey of Geographic Information System (GIS) use in the Federal government prepared by the Federal Interagency Coordinating Committee on Digital Cartography. My responses are attached.

In my estimation, the NMSS High-Level Technical Review Branch needs such GIS and similar capabilities to accomplish its licensing review and approval functions. It will be interesting to see where HRC is in a year with respect to these capabilities. Presently, management is just being apprised of their significance in technical evaluations, and whether or not management will be persuaded to support and fund such capabilities is an open question.

LS/

Donald L. Chery, Jr., Section Leader
 Hydrology Section
 Technical Review Branch
 Division of High-Level Waste Management, NMSS

Attachment:
 As stated

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FEDERAL INTERAGENCY COORDINATING COMMITTEE ON DIGITAL CARTOGRAPHY

Survey of Geographic Information System Use in the Federal Government

Agency: U.S. Nuclear Regulatory Commission Data Provided by: Donald W. Cherry Jr.
Phone Number: (301) 492-3461

A geographic information system (GIS) is a computer hardware and software system designed to collect, manage, manipulate, analyze and display spatially referenced data. A GIS includes attribute data (usually in an associated data base) as well as graphic data which may be in vector (line) or raster (image) form. A GIS may include cartographic and geographic data such as earth science, natural science, biological science, ecological, engineering, urban, demographic or socio-economic data. For the purpose of this survey, please exclude those systems that are devoted to automated map and chart production activities.

An example: GIS technology is being used to develop a prototype for a new generation of international geoscience transects. A principal goal is to produce three-dimensional representations of the Earth's crust (to depths of ~50 km) using digitized geological, geophysical, and geographical data sets. The data sets will be in compatible formats so they can be managed concurrently and be used for interactive display, interpretation, and computation of derivative data sets to further characterize the Earth's crust. This project involves large data sets acquired on land and at sea by the United States and Canadian Federal, State, and Provincial scientists and university collaborators. The 800-km transect starts near Quebec City, Quebec, crosses western Maine, the Gulf of Maine, and Georges Bank to end at the ocean basin.

If more space is needed for writing your response, please attach additional pages.

1. Which phrase(s) best describes the level of GIS activity in your Agency?

Current Year

- a. Operational use on a broad scope.
- b. Operational use on a limited scope.
- c. Testing and evaluation use.
- d. Research and development activities.
- e. No current use but plan to use in the future.
- f. No requirements for GIS.

Current Year + 1

- a. Operational use on a broad scope.
- b. Operational use on a limited scope.
- c. Testing and evaluation use.
- d. Research and development activities.
- e. No current use but plan to use in the future.
- f. No requirements for GIS.

Current Year + 2

- a. Operational use on a broad scope.
- b. Operational use on a limited scope.
- c. Testing and evaluation use.
- d. Research and development activities.
- e. No current use but plan to use in the future.
- f. No requirements for GIS.

If "e" or "f" for "Current Year + 2" please disregard the balance of the questions, and return this survey to the address indicated at end of this document.

2. Has your Agency established a written published policy and/or program directive regarding GIS?

Yes No

If yes, please provide a copy with completed survey document.

Comments:

3. What primary applications does GIS support in your Agency?

The geologic setting and engineering design evaluations of a DOE site characterization and license application for a high level waste repository.

4. Data standardization:

a. Do standard definitions and/or classifications exist in your Agency for major thematic data categories used in GIS applications? Example categories could include: soils, timber, wetlands, geology, land use, transportation etc.

Yes No

If yes, please list the categories with standardized definitions/classifications.

Note: NRC - WADS, H&TR will primarily be reading data prepared by others and only in a secondary way ~~assist~~ preparing in house data base and thus, ^{do not} have a major concern with standard definitions

b. Do data collection standards exist for your agency (accuracy, format etc). and/or classification

Yes No

Note: This is an indirect agency concern for data collection standards in that NRC specifies data collection quality assurance requirements for any data associated with a license application.

c. Does a program exist to collect and manage a data base for this thematic data for use in GIS applications?

X Yes ⁺ No

+ Note - A very nascent program in the Hydrology Section, H&TR.

5. Are you using major data sets from another Agency?

X Yes No

If yes, please list the names of these data sets.

- 1) Soil and Engineering Properties Data Base, DOE
- 2) Physical Data Base, USGS
- 3) " " " , NOAA
- 4) " " " , Nat. Bureau of Standards

6. Do you currently have cooperative GIS programs/projects with other Federal, State or local Agencies?

 Yes X No

If yes, please list the cooperating Agencies.

7. Indicate the class of hardware used for GIS processing in your Agency.

- | | | |
|--------------|--------------|---|
| a. Mainframe | <u> ?</u> % | Manufacturer(s) { <u>DG MVS000</u>
<u>(CDC + IBM (INEL + NIH))</u> |
| b. Minis | <u> ?</u> % | <u> </u> |
| c. Micros | <u> ?</u> % | <u>IBM PCs</u> |
| | 100% | |

8. Indicate the type of GIS software used in your Agency.

- a. Public Domain _____ % Major Software name(s) _____
- b. Commercial _____ % Major Software name(s) _____
100% Vendor name(s) _____

9. How are GIS activities funded in your Agency?

- a. Line item appropriation _____ %
b. Other appropriated agency funds _____ %
c. Cost share funds from others _____ %
d. Other (describe) 100 % *office budget*
100%

10. Which funding level most nearly describes your agency's GIS expenditures?

Current FY

- a. Less than \$.5 Million
 b. \$.5-1 Million
 c. \$1-3 Million
 d. More than \$5 Million
(Specify amount)

Current FY + 1

- a. Less than \$.5 Million
 b. \$.5-1 Million
 c. \$1-3 Million
 d. More than \$5 Million
(Specify amount)

Current FY + 2

- ? a. Less than \$.5 Million
 b. \$.5-1 Million
 c. \$1-3 Million
 d. More than \$5 million
(Specify amount)

11. Indicate your Agency's percentage of GIS expenditures for the current year for the following categories:

- a. Operational use _____ %
b. Testing and evaluation use only 50 %
c. Research and development activities 50 %
d. Other (describe) _____ %
100%

12. Does your Agency make use of a video, primer, or any other educational/ instructional material on GIS.

 Yes

 ✓ No

If yes, please specify what kind of instructional aid(s) is being used and if this product was prepared by your agency or some other organization.

Is this instructional aid available for use by other Agencies?

 Yes

 No

13. Please identify your Agency's contact for further inquiries on GIS activities.

Name

Germain La Roche

Title

Address

Phone FTS

492-0695

Commercial

Same

Thank you for your input. Please send completed survey document and related supporting materials to:

Bruce McKenzie
Executive Secretary, FICCDC
U.S. Geological Survey
516 National Center
Reston, VA 22092

May 20, 1987

SUMMARY OF GIS ACTIVITIES IN THE FEDERAL GOVERNMENT

The attached inventory of geographic information systems use in the Federal government was conducted and compiled by the Federal Interagency Coordinating Committee on Digital Cartography (FICCDC). The FICCDC is an Office of Management and Budget established committee charged with coordinating and reporting on Federal agencies digital cartography activities. The steering committee is comprised of representatives from 11 departments and agencies, and regularly canvasses Federal agencies in order to gather necessary information on digital cartography activities and related spatial data technologies.

The intent of this inventory was to identify the scope of geographic information systems (GIS) use in the Federal community. Fifty organizations were asked to participate in the survey; thirty-one organizations responded. For the purpose of this survey, a geographic information system was defined as a computer hardware and software system designed to collect, manage, manipulate, analyze, and display spatially referenced data.

Highlights of the responses include:

- 28 organizations either use or intend to use GIS; 11 of the organizations are using GIS operationally on a broad scope.
- Seven organizations have a written published policy regarding GIS.
- There are similarities in GIS use in broad terms, but a wide range of specific uses.
- Nine organizations have classification standards; eight have data entry standards; and five have programs to manage standards.
- Mini and microcomputers are the dominant hardware, with multiple manufacturers.
- Overall percentage of use is almost equal between public domain and commercial software, with considerable diversity in program origin.
- Most GIS activity is funded under mission related programs.
- GIS related expenditures in FY 87 are estimated at \$26-46M; FY 88-89 expenditures are estimated at \$48-69M annually.