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Subject: Green Alert: Geospatial Data Framework

Project Hanford Lessons Learned

Title: Team Approach to Developing Geospatial Data Framework

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Lessons Learned Statement: Redundant and inconsistent historical mapping information and the resultant inadequate geographic information systems do not support current needs for precise, accurate, current, and complete geospatial data. The Site Spatial Data Council (SSDC) recognized the value such data would have in enhancing the health and safety of Hanford workers and the environment. When implemented, the Hanford Framework Project will reduce the duplication of mapping efforts and will provide a single on-line source for up-to-date site geographic data.

Discussion of Activities: The Site Spatial Data Council representing all the Hanford contractors and DOE-RL established a data framework for quick and easy access to the site's spatial data. Spatial data is geographic information, usually stored as coordinates and topology, and other characteristics about our physical environment (e.g., rivers, roads, fences, buildings, restoration sites, utilities, and other buried facilities). Many site functional groups such as police, fire department, and utility service crews require accurate and consistent data to respond to emergencies. Accurate locating information also benefits groups planning excavations, crews searching for underground utilities, and workers actually digging. The council accomplished this effort quickly through the cooperative effort of the contractors while utilizing the framework process of the Federal Geographic Data Committee [FGDC <http://www.fgdc.gov/>]. Phase one of the SSDC plan identified the most up-to-date geographic data for the locations of buildings, roads, electrical and gas lines, provided metadata, and is establishing an electronic clearinghouse and data warehouse for the data via the Hanford Local Area Network. (Metadata is information that describes the quality and content of spatial data or "data about the data". It gives users a level of pedigree about the data they obtain.) The next phase will include setting up the necessary procedures, continuing to identify the proper stewards of each land based feature, resolving data issues, establishing data standards, and defining how all the information will be collected and posted to the clearinghouse server.

The Washington Urban and Regional Information Systems Association recently rewarded the SSDC with their "Exceptional GIS-related Project" award for this team effort and for their efforts to establish a system that will be compliant with the Federal Geographic Data Committee standards. (GIS is an abbreviation for Geographic Information Systems.)

Analysis: Executive Order 12906 and Office of Management and Budget (OMB) Circular A-16 mandate a

coordinated national spatial data infrastructure for transportation, community development, agriculture, emergency response, environmental management, and information technology. Having developed the data framework permits the Hanford Site to take the next step forward in meeting the requirements of the Executive Order. This is an example of Integrated Safety Management System Guiding Principle <http://apoin.rl.gov/docs/GUIDING_PRIN.HTML> number 8, Worker Involvement in that the SSDC is composed primarily of workers already involved with spatial or geographic data. Members have the authority to act on behalf of their organization or company on all spatial data-related matters brought before the Council. It also reflects Guiding Principle <http://apoin.rl.gov/docs/GUIDING_PRIN.HTML> number 9, Communication and Stakeholder Involvement. Because the team involved many stakeholders, the framework was developed much sooner than anticipated.

Recommended actions: DOE sites developing frameworks for geospatial data systems can contact the Hanford SSDC <mailto:Steven_F_Rush@rl.gov> for guidance.

Estimated Savings/Cost Avoidance: A cost benefit analysis study performed in 1994 estimated a cost avoidance of \$12 million after the first year of implementation: About \$7 M in prevented accidents and injuries and over \$5 M in data management efficiencies.

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References: Executive Order 12906,

<http://www.fgdc.gov/publications/documents/geninfo/execord.html>>

Hanford Reach (January 18, 1999) <http://www.hanford.gov/reach/j18.pdf>, WC-SA-2827-FP