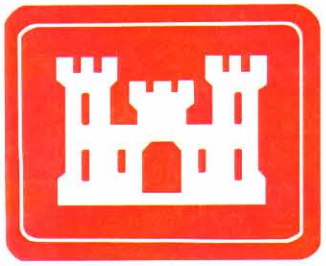
ENVIRONMENTAL INFORMATION MANAGEMENT NEEDS ASSESSMENT

AT

RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

PREPARED FOR



US Army Corps of Engineers®

LOUISVILLE DISTRICT

CONTRACT No. DACA27-97-D-0025
Delivery Order 0009

September 1999

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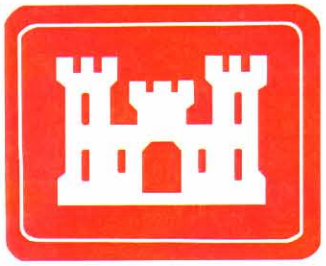

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ENVIRONMENTAL INFORMATION MANAGEMENT NEEDS ASSSESSMENT AT THE RAVENNA ARMY AMMUNITION PLANT RAVENNA, OHIO

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List of Abbreviations and Acronyms

AOC	Area of Concern
ARNG	Army National Guard
CAD	computer-aided design
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EIMS	Environmental Information Management System
GIS	Geographic Information System
IMP	Information Management Plan
IOC	Industrial Operation Command
IRP	Installation Restoration Program
LAN	local area network
LCTA	Land Condition-Trend Analysis
Ohio EPA	Ohio Environmental Protection Agency
PC	personal computer
RAB	Restoration Advisory Board
RI	Remedial Investigation
RVAAP	Ravenna Army Ammunition Plant
SAIC	Science Applications International Corporation
USACE	U.S. Army Corps of Engineers
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine

1.0 INTRODUCTION

The objective of this work is to assess the environmental information management needs of the Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio, for the purpose of developing an integrated environmental information management approach. This approach must provide electronic storage and ready access of all critical environmental information for use by RVAAP, the U.S. Army Industrial Operation Command (IOC), the Ohio Environmental Protection Agency (Ohio EPA), U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), the Ohio Army National Guard (ARNG), the U.S. Army Corps of Engineers (USACE), and contractors participating in environmental restoration and land use at RVAAP. The approach must also provide for a community relation component that allows the Ravenna Restoration Advisory Board (RAB) and the general public electronic access, via the Internet, to selected environmental information. In developing this approach, the information needs of the individual users were assessed along with the Army's Installation Restoration Program (IRP) requirements. The software and hardware capabilities of the users were also evaluated, as were the software and hardware requirements to implement an integrated Environmental Information Management System (EIMS) to meet current and future user needs.

An integrated EIMS is a system of computer hardware, software, procedures, and people that facilitates the rapid, secure, and reliable flow of information between users. An integrated EIMS provides access to information of different types (such as maps, documents, and media concentrations) from different sources (such as the IOC, Ohio ARNG, contractors, and the public) from one computer application. The purpose of the integrated EIMS is to save time and money for the IRP at RVAAP by reducing the time needed to find information, by preventing loss of information, and by presenting information in ways (such as maps and tables) that make data analysis and decision making more efficient. This Needs Assessment Report presents the user needs and a strategy for creating an integrated EIMS to meet the collective needs of the key users as well as a phased approach for implementing the elements of the system.

A user profile and questionnaire was developed for determining the information management requirements of the environmental restoration programs and the information needs of key users and stakeholders at RVAAP. The questionnaire was distributed to the following key users:

Group	**Representative**
RVAAP	Mark Patterson
U.S. Army IOC	Bob Whelove
USACE	John Jent
Ohio ARNG	Col. Tadsen/Capt. Daugherty
Ohio EPA	Eileen Mohr/Todd Fisher
USACHPPM	Lawrence Tannenbaum/Matt Bazar
RAB	Col. Tadsen

The completed questionnaires are provided in Attachment 1 of this report. Following distribution of the questionnaire, interviews were conducted with Mark Patterson, John Jent, Lawrence Tannenbaum and Matt Bazar at RVAAP; with Eileen Mohr at Ohio EPA in Twinsburg, Ohio; and with Bob Whelove, Col. Tadsen, and Capt. Daugherty by telephone. The site visit to RVAAP also included a tour of the document depositories at the RVAAP IOC office and the Ravenna Ohio ARNG office.

The results of the user survey are summarized below for each user group followed by an overview. A strategy is proposed to address the needs revealed in the survey.

2.0 NEEDS SUMMARY BY USER GROUP

2.1 RVAAP

The U.S. Army IOC representatives at RVAAP are responsible for managing the IRP. They must coordinate and facilitate all site activities. They are responsible for maintaining the information that supports the remedial decisions made for RVAAP.

The primary information produced by RVAAP are regulatory mandated reports. Contractors and subcontractors produce some of these, while others are produced by RVAAP itself. These reports include Sampling and Analysis Plans, Remedial Investigations (RIs), Feasibility Studies, Records of Decision, Environmental Progress Reports, Waste Generation Manifests, and Environmental Quality Reports. RVAAP needs a system that makes documents readily available to the RVAAP manager and makes information easy to find through indexing and cross-referencing within and between documents. RVAAP also needs a system that allows site characterization data to be made readily available to RVAAP and subcontractors and regulators to facilitate preparation of reports and oversight activities. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process also requires that certain documents be available for public review and comment.

Currently, there is not a local area network (LAN) at RVAAP. Individual workstations can connect via modem to the IOC network. A 400-MHz Pentium-based PC with 386 MB RAM and a 13-GB hard drive is currently used at the site.

A secure system is needed that restricts access to unvalidated data and unreviewed documents to the working team only. The public should have access to all data and documents that have been reviewed and released for general access. It is important that all security measures occur at system initiation so that it does not appear that information is being hidden from a particular user or group of users. All information will eventually become public, but not until it has been reviewed and released for general access.

RVAAP requires an integrated EIMS that is fast. Personnel do not want to wait for long periods for a system to retrieve and download information. RVAAP does not currently have a data management or document management system in place. RVAAP also needs spatial presentation of IRP data. The integrated EIMS should be able to show areas with chemical concentrations that exceed specified criteria. The system should also allow identification of documents related to a specific area. To the degree possible, the integrated EIMS should expedite field data collection. Sample bar coding and hand-held computers for field data entry should be considered. Interactive access to the integrated EIMS would be for the project team only. Public access to data should be through the related documents that have been reviewed and released for general access.

RVAAP has a large collection of historical documents. These documents include the original blueprint design specifications of the facilities and the designs for arsenals at other sites that were used as examples. Also included are various photos, maps and drawings of the facilities over the years and standard operating procedures for processes performed at the site. These very old documents, currently stored in the Ravenna Ohio ARNG office, may have some use in determining where certain materials

were used at the site and may help in planning the decontamination and demolition of structures. More recent environmental documents, stored in the RVAAP IOC office, relate to air quality permits, asbestos removal, deactivation furnace closure, environmental audits inspections and surveys, hazardous waste disposal, polychlorinated biphenyls, spills, National Pollutant Discharge Elimination System permits and other Resource Conservation and Recovery Act–, CERLA–, Superfund Amendments and Reauthorization Act–, and National Environmental Policy Act–regulated activities. The collection is currently being inventoried. While much of the information is no longer of value, having an electronic inventory that identifies information for each document (such as type, date, description, location, etc.) may be helpful for locating documents relevant to the IRP.

2.2 U.S. ARMY IOC

The U.S. Army IOC is responsible for oversight of RVAAP activities. This oversight includes reviewing and commenting on all RVAAP IRP documents. The IOC would benefit from a system that provides indexed and cross-referenced access to IRP documents and allows for easy access to maps and summary tables. Access to raw data such as concentrations of a specific analyte is desirable if the interface is simple to use.

The public should have access to the documents. A system must be in place to provide for response to public comments and inquiries.

The IOC has a LAN with Internet access. Internet access may be slow, however, especially when usage is heavy. A system that provides a quick response is important.

The integrated EIMS should allow for access by many users, but security must limit those authorized to make changes in the data and establish levels of access. The integrated EIMS must be designed to allow for growth as more data are collected.

2.3 USACE

USACE coordinates Corps Defense Environmental Restoration Program and Base Production Support work at RVAAP. In this role USACE needs access to IRP documents produced at the site, as well as maps, graphs, and figures. USACE produces information as documents such as comments to reports and statements of work for architectural, engineering and construction contractors.

Information is currently used as hard-copy reports. An integrated EIMS would be helpful for identifying relevant documents and storing them efficiently. Monthly updates would be adequate for most information. An easy-to-use interactive data access is preferred for site characterization data. A spatial interface would probably be easiest and require less facility-specific knowledge.

Typical user hardware would be a Pentium II-based PC with 32 MB of RAM and a 4 GB hard drive. PCs are connected to an NT-base LAN with Internet access. Microsoft Office ’97 and ArcView software are available.

Access to a RVAAP integrated EIMS should be hierarchical, with some data available only to selected users. Only specific individuals within organizations would have privileges to change data. Security should allow all to access the system, but ability to view data would be limited by security levels.

integrated EIMS should provide an index to historical maps, documents, and plans that are stored in the Ohio ARNG and RVAAP IOC offices. Response time is not critical for the types of queries that would be performed. The integrated EIMS should have a Geographic Information System (GIS) component that would allow the selection of map attribute layers for display. The map should be able to zoom to specific AOCs. The ability to plot the distribution of a specific contaminant would be desirable in the future if there were sufficient data, but is not seen as an immediate need.

RVAAP should have a web site that presents a catalog and description of the Areas of Concern (AOCs), a schedule of IRP activities, a schedule of Ohio ARNG activities, schedule of public access activities (hunting), bulletin board for announcements, RAB information, and links to other relevant sites.

2.4 OHIO ARNG

The Ohio ARNG is the land and natural resources manager of the RVAAP. It manages all environmental aspects of Ohio ARNG activities. The Ohio ARNG also serves in an advisory and cooperative capacity with the IOC in the management of the IRP.

The Ohio ARNG generates spatial information as map coverages as part of the U.S. Army's Integrated Training Area Management system. Currently, these coverages are maintained in an ArcView GIS. These coverages include a wide range of information related to land management such as topography, aerial photos, buildings and roads, creeks and rivers, wetlands, AOCs, management training areas, agricultural leases, threatened and endangered species, groundwater resources, watersheds, hunting cells, aviation patterns, bridges and culverts, forestry, and Land Condition-Trend Analysis (LCTA) plots. All attribute information collected must comply with the Tri-Services Metadata Standards.

The Ohio ARNG participates in the U.S. Army's LCTA Program. Data collected at selected monitoring locations at RVAAP for this program include groundcover, animal populations, and physical and chemical attributes. These data are sent to the National Environmental Database maintained by Utah State University for the National Guard Bureau. A web interface allows the Ohio ARNG to obtain graphs and tables of the submitted data to support its operations.

The Ohio ARNG uses data produced by the RVAAP IRP to assess the suitability of land for Ohio ARNG uses and to track the status of AOCs. Currently, this information is obtained from hard-copy reports. The Ohio ARNG also reviews IRP documents. The Ohio ARNG would use contamination data or mappings of contamination data from the IRP, if available electronically, to help assess and prevent exposure of personnel to potentially harmful chemicals.

The Ohio ARNG requires rapid access to map data for use in planning and assessing site activities. An interface is needed that allows map coverages to be displayed and overlaid. The interface system needs to be simple enough for soldiers to operate with minimal training. It needs to be rapid enough to deliver results in a matter of minutes. While rapid and easy access to the land use and condition data is needed, generally these data do not change rapidly. These data would need to be updated quarterly or when new surveys are conducted. An exception might be coverages that could affect the safety of personnel such as the location of hunting zones or the condition of bridges or buildings. This critical data must be updated immediately. Data from IRP characterization work would need to be updated only when sampling events were completed and validated.

All Ohio ARNG desktop computers have standard hardware and software configurations. All are Pentium-based personal computers (PCs) operating Windows NT. Microsoft Office '97 is standard with GIS stations using ArcView 3.1. A T1 line is available at each site. All PCs are connected to a LAN.

Permission to access Ohio ARNG data must be granted by the Chief of Staff. Access will be hierarchical, with some data available only to military staff, some to weekend trainees, and some to the public.

The Ohio ARNG has wide-ranging activities that require a spatial view that includes the entire site. Data interfaces should be spatial, allowing data to be retrieved for specific areas by highlighting those areas on a map. Training areas are of particular concern.

2.5 CONTRACTOR/SUBCONTRACTOR

Various contractors and subcontractors will be conducting characterization, remediation, and monitoring to support the IRP at RVAAP over at least the next 20 years. To provide efficient service to RVAAP these organizations will need rapid access to historical documents and data. These organizations will also generate data that must be maintained and archived by RVAAP so that it is available to the regulators and the public to support the decisions of the IRP and for subsequent characterization, assessment, and planning purposes.

During the planning phase of a project, access to historical documents and data is invaluable. Use of historical data may reduce costs by reducing the number of samples needed to characterize an area. Historical data and documents may also reveal previously unidentified problems, allowing them to be resolved earlier rather than later in the IRP process.

During the data collection process, the contractor requires an integrated EIMS that allows the status of data to be tracked from planning through validation. The system should allow interactive queries about specific analytes, batches, or samples as well as canned reports that show the percentage of analyses completed. The database needs to be updated at least daily for these reports to be useful. The database must have status flags to indicate whether data have been reviewed and approved for use. The database system must be capable of exporting data to other applications such as GIS, computer-aided design (CAD) programs, modeling programs, statistical programs, spreadsheets, or word processing programs to facilitate data analysis and the production of reports.

Contractors conducting ecological risk assessments may need access to the LCTA database. These data could be used to assess the population size and distribution of receptor organisms.

Contractors also need access to scheduling information for the site. The IRP schedule is needed to know when reports are due. Contractors also need to know the schedule of activities that may affect their ability to operate at the site such as hunting or Ohio ARNG training activities. Contractors also need access to the latest map coverages to aid in the display and interpretation of data.

Using Science Applications International Corporation (SAIC) as an example, a contractor would be expected to have an office with PCs connected by a LAN with Internet access. Web sites would be developed with integrated web applications to allow for remote access to information. PCs would be Pentium-based with more than 32 MB RAM and 4-GB hard drives. Microsoft Office '97 software is generally available, with some users also having Access. CAD/GIS capabilities could include ArcView, ArcInfo, AutoCad, and/or Microstation.

The contractor will generally have database managers and CAD/GIS operators who can manipulate and display data. The contractor will also have project managers, engineers, and scientists who would like a simple interface for querying data from the database and placing it in a spreadsheet table or displaying it on a map. The ability to rapidly get answers to data and spatial questions increases the efficiency of the investigators and helps them develop new insights and avoid mistakes.

2.6 OHIO EPA

Ohio EPA provides the primary regulatory oversight for the RVAAP environmental remediation projects. Information generated by Ohio EPA concerning the RVAAP IRP includes Cooperative Agreements, Installation Action Plans and Obligation Plans, and comments on documents submitted by RVAAP to fulfill environmental regulations. Ohio EPA also collects characterization data from split samples and groundwater from residential wells. Ohio EPA has its own internal Access database that details tasks performed and time expended.

To fulfill its regulatory oversight role, Ohio EPA needs access to the environmental characterization data generated by RVAAP and its subcontractors. These data are available in hard-copy reports, but the most efficient access would be one that allows the data to be interactively queried into an electronic database or spreadsheet. The data interface should be quick and simple enough that it can be readily used by regulators without detailed knowledge of the database. The data query interface needs to be intuitive.

Ohio EPA has PCs connected to a LAN with Internet access. The PCs have Pentium processors with 32 MB RAM and 6-GB hard drives. Available software includes WordPerfect 8.0, Access, Powerpoint, Excel, ArcView 3.1, and ArcInfo.

The integrated EIMS should have a hierarchical security system with access rights controlled by the project team. The project team would have read access to all information, with public access limited to validated data and reviewed documents. Documents received by Ohio EPA for review are considered public documents.

Ohio EPA would like an integrated EIMS with GIS capabilities for selecting and displaying many layers. The system should be able to zoom in on AOCs by name and be able to plot distributions of a specified analyte for a specified medium.

Ohio EPA would like the ability to download documents and parts of documents in Portable Document Format from an integrated EIMS. They would like access to all current RI documents as well as selected historical documents. USACE guidance documents should also be available either directly or via a link to a web site. A RVAAP web site should link to USACE, the U.S. Environmental Protection Agency, Ohio EPA, and DENIX web sites.

2.7 USACHPPM

USACHPPM provides technical risk assessment support to the IRP at RVAAP. Information generated by USACHPPM includes document comments, memoranda, letters, and position papers. This information is generated in hard-copy or e-mail format. Currently, USACHPPM obtains RVAAP information through hard-copy reports. If the data were available electronically, USACHPPM would like the capability to access raw characterization data through a map interface and/or a query tool.

USACHPPM uses Pentium-based PC workstations with typically 64 to128 MB of RAM. The PCs are connected to an NT-based LAN. Internet access is available.

An integrated EIMS for RVAAP should allow access to the raw data. Weekly updates of the data would be adequate. Unvalidated data and unreviewed reports should not be made available to the public. The faster the access to the data the better. USACHPPM would like the system to have a GIS component that would allow the display of contamination by analyte with overlays of land use and other site features. The system should be able to zoom in on AOCs. They are most interested in field characterization and biological data. The integrated EIMS should have the ability to display the current RI and Work Plan documents. In addition, the 1978 Installation Assessment should be available. The integrated EIMS should link to web sites for USACHPPM and Ohio EPA.

2.8 RAB

RAB provides public input to the IRP process at RVAAP. RAB needs to be kept informed of the process and schedule of IRP activities at RVAAP. Documents and data need to be available for review. To be most widely available to the public, information should be accessible using only web-browser software. The system should allow for comment submission electronically and provide for acknowledgment and response. Generally, the IRP documents include all data in raw and summary format after validation. Providing data through electronic distribution of the documents will fill the needs of RAB.

3.0 NEEDS OVERVIEW

Some general conclusions may be drawn from the responses to the questionnaires:

- There are five key areas of common information needs: (1) IRP site characterization data, (2) spatial data, (3) documents, (4) public relations information, and (5) LCTA data (Table 1).
- The general public should not have access to unvalidated data and unreviewed documents.
- The ability to interactively select and display map attribute layers is desired.
- A simple interface for querying characterization data is desired.
- Most users would like to be able to query characterization data and display it on a map.
- Any interactive user interface should be simple and quick requiring only one or two mouse clicks as much as possible.
- A system should provide information fast.
- Because data collection is sampling-event driven, updates to the characterization database could be made at fairly long intervals, such as weekly or even quarterly for most users. (However, the contractor collecting the data would need at least daily updates to track sampling status.)
- Most users have Pentium-based PCs on a LAN with Internet access. Microsoft Office ’97 and ArcView software are common.
- Most users would like to query a database of documents to find titles and locations of relevant documents. Most would like the entire document available for new documents and at least some old documents.
- Most users have experience accessing web sites to obtain information.
- Because the IOC and Ohio ARNG have different budget priorities, the integrated EIMS should not depend on the availability of Ohio ARNG data to function.

- The Army already has a system for managing LCTA data. These data are not likely to be needed routinely for the IRP program. Maps and documents that include LCTA data would be added to the integrated EIMS, but until there was a need, the raw LCTA data would not be included.

Table 1. RVAAP Information Flow

User	Documents		GIS		IRP Site Data		Public Relations		LCTA Data	
RVAAP	↑	↓	↑	↓		↓	↑	↓		↓
IOC	↑	↓		↓				↓		
USACE	↑	↓		↓		↓		↓		
Ohio ARNG	↑	↓	↑	↓		↓	↑	↓	↑	↓
Contractors	↑	↓	↑	↓	↑	↓	↑	↓		↓
Ohio EPA	↑	↓		↓		↓	↑	↓		↓
USACHPPM	↑	↓		↓		↓		↓		↓
RAB	↑	↓					↑	↓		

↑-Produce Information
↓ -Use Information

4.0 RECOMMENDATIONS

The recommended strategy is to design and implement an integrated EIMS based on components that are flexible and modular. Basically, the idea is to employ information building blocks that are useful by themselves and even more useful when they are stacked on each other. Modularity allows parts of the system to be functional before the entire system is completed. It allows for prioritization of implementation based on program needs and budget constraints. Flexibility is achieved by storing information in formats that may be accessed by a variety of software applications and different hardware platforms. As the integrated EIMS is implemented, computer technologies will continue to advance, putting more hardware and software tools at the users' disposal. Flexibility and modularity allow the integrated EIMS to take advantage of these advances in the industry.

The work tasks described below are the building blocks recommended for implementing an integrated EIMS at RVAAP.

Task 1: Information Management Plan

- Define the data flow in the RVAAP IRP.
- Define the structure, content and location of the databases required.
- Define the responsibilities of the managers and users.
- Define procedures for entering data into the databases.
- Define procedures for indexing and maintaining documents.
- Define procedures for data and software configuration control.
- Define procedures for data archival and backup.
- Define the subsequent steps needed to implement an integrated EIMS.

Task 2: Server Configuration, Setup, and Maintenance

- Based on the Information Management Plan (IMP), a location will be chosen for a server that will house the RVAAP data and web site. Initially, the server should be located at the information technology subcontractor's site. This would allow the subcontractor to control server operation during the development process, which would help in identifying and resolving problems. This would also allow for efficient hardware and software maintenance. The server could be moved to RVAAP or an alternate site at a later time if it was determined that performance would improve and if adequate support could be provided.
- Redundancy will be built into the proposed configuration that implements fault-tolerance measures to minimize potential downtimes.
- Backup capability will be implemented, and a backup procedure will be part of the system.
- The existing network infrastructure will be considered in the database and web-site design to allow for future Internet, Intranet, and LAN accesses to a common database.
- Security will be built in at the operating system, the database, and the web-site access levels.
- The subcontractor will maintain a development server configured in the same manner as the production server so that software changes can be tested without affecting the production server.
- Server design will allow for future growth and expansion.

Task 3: Data Management System

- The database will be designed based on the IMP to allow access through Internet, Intranet, and LAN connectivity.
- RVAAP environmental characterization data that are currently maintained by SAIC in Oak Ridge will be loaded into the database first.
- Applicable data from other RVAAP environmental contractors and legacy data stored at RVAAP will be considered for possible loading into the database.
- Security will be built in to the database, and designated RVAAP, Ohio EPA, and Ohio ARNG personnel will govern the levels of access.
- A procedure outlining the process of collecting and entering data after the initial loading will be developed.
- Database design will allow for future growth and expansion.
- This task will result in the production of a database of environmental characterization data with software that allows for data entry and retrieval.

Task 4: Mapping and GIS

- All RVAAP base maps will be organized to utilize the American Institute of Architecture standards. Where appropriate, previous and ongoing projects will provide maps. This will be coordinated with GIS work performed for the Ohio ARNG.
- All RVAAP metadata will be organized to incorporate the Tri-Services structure standards.
- The RVAAP base maps will be subdivided into manageable tiles or segments to emphasize AOCs and training areas.
- All base map objects will be geocoded to databases that include schedules, history, pictures, data, documents, analysis, etc.
- All maps and manageable map tiles or segments will be made web-ready.
- Mapping and GIS design will allow for future growth and expansion.

- This task will result in a library of maps, with a viewer that allows map layers to be overlaid and related information to be viewed.

Task 5: Document Management

- The RVAAP environmental staff will be consulted to establish indexing information to appropriately identify all documents that should be catalogued for future reference. This information will allow for the organization of a hard-copy library and a basis for electronic searches.
- Initial indexing of documents and entering of the information into the database will begin with the assumption that RVAAP personnel or a subcontractor will eventually be trained and assume these responsibilities.
- Criteria for loading documents either partially (Title Page, Table of Contents, and Executive Summary) or totally on a web site will be established.
- A procedure that details the process of determining and entering document-indexing information will be established.
- The document management database and indexing system will be an open-architecture design to allow for future growth and expansion.
- This task produces a database of document index information and software that searches the index and provides access to the electronic document, if available.

Task 6: Web Configuration and Design for Integrated Information Management System

- At this point there will be from one to three functioning modules depending on the priority and timetables for tasks 3, 4, and 5. In this task one web application will be developed that integrates access to these modules.
- The restricted web site will be designed to allow the option of full functionality on the server, including the viewing of maps, the querying of data, on-the-fly analysis, and the viewing of documents. This will require only a web browser.
- The web application will also provide access to project schedule information, organizational chart, and contact list with access to e-mail.
- The initial web-site configuration and all associated functionality will be established and provided to key RVAAP personnel for review, comment, and approval.
- Web site access will provide a third level of security coupled with the security built-in at the operating system and the database. User IDs and passwords will be issued and maintained to limit access the sensitive data.
- The design and implementation of the web site will be done on a development server and migrated to the production server when appropriate. As new versions of the web site are developed, they may be reviewed and tested on the development server without interrupting data management work on the production server.
- Where possible, a “point-and-click” approach will be used to provide ease of use and intuitive browsing.
- The web site will be an open-architecture design to allow for future growth and expansion.

Task 7: Public Relations Web Site

- The needs assessment indicated that the public should have access to IRP information, but that data and documents should be validated and reviewed before public release. A public relations web site will be developed that provides only authorized information to the general public.

- The site will contain functionality and information similar to that of the restricted integrated EIMS web site. Where appropriate, the same data, maps, documents, and reports will be used.
- The site will contain information about the RAB, a catalog and description of the AOCs, a schedule of IRP activities, a schedule of Ohio ARNG activities, a schedule of public-access activities (hunting), a bulletin board for announcements, and links to other relevant sites.
- The site will include access to the IRP documents and a process for submitting comments on documents during periods of public review.
- The web site will be designed with a simple structure to allow intuitive usage for general information gathering. It will mostly consist of static pages and will be primarily server based.

Task 8: Site Implementation

- The needs assessment has defined where functionality and site components will mostly reside. Speed is of the essence and as such will take top priority.
- The web-based integrated EIMS should provide acceptable response for most functions for most users and require only a web browser.
- For those users who require more rapid responses, software applications and components will be configured on the client workstation. These configurations will be custom-fitted to meet the user's requirements. To accomplish this customization, a list of software and minimum hardware will be provided to each client that will provide the workstation functionality.
- Auto-uploads will be established for both data and maps. Where appropriate, the user will be notified of changes in base information.
- Workstation configuration will be conducted in conjunction with training.

Task 9: Training

- Access to the integrated EIMS should require little or no training. Menus in the interface will give the user directions. Training will be needed for those who will be loading data into the databases. Those loading the data will most likely be subcontractor personnel. The developing subcontractor will not require training, but additional and subsequent subcontractors will.
- A procedure previously developed for outlining the process of collecting and entering data will be used to train personnel to manage data. The basic flow of data will be diagrammed and presented in accordance with outlined data requirements.
- A procedure previously developed to outline the process of determining and entering document-indexing information will be used to train personnel to index and catalogue documents.
- CAD and GIS personnel will be presented with the geocoding process and dynamic linkages used with the RVAPP database. All layers and their interdependencies will be presented for a better understanding of the basis for spatial analysis.
- The functionality of the integrated EIMS will be presented to prospective users. An understanding of the extent of information retrieval, review, and calculations will be emphasized.
- A user manual will be provided for the system.

It is recommended that tasks be prioritized during the writing of the IMP. The tasks listed do not have to be completed sequentially. Task 1, the IMP, should be completed first to establish protocols for data structures. Tasks 3, 4, and 5, construction of the data, GIS, and document modules, may be conducted concurrently or sequentially in any order. Task 2, server configuration, should be completed before Tasks 3, 4, and/or 5 go into the production mode of operation. Task 6, web integration, may begin as

soon as one of Tasks 3, 4, or 5 is complete. Task 7, the public web site, can be initiated at any time, with functionality added as Tasks 3, 4, and 5 are completed. Task 8, site-specific implementation, can be started after Task 6 is complete. Task 9, training, can be initiated as needed after Tasks 3, 4, or 5 is complete.

Even while an IMP is being developed, some measures can be taken to assure data integrity and to reduce the effort needed to move to an integrated EIMS. Any data currently being collected should be in an electronic database format. This means a table or group of linked tables in which each row is a record and each column is a field that has a maximum length and a specific type such as numeric, date, or character. If a field is supposed to be numeric, it should not have character data in any record. Typical database formats are Access, Oracle, SQL Server, and dBase. Spreadsheets such as Excel and ASCII files may be in a database form, but they allow different data types in the same column and may have formatting that causes difficulty in converting data to a true database. Likewise, data in tables in word processing files, while electronic, may be difficult to convert to a true database.

All databases should be routinely backedup (copied to a different storage medium) and stored in a different location than the primary database. The backup process reduces the risk of data loss from failure of the storage media.

All new documents, including tables, figures, and appendices, should be requested and stored in a completely electronic format to make them more easier to incorporate into the document management system.

The strategy presented will produce an integrated EIMS that meets the current information needs of the IRP at RVAAP and can be readily adapted as needs and technology change in the future.

ATTACHMENT

COMPLETED NEEDS ASSESSMENT QUESTIONNAIRES

Questionnaires are presented as received from representatives of key user groups:

- RVAAP: Mark Patterson interviewed on-site as summarized in report. Questionnaire attachments included.
- IOC: Bob Whelove interviewed by phone as summarized in report. Questionnaire not completed.
- USACE: John Jent interviewed at RVAAP. Questionnaire attached.
- Ohio ARNG: Capt. Daughtery interviewed by phone. Questionnaire from Col. Tadsen attached.
- Contractor: Needs summarized by Pat Ryan from SAIC in text. Questionnaire not completed.
- Ohio EPA: Eileen Mohr interviewed at Ohio EPA in Twinsburg, Ohio. Questionnaire from Todd Fisher and Eileen Mohr attached.
- USACHPPM: Larry Tannenbaum and Matt Bazar interviewed at RVAAP. Questionnaire attached.
- RAB: Input from all users concerning RAB was summarized in text. No questionnaire completed.

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RVAAP

RVAAP Information Management Needs Assessment

Name Mark Patterson

Organization RVAAP

Phone Number Interviewed on site, summary in report. Attachments only

Ravenna Site Connection

1. What are your responsibilities at or with RVAAP?

2. How does your role fit in the overall Environmental Restoration program?

Information Responsibilities

3. Do you generate information that is or should be stored in an Information Management System? If, yes, what type of information? In what format is it currently stored? How do you input information now?

4. Do you use information that is or could be extracted from an Information Management System? If, yes, what type of information? How do you extract information now?

5. How up to date should the information be to meet your needs? To the minute? Daily? Weekly?

Interface Requirements

6. Would you prefer interactive access (where the users have extensive options available for

Attachment A. Listing of Maps and Attribute Layers

In the first column please rate the importance of each map or attribute layer to your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential.

Ohio National Guard Ravenna GIS (06/04/99)

Rate 0-5 Scale	Map Layer	Status
3	National Wetlands Inventory Map- Newton Falls, Windham, and Ravenna Quads	Scanned and digitized
5	C - OHARNG/AMC Boundary	Digital format
3	AP - 1997 Composite Aerial Photo	Scanned
5	USGS Topography - Newton Falls, Windham, and Ravenna Quads	Digital - 1:24,000
3	1400.14-1 - Installation and UTM Coordinate Map	Digital format
3	1200.7 - Boundary Survey	Digital format
2	1400.0 - Plant Communities of the Ravenna Arsenal	Digitized and revised
2	1400.0 - RVAAP Wetland Communities	Digitized
3	Soil Survey- Portage and Trumbull Counties	Digital

Rate 0-5 Scale	Additional Map Layers	Status
5	1940 Aerial Photo	Scanned
2	1998 Infrared Photo	Scanned
5	2-foot contours	Digital (not complete)
5	Watershed map	Digitized
3	Blowout Arcs	Digitized
5	Areas of Concern	Digitized
5	Monuments	Digitized
2	Base Electric	Digital format
5	Base Sanitation	Digital format
2	Base Steam Lines	Digital format
2	Building inventory	Photos, status (active, inactive)
2	Railroads	Railroad removal – modify GIS
2	Habitat survey	Revise based on ground truthing

5	Side roads	GPS?
5	Metadata	FGDC standards, SMMS software
2	3D visualization	Topography
0	Virtual tours	IPIX format

Current SAIC CAD Map Layers

Rate 0-5 Scale	Layer Description
	HYDROLOGY
5	Culvert
5	Drainage Ditch
5	Lagoon Boundary
5	Lake
5	Pond
3	Seep and Spring Location
5	Stream
5	Tributary
3	Wetlands
	ROAD FEATURES
3	Bridge
0	Curb and Gutter
5	Dirt Road
5	Gravel Roads
2	Parking Lot
5	Primary Roads, Highways,
5	Secondary Roads
0	Trails
	SITE FEATURES
5	County Boundary
5	Building

Rate 0-5 Scale	Layer Description
1	Bollards
1	Concrete slab
1	Fence
1	Helicopter Pad
5	Existing Property Pin
1	Proposed Property Pin
1	Guard Rail
1	Parcels
1	Railroad
1	Riprap
1	Sign
5	Tanks (Storage)
2	General Site Text
2	Trench Locations
0	Sidewalk
	TOPOGRAPHY:
3	Contour Elevation Text
2	Contour 5' Interval
5	Contour 2' Interval
5	Contour 10' Interval
1	Contour 100' Interval
5	Spot Elevations
	UTILITIES
0	Utility Easement
0	Junction Box
0	Utility Lateral Line
5	Catch Basin
0	Electric Light Pole
0	Electric Pole
1	Fire Water
1	Fire Water Hydrant
5	Natural Gas Line

Rate 0-5 Scale	Layer Description
5	Sewer Line
5	Sewer Manhole
5	Storm Drain
5	Sewer Line
1	Telephone Line - Underground
1	Transmission Tower
1	Water Line
1	Water Hydrants
	VEGETATION
1	Grass
1	Lawn
1	Fill
5	Tree Line

Attachment B. Listing of Studies at RVAAP

In the first column please rate the importance of having electronic access to data from each study for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential.

In the second column please rate the importance of having electronic access to documents from each study for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential. Add an 'A' to the rating to indicate that you would need only the abstract or summary or a 'W' to indicate that you would need access to the whole document.

Historical Studies

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
		STREAM SAMPLING							
3	3 A	19741212	AEHA	FLOW MEASURING DEVICES	3		ENV.	S.W.	STREAMS & CREEKS
5	5 A	19800312	RA, INC	WATER QUALITY SURVEILLANCE	11		ENV.	S.W.	9 STREAM LOCATIONS
5	5 W	19881216	RA, INC	SURFACE WATER MONITORING	28		ENV.	S.W.	8 STR LOC & 061,OB2
5	5 W	19881227	RA, INC	SURFACE WATER MONITORING	29		ENV.	S.W.	8 STR LOC & OB1 OB2
3	3 A	19880725	AEHA	TOXICITY ID EVALUATION	86	LL6	ENV.	S.W./BIO	PINK WATER POND AQUATIC TOX
5	5 A	19891130	RA, INC	SURFACE WATER MONITORING	38		ENV.	S.W.	8 STR LOC & 081,OB2
3	0	19900122	AEHA	REC WAT BIO STUDY-EFFL TOX TEST	40	LL6	ENV.	BIO/S.W.	PINK WAT TREAT SYSTEM AT L6
5	5 A	19910620	RA INC	SURFACE WATER MONITORING	50		ENV.	S.W	8 STR LOC & OB1,OB2
5	5 A	19921203	RA, INC	SURFACE WATER MONITORING	59		ENV.	S.W.	8 STR LOC & OB1,OB2
		MONITORING WELLS							
0	0	19810907	AEHA	HAZ. WASTE MANG. CONSULTATION	12		ENV.	G.W.	21 MONITOR WELL LOGS
5	5 A	19820512	AEHA	G. WATER MONITORING RESULTS	14		ENV.	G.W.	MON WELLS & FEW WAT WELLS
3	1 A	19820812	EA, INC	2ND 1/QUARTER ANALYTL RESULTS	15		ENV.	G.W.	MON WELLS & FEW WAT WELLS
5	5 A	19821208	AEHA	G. WATER MONITORING RESULTS	16		ENV.	G W	MON WELLS & FEW WAT WELLS

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
5	5 A	19830214	AEHA	G WATER MONITORING RESULTS	18		ENV.	G.W.	MON WELLS & WAT WELLS
5	5A	19830811	AEHA	G. WATE R MONI RORING RESULTS	19		ENV.	G.W.	MON WELLS & WAT WELLS
5	5A	19860211	RA, INC	G WATER MONITORING WELLS	23		ENV.	G.W.	DOC TO STOP READ MON WELLS
2	2 A	19930301	RA, INC	ABANDON WATER WELLS (SPEC)	61		GEO.	G.W.	14 WAT SUPPLY&11 MON WELLS
		WATER SUPPLY SAMPLING							
2	0	19790105	AEHA	POTABLE / WASTE WAT SURVEY	10		ENV.	GW/SW	G.W/S.W. DATA
2	2 A	19770912	AEHA	GEOHYDROLOGIC CONSULTATION	6		GEO/ENV	GW/SW	11 POTABLE WELLS
4	4A	19860113	AEHA	POTABLE WATER QUALITY SURVEY	22		ENV.	GW/SW	5 - WELL LOGS
4	2A	19871103	RA, INC	WATER WELL ANALYSIS	24		ENV.	G W.	WATER WELLS
5	5A	19890110	RA,INC	EXPLOSIVES & PESTICIDE ANALYSES	30		ENV	G W.	WATER WELLS
5	5 A	19890126	OhioEPA	WATER WELL PESTICIDE ANALYSIS	31		ENV.	G W.	WWII & WWIII
1	1 A	19891120	RA, INC	WELLHOUSE MONITORING	37		ENV.	G W	WATER WELLS
1	1 A	19891207	RA, INC	WELLHOUSE MONITORING	39		ENV.	G W	WATER WELLS
5	5 A	19900124	RA, INC	RADS ANALYSIS	41		ENV	G W.	A19556 & C-19556
2	2 A	19891025	AEHA	WATER QUALITY CONSULTATION	35		ENV.	G.W.	5 WATER WELLS
0	0	19900209	AEHA	SYNTHETIC ORGANIC CHEM SURVEY	42		ENV.	G W.	5 WATER WELLS
1	1 A	19901203	RA, INC	WELLHOUSE MONITORING	47		ENV.	G W.	WATER WELLS
1	1 A	19910831	RA, INC	WELLHOUSE MONITORING	52		ENV.	G.W.	WATER WELLS
1	1A	19911204	RA, INC	ABANDONMENT OF WELLS	53		ENV.	G W.	9 WAT WELLS & 21 MON WELLS
5	5A	19930522	RA, INC	4 QUARTERLY VOC ANALYSIS	62		ENV.	G W.	WATER WELLS
5	5C	RCRA UNITS							
1	1 A	19830931	AEHA	HAZ WASTE MANG STUDY	20	OD/OB	ENV.	SOIL	OB PADS/OD AREA-TOT EXL,EPTO
		19850821	RA, INC	AIR CONTAMINANT SOURCE PERMIT	21	DFA	ENV.	AIR/SOIL	CHEM COMP FUZES/PROCESSES
A	5C	19900608	RA, INC	SOP FOR DEMIL: OPEN DEMOLITION	44	OD	ENV.	SOIUG.W.	DEMOLITION S.O.P.
5	5A	19901221	OLIN	OPEN BURN AREA SOILS(SHO BE OD)	48	OD	ENV.	SOIL	TOT EXP/CLP IN/ARD OD HORSH
		19910311	OLIN	RCRA PERMIT MEETING	49	OD/OB	ENV	N/A	HAS DETAILED CHRONOL
5		19920312	RA, INC	BENCHMARK SETTING	54	OD	GEO.	N/A	SAND CREEK B M.
	5 C	19920513	RA, INC	SOP FOR DEMIL: OPEN BURNING	56	WINK	ENV.	SOIUG W.	BURNING S O P.
3		19920520	AEHA	SOIL G WAT,S WAT CHAR OD/OD	57	OD/WINK	ENV	SOIIG W	SOIL,G WAT SAMPLING

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
5	5A	19920630	H N.	OHIO HAZ. WASTE PERMIT APPLIC.	58	OD/OB	ENV.	N/A	RCRA WASTE APPLIC/MUCH INFO
	5A	19921209	AEHA	HEALTH RA FOR DFA RCRA CLOSURE	60	DFA	ENV.	SOIL	MUST GO CLEAN CLOSURE
	5A	19940331	RA, INC	HAZ. WASTE ACC. & STORAGE	64		ENV	N/A	HAZ. MAT, STORAGE
4	5C	19940531	MASON	RCRA INSP SOP FOR OB	65	WINK	ENV.	N/A	INSPECT. SPECS.
	3A	19940531	MASON	RCRA INSP SOP FOR BLDG. 1601	66	1601	ENV.	N/A	INSPECT. SPECS.
	3A	19940531	MASON	RCRA INSP SOP FOR OD	67	OD	ENV.	N/A	INSPECT. SPECS.
5	5A	19980108	CELRL	DISPOSABLE MATERIALS (LBS)	83	OD/OB	ENV.	N/A	YEARLY DISPOSALS (1984 - 1993)
5	5C	no date	RA, INC	OEPA COMMENTS	85	OD/OB	ENV.	SOIUG.W.	WELUSOIL SAMP LOCATS
		RCRA STREAM SAMPLING							
5		19950117	MASON	OD/OB STREAM SAMPLE ANALYSIS	70	OD/WINK	ENV.	S.W.	RCRA
5		19950724	MASON	OD/OB STREAM SAMPLE ANALYSIS	71	OD/WINK	ENV.	S.W.	RCRA
5		19951027	MASON	OD/OB STREAM SAMPLE ANALYSIS	72	OD/WINK	ENV.	S.W.	RCRA
5		19960108	MASON	OD/06 STREAM SAMPLE ANALYSIS	73	OD/WINK	ENV.	S.W.	RCRA
5		19960517	MASON	OD/OB STREAM SAMPLE ANALYSIS	74	OD/WINK	ENV.	S.W.	RCRA
5		19960524	MASON	OD/OB STREAM SAMPLE ANALYSIS	75	OD/WINK	ENV.	S.W.	RCRA
5		19960524	MASON	OD/OB STREAM SAMPLE ANALYSIS	76	OD/WINK	ENV.	S.W.	RCRA
5		19960708	MASON	OD/OB STREAM SAMPLE ANALYSIS	77	OD/WINK	ENV.	S.W.	RCRA
5		19970121	MASON	OD/OB STREAM SAMPLE ANALYSIS	78	ODIWINK	ENV.	S.W.	RCRA
5		19970525	MASON	OD/OB STREAM SAMPLE ANALYSIS	79	OD/WINK	ENV.	S.W.	RCRA
5		19970717	MASON	OD/06 STREAM SAMPLE ANALYSIS	80	OD/WINK	ENV.	S.W.	RCRA
5		19971013	MASON	OD/OB STREAM SAMPLE ANALYSIS	81	OD/WINK	ENV.	S.W.	RCRA
5		19971016	MASON	OD/OB STREAM SAMPLE ANALYSIS	82	OD/WINK	ENV	S.W.	RCRA
		FACILITY ASSESSMENTS							
	5C	19770712	AEHA	GEOHYDROLOGIC CONSULTATION	5		ENV.		GOOD DISC OF WATER WEL POL
	5C	19781130	THAMA	INSTALLATION ASSESSMENT	9		ENV.	G.W./S.W.	VERY COMPL ENV ASSESS
2	2A	19820504	MOGUL	SOIL AND SEDIMENT ANALYSES	13		ENV.	SOIL/SED	SAMPLE LOC NOT WELL DEFINED
	5C	19821231	THAMA	REASSESSMENT OF HVAAP	17		ENV.		STRAT FOR 80'S ENV CONCERNS
	5C	19880808	AEHA	SOLID WASTE MANG EVALUATION	26		ENV	N/A	AEHA ENV SUM-TISES MOGUL DAT
	5C	19891005	JACOBS	SOLID WASTE MANG INVEST.	33		ENV.	N/A	SOW FOR EPA SUM REP.

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
	5C	19891005	JACOB	RCRA FACILITY ASSESSMENT	34		ENV	N/A	EPA FUNDED SUM/REP OF EXIST.
	5C	19900620	AAMCC	RCRA PACILITY ASSESSMENT	45		ENV.	N/A	RCRA ASSESSMENT
2	2A	19940610	AEHA	PAS BOUNDARY LINE AREAS	68		ENV		CONCISE SUM/REFERS TO 1988 RE
	5C	19980108	CELRL	SOIL MAPS	84		GEO.	SOIL	SOIL/WAT WELL X-SECTS.
		NPDES							
	2A	19780710	ALDEN	WATER & AIR POLLUTION SURVEY	7		ENV.	S.W.&AIR	LIST AIR POUNPDES SOURCES
	5C	19900524	AEHA	WASTEWATER FACILITY SURVEY	43		ENV.	S.W.	SEWAGE TREATMENT
		RADIOACTIVITY							
	2A	19	LTH	RADIATION DECONTAM PROGRAM	4		ENV	RAD	DECON MONAZITE STOR TANKS
	2A	19	INC	CERCLA INDUSTRIAL LANDFILL	46		ENV.	SOIL	SUM OF RAD AT FACILITY
		PESTICIDE BUILDING							
	5C	19781127	AEHA	INSTAL PEST MANAGE PROG SURVEY	8	PEST BLDG	ENV	NA	LIST PRODUCTS/METHODS
	1A	19891030	RA,INC	PEST SPILL PREVENT & MANAGE	36	PEST BLDG	ENV	NA	PRODUCTS, METHODS
	5C	19920424	AEHA	PEST MANAGEMENT SURVEY	55	PEST BLDG	ENV	NA	PRODUCTS, METHODS
	5C	19930922	RA, INC	PESTICIDES IN PEST SHOP	63	PEST SHOP	ENV.	N/A	LIST PRODUCTS
		ORE PILES							
2	2A	19881205	AEHA	POT. G WAT CONTAM CHROM PILES	27	ORE PILE	ENV.	GW/SW	ALSO SOIL TESTING
		NEW LANDFILL STUDY							
5	5A	19871104	AEHA	SOLID WASTE DISPOSAL STUDY	25		GEO/ENV	G.W.	BORINGS/MON WELLS/SOILS DAT
		GENERAL GROUNDWATER REQUIREMENTS							
	5C	19910711	OEPA	HYDROGEOLOGIC GUIDANCE	51		GEO/ENV	G.W.	GOOD DESCR OF HYDRO REQ
		AIR EMISSIONS							
		19940923	GEOMET	AIR POLLUTION EMISSION SUMMARY	69		ENV.	AIR	V. COMPL/LISTS AMTS MATS PRO
		KIRWAN WATER SUPPLY STUDY							
		19740918	HCNUTT	GEOTECH INVEST WAT PLANT MOD	2		GEO.	SOIL	BORING LOGS/SOIL DATA
		UNDERGROUND STORAGE TANKS							
5	5C	19890930	CEHND	INVEST & EVAL OF USTS	32		ENV.		DET STAT OF 50 FAC USTS

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS		

		ABBREVIATION LISTING FOR THE RVAAP SPREADSHEETS
		RA, INC — RAVEENA ARSENAL, INC.
		CELRL — LOUISVILLE DISTRICT
		MASON — MASON-HANGER COMPANY
		OLIN — OLIN DEFENSE SYSTEM
		AEHA — ARMY ENVIRONMENTAL HYGIENE AGENCY
		OEPA — OHIO EPA
		JACOBS — JACOBS ENGINEERING GROUP, INC.
		H N — HALLIBURTON NUS ENVIRONMENTAL CORP.
		S W — SURFACE WATER
		G W — GROUND WATER

Recent and Other Studies

Rate Data 0-5	Rate Doc 0-5 A,W	Report Title
5	5A	Carroll, Chantelle. 1999. *A survey of the small mammals of the Ravenna Arsenal.* Ohio Department of Natural Resources, Columbus, Ohio. pp. 15.
5	5A	ODNR (Ohio Department of Natural Resources). 1993. *Species and Plant Communities Inventory.* Ravenna Army Ammunition Plant. Ohio department of Natural Resources and the Nature Conservancy, Columbus, Ohio, various pagination.
2	2A	Schalk, Charles W., John S. Turtuliani and Robert A. Darner. 1999. *Identification of Potential Wetlands in Training Areas on Ravenna Army Ammunition Plant, Ohio, and Guidelines for Their Management.* U.S. Geological Survey. Columbus, Ohio, Report 99-68, pp. 78.
5	5A	Tawse, Merrill. 1999. *A Survey of the Bats of the Ravenna Arsennal.* Ohio Department of Natural Resources. Columbus, Ohio, pp. 32.

Rate Data B-5	Rate Doc B-5 A,W	Report Title
5	5C	Tertuliani, John S. 1999. *Macroinvertebrate survey in streams at Ravenna Army Ammunition Plant*, Portage and Trumball Counties, Ohio, pp. 44. Draft.
5	5C	USACE (U.S. Army Corps of Engineers). 1996a. *Facility-Wide Sampling and Analysis Plan for Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. April 1996.
5	5C	USACE (U.S. Army Corps of Engineers). 1996b. *Preliminary Assessment for the Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. April 1996.
5	5C	USACE (U.S. Army Corps of Engineers). 1997a. *Phase I Remedial Investigation Report for 11 High-Priority Sites at Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. May 1997.
5	5C	USACE (U.S. Army Corps of Engineers). 1997c. *Closure Plan for the Deactivation Furnace Area Hazardous Waste Treatment Unit, Ravenna Army Ammunition Plant, Ravenna, Ohio*. Draft Revised. October 1997.
5	5C	USACE (U.S. Army Corps of Engineers). 1998a. *Sampling and Analysis Plan Addendum for the Phase II Remedial Investigation at Winklepeck Burning Grounds and Determination of Facility-Wide Background at the Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. April 1998.
5	5C	USACE (U.S. Army Corps of Engineers). 1999. *Phase II Remedial Investigation at Winklepeck Burning Grounds and Determination of Facility-Wide Background at the Ravenna Army Ammunition Plant, Ravenna, Ohio.*
5	5C	USACE (U.S. Army Corps of Engineers). 1998b. *RCRA Field Investigation Report for Five Sites at Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. June 1998.
1	1A	USACE (U.S. Army Corps of Engineers). 1998c. *Initial Phase Report, Ramsdell Quarry Landfill Groundwater Investigation, Ravenna Army Ammunition Plant, Ravenna, Ohio*. Draft. September 1998.
1	1A	USAEC (U.S. Army Environmental Center). 1995. *Manual for the preparation of installation endangered species management plans*. USAEC, Attn: SFIM-AEC-ECN, Aberdeen Proving Ground, MD.
5	5A	USAEHA (U.S. Army Environmental Health Administration). 1983. *Hazardous Waste Management Study No. 37-26-0442-84, Phase 2 of AMC Open-Burning/Open-Detonation Grounds Evaluation, Ravenna Army Ammunition Plant*, 31 October – 3 November 1983.

Rate Data 0-5	Rate Doc 0-5 A,W	Report Title
5	5A	USAEHA (U.S. Army Environmental Health Administration). 1992. *Geohydrologic Study No. 38-26-KF95-92.* Soils, Ground Water, and Surface Water Characterization for the Open Burning and Open Detonation Areas, Ravenna Army Ammunition Plant, Ravenna, Ohio, 20 April – 5 May 1992.
5	5C	USATHAMA (U.S. Army Toxic and Hazardous Materials Agency). 1978. *Installation Assessment of Ravenna Army Ammunition Plant.* Report No. 132.
5	5A	U.S. Department of the Army, Environmental Assessment. 1993.

Attachment C. Listing of Data Types that Could be Included in an Environmental Information Management System

The first table below lists general data categories that could be included in an information management system. In the first column please rate the importance of having electronic access to data of each type for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential. Please add any categories of data that you use that are not listed.

	Data Categories
	This table lists broad categories of data that could be included in a data management system.
Rate 0-5 Scale	**Description**
5	Laboratory analyses of field samples:
5	Target analytes
5	Tentatively Identified Compounds (TICs)
5	Field quality control results:
	Field replicates
	Trip Blanks
	Equipment Rinse
	Laboratory Split samples
	Tentatively Identified Compounds (TICs)
5	Laboratory quality control results:
	Matrix spikes
	Matrix spike duplicates
	Laboratory control standards
	Laboratory blanks
	Laboratory replicates
	Field Measurements:
3	Safety-related (such as organic vapor)
3	Site conditions (air temperature, weather)
5	Media related (such as pH, conductivity, depth to water table, water temperature):
	Instrument calibration records
5	Well construction information (such as boring depth, construction date, construction materials, screen depth)
5	Geotechnical (layer type, depth to layer)
	Other _____

Potential Fields in Environmental Relational Database

The following tables list specific variable fields that could be included in a relational database of environmental data. If you are interested in this level of detail please rate the importance of each field and list additional fields that you would need. Keep in mind that in a relational database information from one table is linked to the other tables by key fields. For example coordinates do not need to be in the sample file because they are in the spatial file and can be linked to the sample file by station ID.

(Continue only if you are interested in this level of detail)

	Field Samples
	This table contains information about the samples that are planned or collected
Rate 0-5 Scale	**Description**
5	Sample ID
2	An alternate sample id.
2	Y/N value indicating that the record has been cleared for public use.
5	Y if the sample was collected.
2	A comment about the sample collection.
3	The date the record was added to the table.
5	The date the sample was collected.
3	The time the sample was collected.
3	The date the record was modified.
5	The depth unit the sample was collected. NA if not applicable.
5	The starting depth of the sample.
5	The ending depth of the sample.
5	Field sample type. (e.g. grab, field duplicate..)
5	Media the sample was collected from.
5	Project ID
5	Code for the sampling method.
5	Sampling location
	Other _____
	Chemical Results
	This table contains information about the results from laboratory analyses
Rate 0-5 Scale	**Description**
5	Analysis type+B49 (volatile, semivolatiles)
5	The chemical name.

2	Y/N value indicating that the record has been cleared for public use.
3	The data validator's qualifier.
3	The date the record was added to the table.
3	The date the record was modified.
5	The detection limit.
5	The dilution factor.
5	The error associated with the measurement.
5	Y/N indicating if the result is filtered.
5	Sample ID- key used to identify each sample record.
3	Qualifier assigned by the laboratory.
	Y/N indicating a specific record should be used. Used to identify a single result that should be used when multiple analyses have been performed.
5	Code for the parameter. Usually the CAS #.
4	Qualifier assigned based on a review of the laboratory and data validation qualifiers. Used so that if not all data has been validated, only have a single field to test for detects.
5	The chemical result value.
5	The units for the analytic results.
3	Codes assigned during validation indicating why qualifiers were assigned.
	Other _____
	Laboratory Analysis Information
	This table contains laboratory information about the samples analysis.
Rate 0-5 Scale	**Description**
	Sample ID
5	Analysis type (volatile, semivolatiles)
5	The EPA analysis level.
5	ID of associated blank
5	The date the sample was analyzed.
5	The date the sample was extracted.
5	The date the laboratory received the sample for analysis.
5	The dilution factor.
3	The extraction method.
5	Y/N indicating if the result is filtered.
2	The instrument number for the instrument the sample was analyzed on.
2	Code for the laboratory.
5	Sample id assigned by the laboratory.
5	The matrix of the sample analyzed. Typically soil or water.
5	The analytic method.
3	The percent solids.
3	Result type (regular, dilution, matrix spike, etc.)

3	The sample delivery group (SDG) number.
5	The date the SDG was received.
3	Sample pH.
3	The time the sample was analyzed.
5	The units for the analytic results.
3	The weight or volume of the sample when analyzed.
	The units for wgt_vol field.
	Other _____
	Spatial
	This table defines the spatial information.

Rate 0-5 Scale	Description
5	The name of the station.
3	Description of the station.
5	Station type (well, boring, etc.)
2	The name for a spatial area (i.e. AOC)
3	A comment about the spatial location.
3	The date the record was modified.
5	The station's northing coordinate.
5	The station's easting coordinate.
2	The station's ground surface elevation.
2	Indication of how the coordinates were determined (survey, GPS, estimate, etc).
2	The units (ft, meters) that the elevation is in.
	Other _____
	Project
	This table defines the projects in the database.

Rate 0-5 Scale	Description
3	The project name.
3	The contact person for a project.
5	The contractor performing the sample collection.
3	The project manager.
3	Phone number for the project's contact.
5	The project number.
5	A name where the site is located

	A name for the site.
	Other _____
	Well
	This table defines the well construction information.
Rate 0-5 Scale	**Description**
	Name of station
5	boring depth
4	Liner material
4	Screen type
5	Screen start depth
5	screen end depth
5	top of casing elevation
5	screen material
3	driller
5	date constructed
	Other _____
	Field Measurements
	This table stores field measurements.
Rate 0-5 Scale	**Description**
5	Sample ID
5	Station ID
5	Date measured
3	Time Measured
5	Parameter
5	Result
3	Result qualifier
	Other _____

USACE

RVAAP Information Management Needs Assessment

Name **John P. Jent**

Organization **U.S. Army Corps of Engineers, Louisville District**

Phone Number **502 582-6393 / fax 5168 / e-mail john.p.jent@lrl02.usace.army.mil**

Ravenna Site Connection

1. What are your responsibilities at or with RVAAP?

   Am Technical Manager for the Louisville District's activities at RVAAP

2. How does your role fit in the overall Environmental Restoration program?

   Coordinate Corps DERP and Base Production Support work at RVAAP

Information Responsibilities

3. Do you generate information that is or should be stored in an Information Management System? If, yes, what type of information? In what format is it currently stored? How do you input information now?

   Yes
   3 general types of information
   - AE, Construction Contractor related info, as SOW's, review comments (not sure how much of this type data needs to be available)
   - In-house generated documents, as Reports of New Sites, Reports of Historic Facility-Wide Stream Sampling, Residential Well Sampling, etc.
   - Graphic data, as facility contour maps, figures included in in-house reports

4. Do you use information that is or could be extracted from an Information Management System? If, yes, what type of information? How do you extract information now?

   Yes
   Presently, use hard copy reports, as-built drawings, aerial photography of various environmental areas of concern

5. How up to date should the information be to meet your needs? To the minute? Daily? Weekly?

   Depends on the type data, with ranges of from yearly – to - daily on rare occasions. For the most part, however, monthly would be fine.

Interface Requirements

6. Would you prefer interactive access (where the users have extensive options available for specific data types) or "canned" reports with limited options (where the users have one to two button decisions with all functionality behind the scenes) to access information? Explain.

   Prefer easy-to-use interactive access

7. Would you prefer spatial interfaces (utilizing maps to partition or access data) or customized query tools (intuitive or knowledge based to partition or access data) to information? Explain.

   Prefer spatial because would probably be easier to use and would require less facility-specific knowledge

Infrastructure

8. What software tools do you most frequently use?
   a. Excel XX
   b. MS Word XX
   c. ArcView Don't use personally, but have facilities to use
   d. Word Perfect XX

9. What type of hardware do you have?
   a. PC, Mac, workstation, mainframe? PC only; but have access to other hardware
   b. typical hard drive size 4 GB EIDE
   c. typical memory size 32 MB Ram
   d. processor type/speed Pent II 233 Mhz
   e. Have Gateway 2000 / E-3110

10. What is the current server configuration where the data and Web site could reside? What is the operating system?

    Louisville District uses a NT operating system / server

11. Is there a Local Area Network? If so will Intranet connectivity be required?

Yes, Yes

12. Is there a DBA or Network Administrator available for consultation for the network that you are using?

Yes Chris Heinze Ace Van

Security

13. Who should have access to the information (organization specific)? How? Direct connection or Internet? Should there be different levels of access?

Yes
Should have different levels of access,
With some data available to only selected users
With some data as "read only"

14. How secure should the system be?

Should be open to all with different levels of access.
Should also have protection from viruses, computer hacks, etc.

15. Should accessibility to data be governed by the organization?

No, would prefer specific individuals within various organizations have more use, facility to change data than others within the same organization
Maintain a list of users within two to three levels of facility to change data

Current Information Management System/Data Access

16. What is your current biggest complaint about your access to information?

Most everything is hard copy.
Greatly prefer hard copy, but space requirements prevent saving as much as would like to have available
Cannot always locate existing pertinent information, due to lack of storage/organization of found materials, and also information at other agencies, organizations that not aware of
Large amount of historic and recent data that needs to be referenced/ used in current, future work

17. If changes were made to your current IMS, what would you most like them to be?

Good organization, easy access to known, found materials
Especially the many facility as-built maps (at the OH NG office)
and historic environmental documents (at the Ravenna IOC office)
The existing indexes of facility as-builts are organized in several ways w/ efficient cross-references and could probably form the basis for current organizational efforts
Plant has a very complete set of SOP's and other operational data that needs to be maintained and organized
Good tools to find unknown pertinent information

18. How important is speed?

Its not very important to me.
In the short term, can do other tasks while waiting.
For longer searches, waiting periods of several days is no problem.

GIS/Maps and their use

19. Attachment A lists maps and associated attribute layers that are available. Please indicate in the first column of the list which maps/layers are important for your work. Use a 0-5 scale with zero meaning unimportant and 5 meaning essential.

Please see AttachA-JJ

20. Are there additional maps or layers that are available that are not listed?

Yes
Original Dwelling Location / Water Supply Facilities and Wells; 6934; 1942/1953
Location of Monitoring Stations for Pollution Control; A-3497; 1970
General Area Map Showing Incoming & Outgoing Streams for Water Sampling; A-3584; 1972
Water Quality Monitoring Stations; 3621-1; 1975
Pollution Control Map; Vol II, Part I, Sec D; 1976 / 1989 (has many media)

21. Are there additional layers required?

The ones listed in #20 above
Historic facility water supply wells
Previous groundwater monitoring wells
Current / future groundwater monitoring wells
Previous stream monitoring stations

Current / future stream monitoring stations
NPDES monitoring locations
Future eco monitoring locations
Ohio NG training areas, possibly other NG layers at their direction

22. How important is it for you to be able to select which attribute layers are displayed on maps?

    Very

23. Are there portions of the Ravenna site that are important to you and that should be easy to view without knowledge of viewing software tools? i.e. What parts of the RVAAP site map would you like to easily zoom in on? Be specific.

    Demolition Area #2
    Ramsdell Quarry
    Winklepeck Burning Grounds

24. Do you need to be able to plot the distribution of contamination levels for a particular media and analyte type on a map?

    Not now
    Possibly in future, but only if there is enough data for the plot to be of value

Data

25. Attachment B lists studies that may have generated environmental data sets. Please indicate in the first column on the list the importance of having each data set electronically available for your work. Use a 0-5 scale with zero meaning unimportant and 5 meaning essential.

    Please see AttachB-JJ

26. Attachment C lists specific variables that could be included in an environmental data management system. Please indicate on the list the importance of having each variable electronically available for your work. Use a 0-5 scale with zero meaning unimportant and 5 meaning essential.

    Please see AttachC-JJ

27. Are there additional data sets and types that are available that are not listed? Legacy data?

    Not that I can tell. Looks pretty complete.

28. Are there additional data types required? Be specific.

Not that I can tell.

29. What specific type of data is most important to you?

    Previous / current / future sampling locations / types of analyses
    Facility groundwater flow regimes, but only if enough data to be valid

30. Do you want to download data to your workstation to make calculations and generate reports?

    No

Documents

31. Attachment B lists studies that may have generated documents related to the environmental restoration efforts at Ravenna. In the second column please rate the importance of having electronic access to documents from each study for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential. Add an 'A' to the rating to indicate that you would need only the abstract or summary information or a 'W' to indicate that you would need access to the whole document.

    Please see AttachB-JJ

32. Are there additional documents that are available that are not listed? Historical documents?

    Yes-
    Plant SOP's
    Plant Pictorial "Descriptions of Manufacture"
    Ordnance Inspection Manual, Melt Loading; 1942
    Industrial Facilities Inventory, Ravenna Ordnance Plant; 1944
    Surveys of Liquid Wastes from Munitions Manufacturing; 1943
    Control of Taste and Odor from Industrial Waste; 1946
    Disposal of Cyanide Wastes; 1947
    Report of Survey – Chromatic Acid Waste/ Bldg 802, Load Line 2; 1949
    Conference of Waste Disposal/ Quarry Group C; 1950
    Treatment of TNT Water, RVAAP; 1954
    Solid Wastes, Portage County, Ravenna Arsenal Operational Report, OEPA; 1979
    Engr. Study of Hazardous Discharges from Munitions Production Facilities (at RVAAP); 1983
    "Deactivation" Submission of Institute of Makers of Explosives; 1991
    Ravenna Ordnance Plant Historic Investigation; 1995
    Geology and Ground-Water Resources of Portage County, OH; USGS Prof Paper 511; 1966
    Kirwan Dam Foundation Report; 1966

33. What specific types of documents are most important to you?

Current / future Final Investigative/Closure Reports

34. Do you want to download documents to your workstation or review summary of documents on the Internet and then request a hardcopy for your use?

Both, depending on size of documents and significance.
Don't want to download large reports
Smaller documents are probably okay

Internet Requirements

35. Is there a specific type of organization you would like to see for the RVAAP Web site?

No
Could be by AOC's, or government program (CERCLA, BPS), chronology, or other
Whatever organization is determined, some sort of easy-to-use cross referencing would be essential

36. What type of capabilities or functionality would you like see on the Web site? Give specific examples. (For example: site description, summary of environmental restoration process, schedule of activities, site map, site photos, newsletter, facility for submitting questions/comments, access to documents, access to data)

A Catalog of AOC's, with pertinent characteristics
B Current fiscal year schedule of planned major environmental activities
C Current fiscal year schedule of planned major OH NG activities
D Current fiscal year schedule of planned major natural resource, hunting, etc activities
E Bulletin board for upcoming weekly, monthly major activities
F RAB (By –laws, organization, meetings minutes, newsletters, member directory, etc)
G Links to other environmental sites (other similar IOC plants, US EPA, OEPA, DENIX, etc)

37. What sites would you like to see linked to the RVAAP web site?

Links to other environmental sites (other similar IOC plants, US EPA, OEPA, DENIX, etc)

Other

38. Would you like to have regulatory information available in an information management system or web site?

Probably

39. To what specific regulations would you need access?

Listing of regulated sites (name and type program) at the plant
Description of available links to US EPA, OEPA, others by general subject
As US EPA- federal environmental regulations
OEPA – state environmental regulations
Ohio Division of Water - groundwater related studies, residential well logs, etc
Ohio Geological Survey – geology related studies; state, regional, local
USGS – historic aerial photography; regional, state, local studies
Ohio Department of Natural Resources –
Possibly Kent State, Youngstown State, Ohio State documents — Document Search

Attachment A. Listing of Maps and Attribute Layers

In the first column please rate the importance of each map or attribute layer to your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential.

Ohio National Guard Ravenna GIS (06/04/99)

Rate 0-5 Scale	Map Layer	Status
1	National Wetlands Inventory Map- Newton Falls, Windham, and Ravenna Quads	Scanned and digitized
1	C - OHARNG/AMC Boundary	Digital format
2	AP - 1997 Composite Aerial Photo	Scanned
1	USGS Topography - Newton Falls, Windham, and Ravenna Quads	Digital - 1:24,000
1	1400.14-1 – Installation and UTM Coordinate Map	Digital format
1	1200.7 - Boundary Survey	Digital format
5	1400.0 - Plant Communities of the Ravenna Arsenal	Digitized and revised
5	1400.0 - RVAAP Wetland Communities	Digitized
3	Soil Survey- Portage and Trumbull Counties	Digital

Rate 0-5 Scale	Additional Map Layers	Status
4	1940 Aerial Photo	Scanned
3	1998 Infrared Photo	Scanned
5	2-foot contours	Digital (not complete)
5	Watershed map	Digitized
1	Blowout Arcs	Digitized
5	Areas of Concern	Digitized
5	Monuments	Digitized
1	Base Electric	Digital format
1	Base Sanitation	Digital format
1	Base Steam Lines	Digital format
4	Building inventory	Photos, status (active, inactive)
1	Railroads	Railroad removal – modify GIS
5	Habitat survey	Revise based on ground truthing

1	Side roads	GPS?
1	Metadata	FGDC standards, SMMS software
1	3D visualization	Topography
1	Virtual tours	IPIX format

Current SAIC CAD Map Layers

Rate 0-5 Scale	Layer Description
	HYDROLOGY
4	Culvert
5	Drainage Ditch
4	Lagoon Boundary
5	Lake
5	Pond
5	Seep and Spring Location
5	Stream
5	Tributary
2	Wetlands
	ROAD FEATURES
5	Bridge
0	Curb and Gutter
3	Dirt Road
4	Gravel Roads
0	Parking Lot
5	Primary Roads, Highways,
5	Secondary Roads
0	Trails
	SITE FEATURES
1	County Boundary
3	Building

Rate 0-5 Scale	Layer Description
0	Bollards
0	Concrete slab
1	Fence
0	Helicopter Pad
1	Existing Property Pin
1	Proposed Property Pin
0	Guard Rail
0	Parcels
1	Railroad
0	Riprap
0	Sign
3	Tanks
1	General Site Text
1	Trench Locations
0	Sidewalk
	TOPOGRAPHY:
5	Contour Elevation Text
3	Contour 5' Interval
5	Contour 2' Interval
3	Contour 10' Interval
0	Contour 100' Interval
5	Spot Elevations
	UTILITIES
1	Utility Easement
0	Junction Box
0	Utility Lateral Line
5	Catch Basin
0	Electric Light Pole
0	Electric Pole
1	Fire Water
0	Fire Water Hydrant
0	Natural Gas Line

Rate 0-5 Scale	Layer Description
5	Sewer Line
5	Sewer Manhole
5	Storm Drain
5	Sewer Line
0	Telephone Line - Underground
0	Transmission Tower
5	Water Line
0	Water Hydrants
	VEGETATION
1	Grass
1	Lawn
5	Fill
3	Tree Line

Attachment B. Listing of Studies at RVAAP

In the first column please rate the importance of having electronic access to data from each study for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential.

In the second column please rate the importance of having electronic access to documents from each study for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential. Add an 'A' to the rating to indicate that you would need only the abstract or summary or a 'W' to indicate that you would need access to the whole document.

Historical Studies

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
		STREAM SAMPLING							
All 0, except	All 5-A,	19741212	AEHA	FLOW MEASURING DEVICES	3		ENV.	S.W.	STREAMS & CREEKS
As noted	Except as	19800312	RA, INC	WATER QUALITY SURVEILLANCE	11		ENV.	S.W.	9 STREAM LOCATIONS
	Noted	19881216	RA, INC	SURFACE WATER MONITORING	28		ENV.	S.W.	8 STR LOC & 061,OB2
		19881227	RA, INC	SURFACE WATER MONITORING	29		ENV.	S.W.	8 STR LOC & OB1,OB2
		19880725	AEHA	TOXICITY ID EVALUATION	86	LL6	ENV.	S.W./BIO	PINK WATER POND AQUATIC TOX
		19891130	RA, INC	SURFACE WATER MONITORING	38		ENV.	S.W.	8 STR LOC & 081,OB2
		19900122	AEHA	REC WAT BIO STUDY-EFFL TOX TEST	40	LL6	ENV.	BIO/S.W.	PINK WAT TREAT SYSTEM AT L6
		19910620	RA,INC	SURFACE WATER MONITORING	50		ENV.	S.W.	8 STR LOC & OB1,OB2
		19921203	RA, INC	SURFACE WATER MONITORING	59		ENV.	S.W.	8 STR LOC & OB1,OB2
		MONITORING WELLS							
		19810907	AEHA	HAZ. WASTE MANG. CONSULTATION	12		ENV.	G.W.	21 MONITOR WELL LOGS
		19820512	AEHA	G. WATER MONITORING RESULTS	14		ENV.	G.W.	MON WELLS & FEW WAT WELLS
		19820812	EA, INC	2ND I/QUARTER ANALYTL RESULTS	15		ENV.	G.W.	MON WELLS & FEW WAT WELLS
		19821208	AEHA	G. WATER MONITORING RESULTS	16		ENV.	G.W.	MON WELLS & FEW WAT WELLS

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
		19830214	AEHA	G. WATER MONITORING RESULTS	18		ENV.	G.W.	MON WELLS & WAT WELLS
		19830811	AEHA	G. WATE R MONI RORING RESULTS	19		ENV.	G.W.	MON WELLS & WAT WELLS
		19860211	RA, INC	G. WATER MONITORING WELLS	23		ENV.	G.W.	DOC TO STOP READ MON WELLS
		19930301	RA, INC	ABANDON WAI ER WELLS (SPEC)	61		GEO.	G.W.	14 WAT SUPPLY&11 MON WELLS
		WATER SUPPLY SAMPLING							
		19790305	AEHA	POTABLE / WASTE WAT SURVEY	10		ENV.	GW/SW	G.W/S.W. DATA
		19770912	AEHA	GEOHYDROLOGIC CONSULTATION	6		GEO/ENV	GW/SW	11 POTABLE WELLS
		19860113	AEHA	POTABLE WATER QUALITY SURVEY	22		ENV.	GW/SW	5 - WELL LOGS
		19871103	RA, INC	WATER WELL ANALYSIS	24		ENV.	G.W.	WATER WELLS
		19890110	RA,INC	EXPLOSIVES & PESTICIDE ANALYSES	30		ENV.	G.W.	WATER WELLS
		19890126	OhioEPA	WATER WELL PESTICIDE ANALYSIS	31		ENV.	G.W.	WWII & WWIII
		19891120	RA, INC	WELLHOUSE MONITORING	37		ENV.	G.W.	WATER WELLS
		19891207	RA, INC	WELLHOUSE MONITORING	39		ENV.	G.W.	WATER WELLS
		19900124	RA, INC	RADS ANALYSIS	41		ENV.	G.W.	A19556 & C-19556
		19891025	AEHA	WATER QUALITY CONSULTATION	35		ENV.	G.W.	5 WATER WELLS
		19900209	AEHA	SYNTHETIC ORGANIC CHEM SURVEY	42		ENV.	G.W.	5 WATER WELLS
		19901203	RA, INC	WELLHOUSE MONITORING	47		ENV.	G.W.	WATER WELLS
		19910831	RA, INC	WELLHOUSE MONITORING	52		ENV.	G.W.	WATER WELLS
		19911204	RA, INC	ABANDONMENT OF WELLS	53		ENV.	G.W.	9 WAT WELLS & 21 MON WELLS
		19930522	RA, INC	4 QUARTERLY VOC ANALYSIS	62		ENV.	G.W.	WATER WELLS
		RCRA UNITS							
		19830931	AEHA	I-HAZ WASTE MANG. STUDY	20	OD/OB	ENV.	SOIL	OB PADS/OD AREA-TOT EXL,EPTO
		19850821	RA, INC	AIR CONTAMINANT SOURCE PERMIT	21	DFA	ENV.	AIR/SOIL	CHEM COMP FUZES/PROCESSES
		19900608	RA, INC	SOP FOR DEMIL: OPEN DEMOLITION	44	OD	ENV.	SOIUG.W.	DEMOLITION S.O.P.
		19901221	OLIN	OPEN BURN AREA SOILS(SHO BE OD)	48	OD	ENV.	SOIL	TOT EXP/rCLP IN/ARD OD HORSH
		19910311	OLIN	RCRA PERMIT MEETING	49	OD/OB	ENV.	N/A	HAS DETAILED CHRONOL
		19920312	RA, INC	BENCHMARK SETTING	54	OD	GEO.	N/A	SAND CREEK B.M.
		19920513	RA, INC	SOP FOR DEMIL: OPEN BURNING	56	WINK	ENV.	SOIUG.W.	BURNING S.O.P.
		19920520	AEHA	SOIL,G.WAT,S.WAT CHAR OB/OD	57	OD/WINK	ENV	SOIUG.W.	SOIL,G.WAT SAMPLING

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
		19920630	H.N.	OHIO HAZ. WASTE PERMIT APPLIC.	58	OD/OB	ENV.	N/A	RCRA WASTE APPLIC/MUCH INFO
		19921209	AEHA	HEALTH RA FOR DFA RCRA CLOSURE	60	DFA	ENV.	SOIL	MUST GO CLEAN CLOSURE
		19940331	RA, INC	HAZ. WASTE ACC. & STORAGE	64		ENV	N/A	HAZ. MAT, STORAGE
		19940531	MASON	RCRA INSP SOP FOR OB	65	WINK	ENV.	N/A	INSPECT. SPECS.
		19940531	MASON	RCRA INSP SOP FOR BLDG. 1601	66	1601	ENV.	N/A	INSPECT. SPECS.
		19940531	MASON	RCRA INSP SOP FOR OD	67	OD	ENV.	N/A	INSPECT. SPECS.
		19980108	CELRL	DISPOSABLE MATERIALS (LBS)	83	OD/OB	ENV.	N/A	YEARLY DISPOSALS (1984 - 1993)
		no date	RA, INC	OEPA COMMENTS	85	OD/OB	ENV.	SOIUG.W.	WELUSOIL SAMP LOCATS
		RCRA STREAM SAMPLING							
		19950117	MASON	OD/OB STREAM SAMPLE ANALYSIS	70	OD/WINK	ENV.	S.W.	RCRA
		19950724	MASON	OD/OB STREAM SAMPLE ANALYSIS	71	OD/WINK	ENV.	S.W.	RCRA
		19951027	MASON	OD/OB STREAM SAMPLE ANALYSIS	72	OD/WINK	ENV.	S.W.	RCRA
		19960108	MASON	OD/06 STREAM SAMPLE ANALYSIS	73	OD/WINK	ENV.	S.W.	RCRA
		19960517	MASON	OD/OB STREAM SAMPLE ANALYSIS	74	OD/WINK	ENV.	S.W.	RCRA
		19960524	MASON	OD/OB STREAM SAMPLE ANALYSIS	75	OD/WINK	ENV...	S.W.	RCRA
		19960524	MASON	OD/OB STREAM SAMPLE ANALYSIS	76	OD/WINK	ENV.	S.W.	RCRA
		19960708	MASON	OD/OB STREAM SAMPLE ANALYSIS	77	OD/WINK	ENV.	S.W.	RCRA
		19970121	MASON	OD/OB STREAM SAMPLE ANALYSIS	78	ODIWINK	ENV.	S.W.	RCRA
		19970525	MASON	OD/OB STREAM SAMPLE ANALYSIS	79	OD/WINK	ENV.	S.W.	RCRA
		19970717	MASON	OD/06 STREAM SAMPLE ANALYSIS	80	OD/WINK	ENV.	S.W.	RCRA
		19971013	MASON	OD/OB STREAM SAMPLE ANALYSIS	81	OD/WINK	ENV.	S.W.	RCRA
		19971016	MASON	OD/OB STREAM SAMPLE ANALYSIS	82	OD/WINK	ENV.	S.W.	RCRA
		FACILITY ASSESSMENTS							
		19770712	AEHA	GEOHYDROLOGIC CONSULTATION	5		ENV.		GOOD DISC OF WATER WEL POL
5	5-W	19781130	THAMA	INSTALLATION ASSESSMENT	9		ENV.	G.W./S.W.	VERY COMPL ENV ASSESS
		19820504	MOGUL	SOIL AND SEDIMENT ANALYSES	13		ENV.	SOIL/SED	SAMPLE LOC NOT WELL DEFINED
5	5-W	19821231	THAMA	REASSESSMENT OF HVAAP	17		ENV.		STRAT FOR 80'S ENV CONCERNS
		19880808	AEHA	SOLID WASTE MANG EVALUATION	26		ENV.	N/A	AEHA ENV SUM-TJSES MOGUL DAT
		19891005	JACOBS	SOLID WASTE MANG INVEST.	33		ENV.	N/A	SOW FOR EPA SUM REP.

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
		19891005	JACOB	RCRA FACILITY ASSESSMENT	34		ENV.	N/A	EPA FUNDED SUM/REP OF EXIST.
		19900620	AAMCC	RCRA PACILITY ASSESSMENT	45		ENV.	N/A	RCRA ASSESSMENT
		19940610	AEHA	PAS BOUNDARY LINE AREAS	68		ENV		CONCISE SUM/REFERS TO 1988 RE
		19980108	CELRL	SOIL MAPS	84		GEO.	SOIL	SOIL/WAT WELL X-SECTS.
		NPDES							
		19780710	ALDEN	WATER & AIR POLLUTION SURVEY	7		ENV.	S.W.&AIR	LIST AIR POUNPDES SOURCES
		19900524	AEHA	WASTEWATER FACILITY SURVEY	43		ENV.	S.W.	SEWAGE TREATMENT
		RADIOACTIVITY							
		19	LTH	RADIATION DECONTAM PROGRAM	4		ENV	RAD	DECON MONAZITE STOR TANKS
		19	INC	CERCLA INDUSTRIAL LANDFILL	46		ENV.	SOIL	SUM OF RAD AT FACILITY
		PESTICIDE BUILDING							
		19781127	AEHA	INSTAL PEST MANAGE PROG SURVEY	8	PEST BLDG	ENV	NA	LIST PRODUCTS/METHODS
		19891030	RA,INC	PEST SPILL PREVENT & MANAGE	36	PEST BLDG	ENV	NA	PRODUCTS, METHODS
		19920424	AEHA	PEST MANAGEMENT SURVEY	55	PEST BLDG	ENV	NA	PRODUCTS, NETHODS
		19930922	RA, INC	PESTICIDES IN PEST SHOP	63	PEST SHOP	ENV.	N/A	LIST PRODUCTS
		ORE PILES							
		19881205	AEHA	POT. G.WAT CONTAM CHROM PILES	27	ORE PILE	ENV.	GW/SW	ALSO SOIL TESTING
		NEW LANDFILL STUDY							
		19871104	AEHA	SOLID WASTE DISPOSAL STUDY	25		GEO/ENV	G.W.	BORINGS/MON WELLS/SOILS DAT
		GENERAL GROUNDWATER REQUIREMENTS							
		19910711	OEPA	HYDROGEOLOGIC GUIDANCE	51		GEO/ENV	G.W.	GOOD DESCR OF HYDRO REQ
		AIR EMISSIONS							
		19940923	GEOMET	AIR POLLUTION EMISSION SUMMARY	69		ENV.	AIR	V. COMPL/LISTS AMTS MATS PRO
		KIRWAN WATER SUPPLY STUDY							
		19740918	HCNUTT	GEOTECH INVEST WAT PLANT MOD	2		GEO.	SOIL	BORING LOGS/SOIL DATA
		UNDERGROUND STORAGE TANKS							
		19890930	CEHND	INVEST & EVAL OF USTS	32		ENV.		DET STAT OF 50 FAC USTS

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS		
		ABBREVIATION LISTING FOR THE RVAAP SPREADSHEETS									
		RA, INC	RAVEENA ARSENAL, INC.								
		CELRL	LOUISVILLE DISTRICT								
		MASON	MASON-HANGER COMPANY								
		OLIN	OLIN DEFENSE SYSTEM								
		AEHA	ARMY ENVIRONMENTAL HYGIENE AGENCY								
		OEPA	OHIO EPA								
		JACOBS	JACOBS ENGINEERING GROUP, INC.								
		H.N.	HALLIBURTON NUS ENVIRONMENTAL CORP.								
		S.W.	SURFACE WATER								
		G.W.	GROUND WATER								

Recent and Other Studies

Rate Data 0-5	Rate Doc 0-5 A,W	Report Title
		Carroll, Chantelle. 1999. *A survey of the small mammals of the Ravenna Arsenal.* Ohio Department of Natural Resources, Columbus, Ohio. pp. 15.
		ODNR (Ohio Department of Natural Resources). 1993. *Species and Plant Communities Inventory.* Ravenna Army Ammunition Plant. Ohio department of Natural Resources and the Nature Conservancy, Columbus, Ohio, various pagination.
		Schalk, Charles W., John S. Turtuliani and Robert A. Darner. 1999. *Identification of Potential Wetlands in Training Areas on Ravenna Army Ammunition Plant, Ohio, and Guidelines for Their Management.* U.S. Geological Survey. Columbus, Ohio, Report 99-68, pp. 78.
		Tawse, Merrill. 1999. *A Survey of the Bats of the Ravenna Arsenal.* Ohio Department of Natural Resources. Columbus, Ohio, pp. 32.

Rate Data 0-5	Rate Doc 0-5 A,W	Report Title
		Tertuliani, John S. 1999. *Macroinvertebrate survey in streams at Ravenna Army Ammunition Plant*, Portage and Trumball Counties, Ohio, pp. 44. Draft.
5	5-W	USACE (U.S. Army Corps of Engineers). 1996a. *Facility-Wide Sampling and Analysis Plan for Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. April 1996.
5	5-W	USACE (U.S. Army Corps of Engineers). 1996b. *Preliminary Assessment for the Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. April 1996.
5	5-W	USACE (U.S. Army Corps of Engineers). 1997a. *Phase I Remedial Investigation Report for 11 High-Priority Sites at Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. May 1997.
		USACE (U.S. Army Corps of Engineers). 1997c. *Closure Plan for the Deactivation Furnace Area Hazardous Waste Treatment Unit, Ravenna Army Ammunition Plant, Ravenna, Ohio*. Draft Revised. October 1997.
		USACE (U.S. Army Corps of Engineers). 1998a. *Sampling and Analysis Plan Addendum for the Phase II Remedial Investigation at Winklepeck Burning Grounds and Determination of Facility-Wide Background at the Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. April 1998.
		USACE (U.S. Army Corps of Engineers). 1999. *Phase II Remedial Investigation at Winklepeck Burning Grounds and Determination of Facility-Wide Background at the Ravenna Army Ammunition Plant, Ravenna, Ohio.*
		USACE (U.S. Army Corps of Engineers). 1998b. *RCRA Field Investigation Report for Five Sites at Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. June 1998.
		USACE (U.S. Army Corps of Engineers). 1998c. *Initial Phase Report, Ramsdell Quarry Landfill Groundwater Investigation, Ravenna Army Ammunition Plant, Ravenna, Ohio*. Draft. September 1998.
		USAEC (U.S. Army Environmental Center). 1995. *Manual for the preparation of installation endangered species management plans*. USAEC, Attn: SFIM-AEC-ECN, Aberdeen Proving Ground, MD.
		USAEHA (U.S. Army Environmental Health Administration). 1983. *Hazardous Waste Management Study No. 37-26-0442-84, Phase 2 of AMC Open-Burning/Open-Detonation Grounds Evaluation, Ravenna Army Ammunition Plant*, 31 October – 3 November 1983.

Rate Data 0-5	Rate Doc 0-5 A,W	Report Title
		USAEHA (U.S. Army Environmental Health Administration). 1992. *Geohydrologic Study No. 38-26-KF95-92.* Soils, Ground Water, and Surface Water Characterization for the Open Burning and Open Detonation Areas, Ravenna Army Ammunition Plant, Ravenna, Ohio, 20 April – 5 May 1992.
5	5-W	USATHAMA (U.S. Army Toxic and Hazardous Materials Agency). 1978. *Installation Assessment of Ravenna Army Ammunition Plant.* Report No. 132.
		U.S. Department of the Army, Environmental Assessment. 1993.

Attachment C. Listing of Data Types that Could be Included in an Environmental Information Management System

The first table below lists general data categories that could be included in an information management system. In the first column please rate the importance of having electronic access to data of each type for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential. Please add any categories of data that you use that are not listed.

	Data Categories
	This table lists broad categories of data that could be included in a data management system.
Rate 0-5 Scale	**Description**
All 0	Laboratory analyses of field samples:
	Target analytes
	Tentatively Identified Compounds (TICs)
	Field quality control results:
	Field replicates
	Trip Blanks
	Equipment Rinse
	Laboratory Split samples
	Tentatively Identified Compounds (TICs)
	Laboratory quality control results:
	Matrix spikes
	Matrix spike duplicates
	Laboratory control standards
	Laboratory blanks
	Laboratory replicates
	Field Measurements:
	Safety-related (such as organic vapor)
	Site conditions (air temperature, weather)
	Media related (such as pH, conductivity, depth to water table, water temperature):
	Instrument calibration records
	Well construction information (such as boring depth, construction date, construction materials, screen depth)
	Geotechnical (layer type, depth to layer)
	Other _____

Potential Fields in Environmental Relational Database

The following tables list specific variable fields that could be included in a relational database of environmental data. If you are interested in this level of detail please rate the importance of each field and list additional fields that you would need. Keep in mind that in a relational database information from one table is linked to the other tables by key fields. For example coordinates do not need to be in the sample file because they are in the spatial file and can be linked to the sample file by station ID.

(Continue only if you are interested in this level of detail)

	Field Samples
	This table contains information about the samples that are planned or collected
Rate 0-5 Scale	**Description**
All 0	Sample ID
	An alternate sample id.
	Y/N value indicating that the record has been cleared for public use.
	Y if the sample was collected.
	A comment about the sample collection.
	The date the record was added to the table.
	The date the sample was collected.
	The time the sample was collected.
	The date the record was modified.
	The depth unit the sample was collected. NA if not applicable.
	The starting depth of the sample.
	The ending depth of the sample.
	Field sample type. (e.g. grab, field duplicate..)
	Media the sample was collected from.
	Project ID
	Code for the sampling method.
	Sampling location
	Other _____
	Chemical Results
	This table contains information about the results from laboratory analyses
Rate 0-5 Scale	**Description**
All 0	Analysis type+B49 (volatile, semivolatiles)
	The chemical name.

	Y/N value indicating that the record has been cleared for public use.
	The data validator's qualifier.
	The date the record was added to the table.
	The date the record was modified.
	The detection limit.
	The dilution factor.
	The error associated with the measurement.
	Y/N indicating if the result is filtered.
	Sample ID- key used to identify each sample record.
	Qualifier assigned by the laboratory.
	Y/N indicating a specific record should be used. Used to identify a single result that should be used when mutiple analyses have been performed.
	Code for the parameter. Usually the CAS #.
	Qualifier assigned based on a review of the laboratory and data validation qualifiers. Used so that if not all data has been validated, only have a single field to test for detects.
	The chemical result value.
	The units for the analytic results.
	Codes assigned during validation indicating why qualifiers were assigned.
	Other _____
	Laboratory Analysis Information
	This table contains laboratory information about the samples analysis.

Rate 0-5 Scale	Description
All 0	Sample ID
	Analysis type (volatile, semivolatiles)
	The EPA analysis level.
	ID of associated blank
	The date the sample was analyzed.
	The date the sample was extracted.
	The date the laboratory received the sample for analysis.
	The dilution factor.
	The extraction method.
	Y/N indicating if the result is filtered.
	The instrument number for the instrument the sample was analyzed on.
	Code for the laboratory.
	Sample id assigned by the laboratory.
	The matrix of the sample analyzed. Typically soil or water.
	The analytic method.
	The percent solids.
	Result type (regular, dilution, matrix spike, etc.)

	The sample delivery group (SDG) number.
	The date the SDG was received.
	Sample pH.
	The time the sample was analyzed.
	The units for the analytic results.
	The weight or volume of the sample when analyzed.
	The units for wgt_vol field.
	Other _____

Spatial

This table defines the spatial information.

Rate 0-5 Scale	Description
5	The name of the station.
5	Description of the station.
5	Station type (well, boring, etc.)
5	The name for a spatial area (i.e. AOC)
0	A comment about the spatial location.
0	The date the record was modified.
5	The station's northing coordinate.
5	The station's easting coordinate.
5	The station's ground surface elevation.
5	Indication of how the coordinates were determined (survey, GPS, estimate, etc).
5	The units (ft, meters) that the elevation is in.
	Other _____

Project

This table defines the projects in the database.

Rate 0-5 Scale	Description
5	The project name.
5	The contact person for a project.
5	The contractor performing the sample collection.
5	The project manager.
5	Phone number for the project's contact.
5	The project number.
5	A name where the site is located

5	A name for the site.
	Other _____

Well

This table defines the well construction information.

Rate 0-5 Scale	Description
5	Name of station
0	boring depth
0	Liner material
0	Screen type
0	Screen start depth
0	screen end depth
0	top of casing elevation
0	screen material
0	driller
0	date constructed
0	Other _____

Field Measurements

This table stores field measurements.

Rate 0-5 Scale	Description
0	Sample ID
5	Station ID
0	Date measured
0	Time Measured
0	Parameter
0	Result
0	Result qualifier
	Other _____

Ohio ARNG

RVAAP Information Management Needs Assessment

Name _LTC Thomas A. Tadsen

Organization Ravenna Training and Logistics Site

Phone Number © 614-336-6790 / FAX 6796

Ravenna Site Connection

1. What are your responsibilities at or with RVAAP?
Manage and supervise Ohio Army National Guard Training Site.

2. How does your role fit in the overall Environmental Restoration program?
Oversight / ensure that DA shoulders the entire cost of the environmental restoration work at RVAAP. I ensure that all training conducted at RVAAP / RTLS takes into account precautions and protective requirements of training soldiers in and around environmental AOCs.

Information Responsibilities

3. Do you generate information that is or should be stored in an Information Management System? If, yes, what type of information? In what format is it currently stored? How do you input information now?
NO.

4. Do you use information that is or could be extracted from an Information Management System? If, yes, what type of information? How do you extract information now?
Arcview and Arcinfo – any layers already built-in through coordination with CPT Tom Daugherty. Currently, he has to have the information output for me in Columbus. We do not have adequate computers to output the information locally.

5. How up to date should the information be to meet your needs? To the minute? Daily? Weekly?
Weekly is okay.

Interface Requirements

6. Would you prefer interactive access (where the users have extensive options available for specific data types) or "canned" reports with limited options (where the users have one to two button decisions with all functionality behind the scenes) to access information? Explain.

I would need to see what the available options are for "canned" reports. If the "canned" reports were adequate, that would be fine. If not, we'd need more leeway through interactive access or tailoring of reports.

7. Would you prefer spatial interfaces (utilizing maps to partition or access data) or customized query tools (intuitive or knowledge based to partition or access data) to information? Explain.

We actually need both, and they must interact. We need to be able to access the data, whether or not it's map-based.

Infrastructure

8. What software tools do you most frequently use?
   a. Excel XX_
   b. MS Word XX__
   c. ArcView __
   d. other _____

9. What type of hardware do you have?
   a. PC / work station
   b. typical hard drive size?
   c. typical memory size
   d. processor type/speed Pentium II / 135 MHz
   e. other _____

10. What is the current server configuration where the data and Web site could reside? What is the operating system? RCAS.

11. Is there a Local Area Network? If so will Intranet connectivity be required?

Same as Tom Daugherty

12. Is there a DBA or Network Administrator available for consultation for the network that you are using? Yes

Security

13. Who should have access to the information (organization specific)? How? Direct connection or Internet? Should there be different levels of access?
DOIM – assigned access. Direct connection only.

14. How secure should the system be?
DOIM determination

15. Should accessibility to data be governed by the organization?
DOIM

Current Information Management System/Data Access

16. What is your current biggest complaint about your access to information?
No connection to data stored in Columbus, via Arcinfo or Arcview.

17. If changes were made to your current IMS, what would you most like them to be?
Local access to information through Arcinfo / Arcview.

18. How important is speed?
Quite

GIS/Maps and their use

19. Attachment A lists maps and associated attribute layers that are available. Please indicate in the first column of the list which maps/layers are important for your work. Use a 0-5 scale with zero meaning unimportant and 5 meaning essential.

20. Are there additional maps or layers that are available that are not listed?

No

21. Are there additional layers required?

No

22. How important is it for you to be able to select which attribute layers are displayed on maps?

Very

23. Are there portions of the Ravenna site that are important to you and that should be easy to view without knowledge of viewing software tools? i.e. What parts of the RVAAP site map would you like to easily zoom in on? Be specific.

Training areas (A-H, J)

24. Do you need to be able to plot the distribution of contamination levels for a particular media and analyte type on a map?

No

Data

25. Attachment B lists studies that may have generated environmental data sets. Please indicate in the first column on the list the importance of having each data set electronically available for your work. Use a 0-5 scale with zero meaning unimportant and 5 meaning essential.

26. Attachment C lists specific variables that could be included in an environmental data management system. Please indicate on the list the importance of having each variable electronically available for your work. Use a 0-5 scale with zero meaning unimportant and 5 meaning essential.

27. Are there additional data sets and types that are available that are not listed? Legacy data?

No

28. Are there additional data types required? Be specific.

No

29. What specific type of data is most important to you?

N/A

30. Do you want to download data to your workstation to make calculations and generate reports?

No

Documents

31. Attachment B lists studies that may have generated documents related to the environmental restoration efforts at Ravenna. In the second column please rate the importance of having electronic access to documents from each study for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential. Add an 'A' to the rating to indicate that you would need only the abstract or summary information or a 'W' to indicate that you would need access to the whole document.

32. Are there additional documents that are available that are not listed? Historical documents?

33. What specific types of documents are most important to you?

34. Do you want to download documents to your workstation or review summary of documents on the Internet and then request a hardcopy for your use?

Internet Requirements

35. Is there a specific type of organization you would like to see for the RVAAP Web site?

36. What type of capabilities or functionality would you like see on the Web site? Give specific

examples. (For example: site description, summary of environmental restoration process, schedule of activities, site map, site photos, newsletter, facility for submitting questions/comments, access to documents, access to data)

37. What sites would you like to see linked to the RVAAP web site?

Other

38. Would you like to have regulatory information available in an information management system or web site?

39. To what specific regulations would you need access?

Attachment A. Listing of Maps and Attribute Layers

In the first column please rate the importance of each map or attribute layer to your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential.

Ohio National Guard Ravenna GIS (06/04/99)

Rate 0-5 Scale	Map Layer	Status
5	National Wetlands Inventory Map- Newton Falls, Windham, and Ravenna Quads	Scanned and digitized
5	C - OHARNG/AMC Boundary	Digital format
5	AP - 1997 Composite Aerial Photo	Scanned
5	USGS Topography - Newton Falls, Windham, and Ravenna Quads	Digital - 1:24,000
5	1400.14-1 - Installation and UTM Coordinate Map	Digital format
5	1200.7 - Boundary Survey	Digital format
4	1400.0 - Plant Communities of the Ravenna Arsenal	Digitized and revised
4	1400.0 - RVAAP Wetland Communities	Digitized
5	Soil Survey- Portage and Trumbull Counties	Digital

Rate 0-5 Scale	Additional Map Layers	Status
5	1940 Aerial Photo	Scanned
4	1998 Infrared Photo	Scanned
5	2-foot contours	Digital (not complete)
5	Watershed map	Digitized
5	Blowout Arcs	Digitized
5	Areas of Concern	Digitized
5	Monuments	Digitized
4	Base Electric	Digital format
4	Base Sanitation	Digital format
0	Base Steam Lines	Digital format
4	Building inventory	Photos, status (active, inactive)
4	Railroads	Railroad removal – modify GIS
4	Habitat survey	Revise based on ground truthing

5	Side roads	GPS?
5	Metadata	FGDC standards, SMMS software
3	3D visualization	Topography
3	Virtual tours	IPIX format

Current SAIC CAD Map Layers

Rate 0-5 Scale	Layer Description
	HYDROLOGY
5	Culvert
4	Drainage Ditch
4	Lagoon Boundary
5	Lake
5	Pond
4	Seep and Spring Location
5	Stream
5	Tributary
5	Wetlands
	ROAD FEATURES
5	Bridge
0	Curb and Gutter
5	Dirt Road
5	Gravel Roads
4	Parking Lot
5	Primary Roads, Highways,
5	Secondary Roads
5	Trails
	SITE FEATURES
5	County Boundary
5	Building

Rate 0-5 Scale	Layer Description
0	Bollards
0	Concrete slab
5	Fence — Perimeter only
5	Helicopter Pad
5	Existing Property Pin
0	Proposed Property Pin
0	Guard Rail
0	Parcels
5	Railroad
0	Riprap
4	Sign
5	Tanks
5	General Site Text
0	Trench Locations
0	Sidewalk
	TOPOGRAPHY:
5	Contour Elevation Text
0	Contour 5' Interval
5	Contour 2' Interval
4	Contour 10' Interval
0	Contour 100' Interval
5	Spot Elevations
	UTILITIES
5	Utility Easement
0	Junction Box
0	Utility Lateral Line
0	Catch Basin
5	Electric Light Pole
5	Electric Pole
0	Fire Water
0	Fire Water Hydrant
5	Natural Gas Line

Rate 0-5 Scale	Layer Description
0	Sewer Line
0	Sewer Manhole
0	Storm Drain
0	Sewer Line
0	Telephone Line - Underground
0	Transmission Tower
0	Water Line
0	Water Hydrants
	VEGETATION
5	Grass
0	Lawn
0	Fill
5	Tree Line

Attachment B. Listing of Studies at RVAAP

In the first column please rate the importance of having electronic access to data from each study for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential.

In the second column please rate the importance of having electronic access to documents from each study for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential. Add an 'A' to the rating to indicate that you would need only the abstract or summary or a 'W' to indicate that you would need access to the whole document.

Historical Studies

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
		STREAM SAMPLING							
0	0	19741212	AEHA	FLOW MEASURING DEVICES	3		ENV.	S.W.	STREAMS & CREEKS
		19800312	RA, INC	WATER QUALITY SURVEILLANCE	11		ENV.	S.W.	9 STREAM LOCATIONS
		19881216	RA, INC	SURFACE WATER MONITORING	28		ENV.	S.W.	8 STR LOC & 061,OB2
		19881227	RA, INC	SURFACE WATER MONITORING	29		ENV.	S.W.	8 STR LOC & OB1,OB2
		19880725	AEHA	TOXICITY ID EVALUATION	86	LL6	ENV.	S.W./BIO	PINK WATER POND AQUATIC TOX
		19891130	RA, INC	SURFACE WATER MONITORING	38		ENV.	S.W.	8 STR LOC & 081,OB2
		19900122	AEHA	REC WAT BIO STUDY-EFFL TOX TEST	40	LL6	ENV.	BIO/S.W.	PINK WAT TREAT SYSTEM AT L6
		19910620	RA INC	SURFACE WATER MONITORING	50		ENV.	S.W.	8 STR LOC & OB1,OB2
		19921203	RA, INC	SURFACE WATER MONITORING	59		ENV.	S.W.	8 STR LOC & OB1,OB2
		MONITORING WELLS							
0	0	19810907	AEHA	HAZ. WASTE MANG. CONSULTATION	12		ENV.	G.W	21 MONITOR WELL LOGS
		19820512	AEHA	G. WATER MONITORING RESULTS	14		ENV.	G.W	MON WELLS & FEW WAT WELLS
		19820812	EA, INC	2ND 1/QUARTER ANALYTL RESULTS	15		ENV.	G.W.	MON WELLS & FEW WAT WELLS
		19821208	AEHA	G. WATER MONITORING RESULTS	16		ENV.	G.W.	MON WELLS & FEW WAT WELLS

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
0	0	19830214	AEHA	G. WATER MONITORING RESULTS	18		ENV.	G.W.	MON WELLS & WAT WELLS
		19830811	AEHA	G. WATE R MONI RORING RESULTS	19		ENV.	G.W.	MON WELLS & WAT WELLS
		19860211	RA, INC	G. WATER MONITORING WELLS	23		ENV.	G.W.	DOC TO STOP READ MON WELLS
5	5W	19930301	RA, INC	ABANDON WAI ER WELLS (SPEC)	61		GEO.	G.W.	14 WAT SUPPLY&11 MON WELLS
		WATER SUPPLY SAMPLING							
0	0	19790305	AEHA	POTABLE / WASTE WAT SURVEY	10		ENV.	GW/SW	G.W/S.W. DATA
		19770912	AEHA	GEOHYDROLOGIC CONSULTATION	6		GEO/ENV	GW/SW	11 POTABLE WELLS
		19860113	AEHA	POTABLE WATER QUALITY SURVEY	22		ENV.	GW/SW	5 - WELL LOGS
		19871103	RA, INC	WATER WELL ANALYSIS	24		ENV.	G.W.	WATER WELLS
		19890110	RA,INC	EXPLOSIVES & PESTICIDE ANALYSES	30		ENV.	G.W.	WATER WELLS
		19890126	OhioEPA	WATER WELL PESTICIDE ANALYSIS	31		ENV.	G.W.	WWII & WWIII
		19891120	RA, INC	WELLHOUSE MONITORING	37		ENV.	G.W.	WATER WELLS
		19891207	RA, INC	WELLHOUSE MONITORING	39		ENV.	G.W.	WATER WELLS
		19900124	RA, INC	RADS ANALYSIS	41		ENV.	G.W.	A19556 & C-19556
		19891025	AEHA	WATER QUALITY CONSULTATION	35		ENV.	G.W.	5 WATER WELLS
		19900209	AEHA	SYNTHETIC ORGANIC CHEM SURVEY	42		ENV.	G.W.	5 WATER WELLS
		19901203	RA, INC	WELLHOUSE MONITORING	47		ENV.	G.W.	WATER WELLS
		19910831	RA, INC	WELLHOUSE MONITORING	52		ENV.	G.W.	WATER WELLS
		19911204	RA, INC	ABANDONMENT OF WELLS	53		ENV.	G.W.	9 WAT WELLS & 21 MON WELLS
		19930522	RA, INC	4 QUARTERLY VOC ANALYSIS	62		ENV.	G.W.	WATER WELLS
		RCRA UNITS							
0	0	19830931	AEHA	I-IAZ WASTE MANG. STUDY	20	OD/OB	ENV.	SOIL	OB PADS/OD AREA-TOT EXL.EPTO
		19850821	RA, INC	AIR CONTAMINANT SOURCE PERMIT	21	DFA	ENV.	AIR/SOIL	CHEM COMP FUZES/PROCESSES
5	5W	19900608	RA, INC	SOP FOR DEMIL: OPEN DEMOLITION	44	OD	ENV.	SOIUG.W.	DEMOLITION S.O.P.
0	0	19901221	OLIN	OPEN BURN AREA SOILS(SHO BE OD)	48	OD	ENV.	SOIL	TOT EXP/rCLP IN/ARD OD HORSH
		19910311	OLIN	RCRA PERMIT MEETING	49	OD/OB	ENV.	N/A	HAS DETAILED CHRONOL
		19920312	RA, INC	BENCHMARK SETTING	54	OD	GEO.	N/A	SAND CREEK B.M.
5	5W	19920513	RA, INC	SOP FOR DEMIL: OPEN BURNING	56	WINK	ENV.	SOIUG.W	BURNING S.O.P.
0	0	19920520	AEHA	SOIL,G WAT,S.WAT CHAR OB/OD	57	OD/WINK	ENV	SOIUG.W.	SOIL,G.WAT SAMPLING

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
5	5W	19920630	H N.	OHIO HAZ. WASTE PERMIT APPLIC.	58	OD/OB	ENV.	N/A	RCRA WASTE APPLIC/MUCH INFO
0	0	19921209	AEHA	HEALTH RA FOR DFA RCRA CLOSURE	60	DFA	ENV.	SOIL	MUST GO CLEAN CLOSURE
↓	↓	19940331	RA, INC	HAZ. WASTE ACC. & STORAGE	64		ENV	N/A	HAZ. MAT, STORAGE
5	5W	19940531	MASON	RCRA INSP SOP FOR OB	65	WINK	ENV.	N/A	INSPECT. SPECS.
0	0	19940531	MASON	RCRA INSP SOP FOR BLDG. 1601	66	1601	ENV.	N/A	INSPECT. SPECS.
		19940531	MASON	RCRA INSP SOP FOR OD	67	OD	ENV.	N/A	INSPECT. SPECS.
		19980108	CELRL	DISPOSABLE MATERIALS (LBS)	83	OD/OB	ENV.	N/A	YEARLY DISPOSALS (1984 - 1993)
↓	↓	no date	RA, INC	OEPA COMMENTS	85	OD/OB	ENV.	SOIUG.W.	WELUSOIL SAMP LOCATS
0		RCRA STREAM SAMPLING							
0	0	19950117	MASON	OD/OB STREAM SAMPLE ANALYSIS	70	OD/WINK	ENV.	S.W.	RCRA
		19950724	MASON	OD/OB STREAM SAMPLE ANALYSIS	71	OD/WINK	ENV.	S.W.	RCRA
		19951027	MASON	OD/OB STREAM SAMPLE ANALYSIS	72	OD/WINK	ENV.	S.W.	RCRA
		19960108	MASON	OD/06 STREAM SAMPLE ANALYSIS	73	OD/WINK	ENV.	S.W.	RCRA
		19960517	MASON	OD/OB STREAM SAMPLE ANALYSIS	74	OD/WINK	ENV.	S.W.	RCRA
		19960524	MASON	OD/OB STREAM SAMPLE ANALYSIS	75	OD/WINK	ENV..	S.W.	RCRA
		19960524	MASON	OD/OB STREAM SAMPLE ANALYSIS	76	OD/WINK	ENV.	S.W.	RCRA
		19960708	MASON	OD/OB STREAM SAMPLE ANALYSIS	77	OD/WINK	ENV.	S.W.	RCRA
		19970121	MASON	OD/OB STREAM SAMPLE ANALYSIS	78	OD/WINK	ENV.	S.W.	RCRA
		19970525	MASON	OD/OB STREAM SAMPLE ANALYSIS	79	OD/WINK	ENV.	S.W.	RCRA
		19970717	MASON	OD/06 STREAM SAMPLE ANALYSIS	80	OD/WINK	ENV.	S.W.	RCRA
		19971013	MASON	OD/OB STREAM SAMPLE ANALYSIS	81	OD/WINK	ENV.	S.W.	RCRA
↓	↓	19971016	MASON	OD/OB STREAM SAMPLE ANALYSIS	82	OD/WINK	ENV.	S.W.	RCRA
1		FACILITY ASSESSMENTS							
5	5W	19770712	AEHA	GEOHYDROLOGIC CONSULTATION	5		ENV.		GOOD DISC OF WATER WEL POL
0	0	19781130	THAMA	INSTALLATION ASSESSMENT	9		ENV.	G.W./S.W.	VERY COMPL ENV ASSESS
		19820504	MOGUL	SOIL AND SEDIMENT ANALYSES	13		ENV.	SOIL/SED	SAMPLE LOC NOT WELL DEFINED
		19821231	THAMA	REASSESSMENT OF HVAAP	17		ENV.		STRAT FOR 80'S ENV CONCERNS
		19880808	AEHA	SOLID WASTE MANG EVALUATION	26		ENV.	N/A	AEHA ENV SUM-TISES MOGUL DAT
↓	↓	19891005	JACOBS	SOLID WASTE MANG INVEST.	33		ENV.	N/A	SOW FOR EPA SUM REP.

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
0	0	19891005	JACOB	RCRA FACILITY ASSESSMENT	34		ENV.	N/A	EPA FUNDED SUM/REP OF EXIST.
		19900620	AAMCC	RCRA PACILITY ASSESSMENT	45		ENV.	N/A	RCRA ASSESSMENT
		19940610	AEHA	PAS BOUNDARY LINE AREAS	68		ENV		CONCISE SUM/REFERS TO 1988 RE
5	5W	19980108	CELRL	SOIL MAPS	84		GEO.	SOIL	SOIL/WAT WELL X-SECTS.
		NPDES							
4	4A	19780710	ALDEN	WATER & AIR POLLUTION SURVEY	7		ENV.	S.W.&AIR	LIST AIR POUNPDES SOURCES
0	0	19900524	AEHA	WASTEWATER FACILITY SURVEY	43		ENV.	S.W.	SEWAGE TREATMENT
		RADIOACTIVITY							
5	5W	19	LTII	RADIATION DECONTAM PROGRAM	4		ENV	RAD	DECON MONAZITE STOR TANKS
0	0	19	INC	CERCLA INDUSTRIAL LANDFILL	46		ENV.	SOIL	SUM OF RAD AT FACILITY
		PESTICIDE BUILDING							
0	0	19781127	AEHA	INSTAL PEST MANAGE PROG SURVEY	8	PEST BLDG	ENV	NA	LIST PRODUCTS/METHODS
		19891030	RA,INC	PEST SPILL PREVENT & MANAGE	36	PEST BLDG	ENV	NA	PRODUCTS, METHODS
		19920424	AEHA	PEST MANAGEMENT SURVEY	55	PEST BLDG	ENV	NA	PRODUCTS, METHODS
		19930922	RA, INC	PESTICIDES IN PEST SHOP	63	PEST SHOP	ENV.	N/A	LIST PRODUCTS
		ORE PILES							
0	0	19881205	AEHA	POT. G.WAT CONTAM CHROM PILES	27	ORE PILE	ENV.	GW/SW	ALSO SOIL TESTING
		NEW LANDFILL STUDY							
0	0	19871104	AEHA	SOLID WASTE DISPOSAL STUDY	25		GEO/ENV	G.W.	BORINGS/MON WELLS/SOILS DAT
		GENERAL GROUNDWATER REQUIREMENTS							
5	5W	19910711	OEPA	HYDROGEOLOGIC GUIDANCE	51		GEO/ENV	G.W.	GOOD DESCR OF HYDRO REQ
		AIR EMISSIONS							
5	5W	19940923	GEOMET	AIR POLLUTION EMISSION SUMMARY	69		ENV.	AIR	V. COMPL/LISTS AMTS MATS PRO
		KIRWAN WATER SUPPLY STUDY							
0	0	19740918	HCNUTT	GEOTECH INVEST WAT PLANT MOD	2		GEO.	SOIL	BORING LOGS/SOIL DATA
0	0	UNDERGROUND STORAGE TANKS							
		19890930	CEHND	INVEST & EVAL OF USTS	32		ENV.		DET STAT OF 50 FAC USTS

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
		ABBREVIATION LISTING FOR THE RVAAP SPREADSHEETS							
		RA, INC	RAVEENA ARSENAL, INC.						
		CELRL	LOUISVILLE DISTRICT						
		MASON	MASON-HANGER COMPANY						
		OLIN	OLIN DEFENSE SYSTEM						
		AEHA	ARMY ENVIRONMENTAL HYGIENE AGENCY						
		OEPA	OHIO EPA						
		JACOBS	JACOBS ENGINEERING GROUP, INC.						
		H.N.	HALLIBURTON NUS ENVIRONMENTAL CORP.						
		S.W.	SURFACE WATER						
		G.W.	GROUND WATER						

Recent and Other Studies

Rate Data 0-5	Rate Doc 0-5 A,W	Report Title
5	5W	Carroll, Chantelle. 1999. *A survey of the small mammals of the Ravenna Arsenal.* Ohio Department of Natural Resources, Columbus, Ohio. pp. 15.
5	5W	ODNR (Ohio Department of Natural Resources). 1993. *Species and Plant Communities Inventory.* Ravenna Army Ammunition Plant. Ohio department of Natural Resources and the Nature Conservancy, Columbus, Ohio, various pagination.
5	5W	Schalk, Charles W., John S. Turtuliani and Robert A. Darner. 1999. *Identification of Potential Wetlands in Training Areas on Ravenna Army Ammunition Plant, Ohio, and Guidelines for Their Management.* U.S. Geological Survey. Columbus, Ohio, Report 99-68, pp. 78.
5	5W	Tawse, Merrill. 1999. *A Survey of the Bats of the Ravenna Arsennal.* Ohio Department of Natural Resources. Columbus, Ohio, pp. 32.

Rate Data 0-5	Rate Doc 0-5 A,W	Report Title
5	5W	Tertuliani, John S. 1999. *Macroinvertebrate survey in streams at Ravenna Army Ammunition Plant*, Portage and Trumball Counties, Ohio, pp. 44. Draft.
5	5W	USACE (U.S. Army Corps of Engineers). 1996a. *Facility-Wide Sampling and Analysis Plan for Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. April 1996.
5	5W	USACE (U.S. Army Corps of Engineers). 1996b. *Preliminary Assessment for the Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. April 1996.
5	5W	USACE (U.S. Army Corps of Engineers). 1997a. *Phase I Remedial Investigation Report for 11 High-Priority Sites at Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. May 1997.
5	5A	USACE (U.S. Army Corps of Engineers). 1997c. *Closure Plan for the Deactivation Furnace Area Hazardous Waste Treatment Unit, Ravenna Army Ammunition Plant, Ravenna, Ohio*. Draft Revised. October 1997.
5	5W	USACE (U.S. Army Corps of Engineers). 1998a. *Sampling and Analysis Plan Addendum for the Phase II Remedial Investigation at Winklepeck Burning Grounds and Determination of Facility-Wide Background at the Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. April 1998.
5	5W	USACE (U.S. Army Corps of Engineers). 1999. *Phase II Remedial Investigation at Winklepeck Burning Grounds and Determination of Facility-Wide Background at the Ravenna Army Ammunition Plant, Ravenna, Ohio.*
5	5A	USACE (U.S. Army Corps of Engineers). 1998b. *RCRA Field Investigation Report for Five Sites at Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. June 1998.
5	5W	USACE (U.S. Army Corps of Engineers). 1998c. *Initial Phase Report, Ramsdell Quarry Landfill Groundwater Investigation, Ravenna Army Ammunition Plant, Ravenna, Ohio*. Draft. September 1998.
5	5W	USAEC (U.S. Army Environmental Center). 1995. *Manual for the preparation of installation endangered species management plans*. USAEC, Attn: SFIM-AEC-ECN, Aberdeen Proving Ground, MD.
5	5W	USAEHA (U.S. Army Environmental Health Administration). 1983. *Hazardous Waste Management Study No. 37-26-0442-84, Phase 2 of AMC Open-Burning/Open-Detonation Grounds Evaluation, Ravenna Army Ammunition Plant*, 31 October – 3 November 1983.

Rate Data 0-5	Rate Doc 0-5 A,W	Report Title
5	5W	USAEHA (U.S. Army Environmental Health Administration). 1992. *Geohydrologic Study No. 38-26-KF95-92*. Soils, Ground Water, and Surface Water Characterization for the Open Burning and Open Detonation Areas, Ravenna Army Ammunition Plant, Ravenna, Ohio, 20 April – 5 May 1992.
5	5W	USATHAMA (U.S. Army Toxic and Hazardous Materials Agency). 1978. *Installation Assessment of Ravenna Army Ammunition Plant*. Report No. 132.
5	5W	U.S. Department of the Army, Environmental Assessment. 1993.

Attachment C. Listing of Data Types that Could be Included in an Environmental Information Management System

The first table below lists general data categories that could be included in an information management system. In the first column please rate the importance of having electronic access to data of each type for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential. Please add any categories of data that you use that are not listed.

	Data Categories
	This table lists broad categories of data that could be included in a data management system.
Rating Scale	Description
0	Laboratory analyses of field samples:
	Target analytes
	Tentatively Identified Compounds (TICs)
	Field quality control results:
	Field replicates
	Trip Blanks
	Equipment Rinse
	Laboratory Split samples
	Tentatively Identified Compounds (TICs)
	Laboratory quality control results:
	Matrix spikes
	Matrix spike duplicates
	Laboratory control standards
	Laboratory blanks
	Laboratory replicates
	Field Measurements:
4	Safety-related (such as organic vapor)
5	Site conditions (air temperature, weather)
3	Media related (such as pH, conductivity, depth to water table, water temperature):
0	Instrument calibration records
3	Well construction information (such as boring depth, construction date, construction materials, screen depth)
4	Geotechnical (layer type, depth to layer)
	Other _____

Potential Fields in Environmental Relational Database

The following tables list specific variable fields that could be included in a relational database of environmental data. If you are interested in this level of detail please rate the importance of each field and list additional fields that you would need. Keep in mind that in a relational database information from one table is linked to the other tables by key fields. For example coordinates do not need to be in the sample file because they are in the spatial file and can be linked to the sample file by station ID.

(Continue only if you are interested in this level of detail)

These are for the IOC IRP only - not OHARNG.

	Field Samples
	This table contains information about the samples that are planned or collected
Rate 1-5 Scale	Description
	Sample ID
	An alternate sample id.
	Y/N value indicating that the record has been cleared for public use.
	Y if the sample was collected.
	A comment about the sample collection.
	The date the record was added to the table.
	The date the sample was collected.
	The time the sample was collected.
	The date the record was modified.
	The depth unit the sample was collected. NA if not applicable.
	The starting depth of the sample.
	The ending depth of the sample.
	Field sample type. (e.g. grab, field duplicate..)
	Media the sample was collected from.
	Project ID
	Code for the sampling method.
	Sampling location
	Other _____
	Chemical Results
	This table contains information about the results from laboratory analyses
Rate 1-5 Scale	Description
	Analysis type+B49 (volatile, semivolatiles)
	The chemical name.

Ohio EPA

RVAAP Information Management Needs Assessment

Name Todd Fisher / Eileen Mohr

Organization Ohio EPA / NEDO / DERR

Phone Number Todd - 330 963 1148
Eileen - 330 963 1271

Ravenna Site Connection

1. What are your responsibilities at or with RVAAP? Todd - my computer consultant + cc RVAAP guy.
Eileen - Project coordinator for Ohio EPA of the RVAAP site -- review and comment on documents; prepare CA; update IAP + obligation plans; provide oversight of work; Coordinate RCRA/CERCLA/TSCA/SW issues
2. How does your role fit in the overall Environmental Restoration program?
Lead regulator on the site for state of Ohio, also keep USEPA informed as they do not have direct involvement on the RVAAP project.

Information Responsibilities

3. Do you generate information that is or should be stored in an Information Management System? If, yes, what type of information? In what format is it currently stored? How do you input information now?
Online reports/documents
Project costs/budget constraints
Analytical data
Maps/photos
Well logs-loc: boring etc/depths ...
Facility contacts
4. Do you use information that is or could be extracted from an Information Management System? If, yes, what type of information? How do you extract information now?
Y/S - right now I have an access data base that details tasks performed + time expended

5. How up to date should the information be to meet your needs? To the minute? Daily? Weekly?
Daily or Weekly

Interface Requirements

6. Would you prefer interactive access (where the users have extensive options available for

specific data types) or "canned" reports with limited options (where the users have one to two button decisions with all functionality behind the scenes) to access information? Explain.

Interactive access, able to query information

7. Would you prefer spatial interfaces (utilizing maps to partition or access data) or customized query tools (intuitive or knowledge based to partition or access data) to information? Explain.

Customized query tools (InfoMaker, etc. Powerbuilder)

Infrastructure

8. What software tools do you most frequently use?
   a. Excel X
   b. MS Word __
   c. ArcView X for GIS Applications
   d. other WordPerfect 8.0 / 7.0 / Access / Powerpoint / IE 4.0/5.0
      ArcView 3.1
      Arc Info - Version 6 or 7??
9. What type of hardware do you have?
   a. PC, Mac, workstation, mainframe? PC (IBM-compatible)
   b. typical hard drive size? 6 GIG
   c. typical memory size 64 MB
   d. processor type/speed 233 Pentium
   e. other [redacted] HP Laserjet 4Si

10. What is the current server configuration where the data and Web site could reside? What is the operating system?

Windows 95 - maybe changing to 98 or NT in the future.

11. Is there a Local Area Network? If so will Intranet connectivity be required?

Yes / Maybe

12. Is there a DBA or Network Administrator available for consultation for the network that you are using? Yes, Craig Hackett (330) 963-1121

Security

13. Who should have access to the information (organization specific)? How? Direct connection or Internet? Should there be different levels of access?

Internet access would be easiest to implement. Different Levels of access would be required depending upon sensitivity of info. Certainly the project team should have complete access.

14. How secure should the system be?

Internet - Highest IE Security Enabled

15. Should accessibility to data be governed by the organization?

yes interpreted to mean the project team.

Current Information Management System/Data Access

16. What is your current biggest complaint about your access to information?

Speed, ability to update, reconciliation

17. If changes were made to your current IMS, what would you most like them to be?

Speed, ability to update without first going through a DBA

18. How important is speed?

Very Important

GIS/Maps and their use

19. Attachment A lists maps and associated attribute layers that are available. Please indicate in the first column of the list which maps/layers are important for your work. Use a 0-5 scale with zero meaning unimportant and 5 meaning essential.

20. Are there additional maps or layers that are available that are not listed?

Bedrock, till, Groundwater resources, ~~Strategic Stockpiles~~, ~~Stockpiles~~

21. Are there additional layers required?

Strategic Stockpile (DLA) areas, Potentiometric maps, Isoconcentration maps for various media

22. How important is it for you to be able to select which attribute layers are displayed on maps?

Very important

23. Are there portions of the Ravenna site that are important to you and that should be easy to view without knowledge of viewing software tools? i.e. What parts of the RVAAP site map would you like to easily zoom in on? Be specific.

AOCs

24. Do you need to be able to plot the distribution of contamination levels for a particular media and analyte type on a map?

Yes

Data

25. Attachment B lists studies that may have generated environmental data sets. Please indicate in the first column on the list the importance of having each data set electronically available for your work. Use a 0-5 scale with zero meaning unimportant and 5 meaning essential.

26. Attachment C lists specific variables that could be included in an environmental data management system. Please indicate on the list the importance of having each variable electronically available for your work. Use a 0-5 scale with zero meaning unimportant and 5 meaning essential.

27. Are there additional data sets and types that are available that are not listed? Legacy data?

28. Are there additional data types required? Be specific.

29. What specific type of data is most important to you?

30. Do you want to download data to your workstation to make calculations and generate reports?

Documents

31. Attachment B lists studies that may have generated documents related to the environmental restoration efforts at Ravenna. In the second column please rate the importance of having electronic access to documents from each study for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential. Add an 'A' to the rating to indicate that you would need only the abstract or summary information or a 'W' to indicate that you would need access to the whole document.

32. Are there additional documents that are available that are not listed? Historical documents?
USACE guidance? Or can there be a link to the guidance?

33. What specific types of documents are most important to you?
RI / IA documents; Specific historical documents

34. Do you want to download documents to your workstation or review summary of documents on the Internet and then request a hardcopy for your use? Download from internet (PDF format)

Internet Requirements

35. Is there a specific type of organization you would like to see for the RVAAP Web site?
Side bar Index + ~~T~~ Image maps, search ~~bar~~ bar, Favorite Links (reference links)

36. What type of capabilities or functionality would you like see on the Web site? Give specific examples. (For example: site description, summary of environmental restoration process, schedule of activities, site map, site photos, newsletter, facility for submitting

questions/comments, access to documents, access to data)

37. What sites would you like to see linked to the RVAAP web site?

Dénix – public USACE
Ch. EPA
USEPA

Other

38. Would you like to have regulatory information available in an information management system or web site? Yes

39. To what specific regulations would you need access?

OAC DSMOA // CA
ORC
40 CFR
Range rule
Munitions Rule

In the first column please rate the importance of each map or attribute layer to your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential.

Ohio National Guard Ravenna GIS (06/04/99)

Rate 0-5 Scale	Map Layer	Status
5	National Wetlands Inventory Map- Newton Falls, Windham, and Ravenna Quads	Scanned and digitized
5	C - OHARNG/AMC Boundary	Digital format
5	AP - 1997 Composite Aerial Photo	Scanned
3-4	USGS Topography - Newton Falls, Windham, and Ravenna Quads	Digital - 1:24,000
??	1400.14-1 - Installation and UTM Coordinate Map	Digital format
5	1200.7 - Boundary Survey	Digital format
3-4	1400.0 - Plant Communities of the Ravenna Arsenal	Digitized and revised
5	1400.0 - RVAAP Wetland Communities	Digitized
1	Soil Survey- Portage and Trumbull Counties	Digital

Rate 0-5 Scale	Additional Map Layers	Status
5	1940 Aerial Photo	Scanned
5	1998 Infrared Photo	Scanned
5	2-foot contours	Digital (not complete)
3-4	Watershed map	Digitized
2-3	Blowout Arcs	Digitized
5	Areas of Concern	Digitized
5	Monuments	Digitized
3-4	Base Electric	Digital format
3-4	Base Sanitation	Digital format
3-4	Base Steam Lines	Digital format
4	Building inventory	Photos, status (active, inactive)
4	Railroads	Railroad removal – modify GIS
5	Habitat survey	Revise based on ground truthing

5	Side roads	GPS?
5	Metadata	FGDC standards, SMMS software
3	3D visualization	Topography
3	Virtual tours	IPIX format

Current SAIC CAD Map Layers

Rate 0-5 Scale	Layer Description
	HYDROLOGY
5	Culvert
5	Drainage Ditch
5	Lagoon Boundary
5	Lake
5	Pond
5	Seep and Spring Location
5	Stream
5	Tributary
5	Wetlands
	ROAD FEATURES
5	Bridge
5	Curb and Gutter
5	Dirt Road
5	Gravel Roads
5	Parking Lot
5	Primary Roads, Highways,
5	Secondary Roads
4	Trails
	SITE FEATURES
5	County Boundary
5	Building

Rate 0-5 Scale	Layer Description
~~8~~ 4	Bollards – gates to facility?
3	Concrete slab
5	Fence
1 (keep now, 5 if installed)	Helicopter Pad
5	Existing Property Pin
5	Proposed Property Pin
1	Guard Rail
3	Parcels
5	Railroad
1	Riprap
1	Sign
5	Tanks
5	General Site Text
5	Trench Locations
1	Sidewalk
	TOPOGRAPHY:
5	Contour Elevation Text
5	Contour 5' Interval
5	Contour 2' Interval
3	Contour 10' Interval
2-3	Contour 100' Interval
4	Spot Elevations
	UTILITIES
5	Utility Easement
1	Junction Box
5	Utility Lateral Line
4	Catch Basin
2	Electric Light Pole
2	Electric Pole
2	Fire Water
2	Fire Water Hydrant
5	Natural Gas Line

Rate 0-5 Scale	Layer Description
5	Sewer Line
4	Sewer Manhole
5	Storm Drain
5	Sewer Line
5	Telephone Line - Underground
5	Transmission Tower
3	Water Line
3	Water Hydrants
	VEGETATION
3	Grass
3	Lawn
5	Fill
4	Tree Line

Attachment B. Listing of Studies at RVAAP

In the first column please rate the importance of having electronic access to data from each study for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential.

In the second column please rate the importance of having electronic access to documents from each study for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential. Add an 'A' to the rating to indicate that you would need only the abstract or summary or a 'W' to indicate that you would need access to the whole document.

Historical Studies

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
2	2 A	STREAM SAMPLING							
		19741212	AEHA	FLOW MEASURING DEVICES	3		ENV.	S.W.	STREAMS & CREEKS
		19800312	RA, INC	WATER QUALITY SURVEILLANCE	11		ENV.	S.W.	9 STREAM LOCATIONS
		19881216	RA, INC	SURFACE WATER MONITORING	28		ENV.	S.W.	8 STR LOC & 061,OB2
		19881227	RA, INC	SURFACE WATER MONITORING	29		ENV.	S.W.	8 STR LOC & OB1 OB2
		19880725	AEHA	TOXICITY ID EVALUATION	86	LL6	ENV.	S.W./BIO	PINK WATER POND AQUATIC TOX
		19891130	RA, INC	SURFACE WATER MONITORING	38		ENV.	S.W.	8 STR LOC & 081,OB2
		19900122	AEHA	REC WAT BIO STUDY-EFFL TOX TEST	40	LL6	ENV.	BIO/S.W.	PINK WAT TREAT SYSTEM AT L6
		19910620	RA.INC	SURFACE WATER MONITORING	50		ENV.	S.W.	8 STR LOC & OB1,OB2
		19921203	RA, INC	SURFACE WATER MONITORING	59		ENV.	S.W.	8 STR LOC & OB1,OB2
		MONITORING WELLS							
2	2 A	19810907	AEHA	HAZ. WASTE MANG. CONSULTATION	12		ENV.	G.W.	21 MONITOR WELL LOGS
		19820512	AEHA	G. WATER MONITORING RESULTS	14		ENV.	G.W.	MON WELLS & FEW WAT WELLS
		19820812	EA, INC	2ND I/QUARTER ANALYTL RESULTS	15		ENV.	G.W.	MON WELLS & FEW WAT WELLS
		19821208	AEHA	G. WATER MONITORING RESULTS	16		ENV.	G.W.	MON WELLS & FEW WAT WELLS

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
2	2A	19830214	AEHA	G. WATER MONITORING RESULTS	18		ENV.	G.W.	MON WELLS & WAT WELLS
↓	↓	19830811	AEHA	G. WATE R MONI RORING RESULTS	19		ENV.	G.W.	MON WELLS & WAT WELLS
↓	↓	19860211	RA, INC	G. WATER MONITORING WELLS	23		ENV.	G.W.	DOC TO STOP READ MON WELLS
5	5W	19930301	RA, INC	ABANDON WATER WELLS (SPEC)	61		GEO.	G.W.	14 WAT SUPPLY&11 MON WELLS
2	2A	WATER SUPPLY SAMPLING							
		19790305	AEHA	POTABLE / WASTE WAT SURVEY	10		ENV.	GW/SW	G.W/S.W. DATA
		19770912	AEHA	GEOHYDROLOGIC CONSULTATION	6		GEO/ENV	GW/SW	11 POTABLE WELLS
		19860113	AEHA	POTABLE WATER QUALITY SURVEY	22		ENV.	GW/SW	5 - WELL LOGS
		19871103	RA, INC	WATER WELL ANALYSIS	24		ENV.	G.W.	WATER WELLS
		19890110	RA,INC	EXPLOSIVES & PESTICIDE ANALYSES	30		ENV.	G.W.	WATER WELLS
		19890126	OhioEPA	WATER WELL PESTICIDE ANALYSIS	31		ENV.	G.W.	WWII & WWIII
		19891120	RA, INC	WELLHOUSE MONITORING	37		ENV.	G.W.	WATER WELLS
		19891207	RA, INC	WELLHOUSE MONITORING	39		ENV.	G.W.	WATER WELLS
		19900124	RA, INC	RADS ANALYSIS	41		ENV.	G.W.	A19556 & C-19556
		19891025	AEHA	WATER QUALITY CONSULTATION	35		ENV.	G.W.	5 WATER WELLS
		19900209	AEHA	SYNTHETIC ORGANIC CHEM SURVEY	42		ENV.	G.W.	5 WATER WELLS
		19901203	RA, INC	WELLHOUSE MONITORING	47		ENV.	G.W.	WATER WELLS
		19910831	RA, INC	WELLHOUSE MONITORING	52		ENV.	G.W.	WATER WELLS
		19911204	RA, INC	ABANDONMENT OF WELLS	53		ENV.	G.W.	9 WAT WELLS & 21 MON WELLS
↓	↓	19930522	RA, INC	4 QUARTERLY VOC ANALYSIS	62		ENV.	G.W.	WATER WELLS
		RCRA UNITS							
3	3A	19830931	AEHA	I-HAZ WASTE MANG. STUDY	20	OD/OB	ENV.	SOIL	OB PADS/OD AREA-TOT EXL,EPTO
1	1	19850821	RA, INC	AIR CONTAMINANT SOURCE PERMIT	21	DFA	ENV.	AIR/SOIL	CHEM COMP FUZES/PROCESSES
5	5W	19900608	RA, INC	SOP FOR DEMIL: OPEN DEMOLITION	44	OD	ENV.	SOIUG.W.	DEMOLITION S.O.P.
3	3A	19901221	OLIN	OPEN BURN AREA SOILS(STIO BE OD)	48	OD	ENV.	SOIL	TOT EXP/rCLP IN/ARD OD HORSH
↓	↓	19910311	OLIN	RCRA PERMIT MEETING	49	OD/OB	ENV.	N/A	HAS DETAILED CHRONOL.
↓	↓	19920312	RA, INC	BENCHMARK SETTING	54	OD	GEO.	N/A	SAND CREEK B.M.
5	5W	19920513	RA, INC	SOP FOR DEMIL: OPEN BURNING	56	WINK	ENV.	SOIUG.W.	BURNING S.O.P.
3	3A	19920520	AEHA	SOIL,G.WAT,S.WAT CHAR OB/OD	57	OD/WINK	ENV	SOIUG.W.	SOIL,G.WAT SAMPLING

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
2	2A	19920630	H.N.	OHIO HAZ. WASTE PERMIT APPLIC.	58	OD/OB	ENV.	N/A	RCRA WASTE APPLIC/MULTI REG
		19921209	AEHA	HEALTH RA FOR DFA RCRA CLOSURE	60	DFA	ENV.	SOIL	MUST GO CLEAN CLOSURE
		19940331	RA, INC	HAZ. WASTE ACC. & STORAGE	64		ENV	N/A	HAZ. MAT, STORAGE
		19940531	MASON	RCRA INSP SOP FOR OB	65	WINK	ENV.	N/A	INSPECT. SPECS.
		19940531	MASON	RCRA INSP SOP FOR BLDG. 1601	66	1601	ENV.	N/A	INSPECT. SPECS.
		19940531	MASON	RCRA INSP SOP FOR OD	67	OD	ENV.	N/A	INSPECT. SPECS.
		19980108	CELRL	DISPOSABLE MATERIALS (LBS)	83	OD/OB	ENV.	N/A	YEARLY DISPOSALS (1984 - 1993)
		no date	RA, INC	OEPA COMMENTS	85	OD/OB	ENV.	SOIUG.W.	WELUSOIL SAMP LOCATS
		RCRA STREAM SAMPLING							
		19930117	MASON	OD/OB STREAM SAMPLE ANALYSIS	70	OD/WINK	ENV.	S.W.	RCRA
		19930724	MASON	OD/OB STREAM SAMPLE ANALYSIS	71	OD/WINK	ENV.	S.W.	RCRA
		19931027	MASON	OD/OB STREAM SAMPLE ANALYSIS	72	OD/WINK	ENV.	S.W.	RCRA
		19960108	MASON	OD/06 STREAM SAMPLE ANALYSIS	73	OD/WINK	ENV.	S.W.	RCRA
		19960517	MASON	OD/OB STREAM SAMPLE ANALYSIS	74	OD/WINK	ENV.	S.W.	RCRA
		19960524	MASON	OD/OB STREAM SAMPLE ANALYSIS	75	OD/WINK	ENV...	S.W.	RCRA
		19960524	MASON	OD/OB STREAM SAMPLE ANALYSIS	76	OD/WINK	ENV.	S.W.	RCRA
		19960708	MASON	OD/OB STREAM SAMPLE ANALYSIS	77	OD/WINK	ENV.	S.W.	RCRA
		19970121	MASON	OD/OB STREAM SAMPLE ANALYSIS	78	ODIWINK	ENV.	S.W.	RCRA
		19970525	MASON	OD/OB STREAM SAMPLE ANALYSIS	79	OD/WINK	ENV.	S.W.	RCRA
		19970717	MASON	OD/06 STREAM SAMPLE ANALYSIS	80	OD/WINK	ENV.	S.W.	RCRA
		19971013	MASON	OD/OB STREAM SAMPLE ANALYSIS	81	OD/WINK	ENV.	S.W.	RCRA
	√	19971016	MASON	OD/OB STREAM SAMPLE ANALYSIS	82	OD/WINK	ENV.	S.W.	RCRA
		FACILITY ASSESSMENTS							
4	4A	19770712	AEHA	GEOHYDROLOGIC CONSULTATION	5		ENV.		GOOD DISC OF WATER WEL POL
		19781130	THAMA	INSTALLATION ASSESSMENT	9		ENV.	G.W./S.W.	VERY COMPL ENV ASSESS
		19820504	MOGUL	SOIL AND SEDIMENT ANALYSES	13		ENV.	SOIL/SED	SAMPLE LOC NOT WELL DEFINED
		19821231	THAMA	REASSESSMENT OF HVAAP	17		ENV.		STRAT FOR 80'S ENV CONCERNS
		19880808	AEHA	SOLID WASTE MANG EVALUATION	26		ENV.	N/A	AEHA ENV SUM-TJSES MOGUL DAT
	√	19891005	JACOBS	SOLID WASTE MANG INVEST.	33		ENV.	N/A	SOW FOR EPA SUM REP.

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS
4	4 G,W	19891005	JACOB	RCRA FACILITY ASSESSMENT	34		ENV.	N/A	EPA FUNDED SUM/REP OF EXIST
↓	↓	19900620	AAMCC	RCRA FACILITY ASSESSMENT	45		ENV.	N/A	RCRA ASSESSMENT
		19940610	AEHA	PAS BOUNDARY LINE AREAS	68		ENV		CONCISE SUM/REFERS TO 1988 RE
↓	↓	19980108	CELRL	SOIL MAPS	84		GEO.	SOIL	SOIL/WAT WELL X-SECTS.
		NPDES							
4	4 W	19780710	ALDEN	WATER & AIR POLLUTION SURVEY	7		ENV.	S.W.&AIR	LIST AIR POUNPDES SOURCES
3	3 A	19900524	AEHA	WASTEWATER FACILITY SURVEY	43		ENV.	S.W.	SEWAGE TREATMENT
		RADIOACTIVITY							
4	4 W	19	LTII	RADIATION DECONTAM PROGRAM	4		ENV	RAD	DECON MONAZITE STOR TANKS
2	↓	19	INC	CERCLA INDUSTRIAL LANDFILL	46		ENV.	SOIL	SUM OF RAD AT FACILITY
		PESTICIDE BUILDING							
4	4 W	19781127	AEHA	INSTAL PEST MANAGE PROG SURVEY	8	PEST BLDG	ENV	NA	LIST PRODUCTS/METHODS
		19891030	RA,INC	PEST SPILL PREVENT & MANAGE	36	PEST BLDG	ENV	NA	PRODUCTS, METHODS
↓	↓	19920424	AEHA	PEST MANAGEMENT SURVEY	55	PEST BLDG	ENV	NA	PRODUCTS, METHODS
↓	↓	19930922	RA, INC	PESTICIDES IN PEST SHOP	63	PEST SHOP	ENV.	N/A	LIST PRODUCTS
		ORE PILES							
4	4 W	19881205	AEHA	POT. G.WAT CONTAM CHROM PILES	27	ORE PILE	ENV.	GW/SW	ALSO SOIL TESTING
		NEW LANDFILL STUDY							
4	4 A	19871104	AEHA	SOLID WASTE DISPOSAL STUDY	25		GEO/ENV	G.W.	BORINGS/MON WELLS/SOILS DAT
		GENERAL GROUNDWATER REQUIREMENTS							
1	1 A	19910711	OEPA	HYDROGEOLOGIC GUIDANCE	51		GEO/ENV	G.W.	GOOD DESCR OF HYDRO REQ
		AIR EMISSIONS							
3	3 A	19940923	GEOMET	AIR POLLUTION EMISSION SUMMARY	69		ENV.	AIR	V. COMPL/LISTS AMTS MATS PRO
		KIRWAN WATER SUPPLY STUDY							
4	4 W	19740918	HCNUTT	GEOTECH INVEST WAT PLANT MOD	2		GEO.	SOIL	BORING LOGS/SOIL DATA
		UNDERGROUND STORAGE TANKS							
4	4 W	19890930	CEHND	INVEST & EVAL OF USTS	32		ENV.		DET STAT OF 50 FAC USTS

Rate Data 0-5	Rate Doc 0-5 A,W	DATE	AGENCY	REPORT TITLE	REP#	AOC NAME	TYPE INVEST.	MATRIX	COMMENTS		

ABBREVIATION LISTING FOR THE RVAAP SPREADSHEETS	
RA, INC	RAVEENA ARSENAL, INC.
CELRL	LOUISVILLE DISTRICT
MASON	MASON-HANGER COMPANY
OLIN	OLIN DEFENSE SYSTEM
AEHA	ARMY ENVIRONMENTAL HYGIENE AGENCY
OEPA	OHIO EPA
JACOBS	JACOBS ENGINEERING GROUP, INC.
H.N.	HALLIBURTON NUS ENVIRONMENTAL CORP.
S.W.	SURFACE WATER
G.W.	GROUND WATER

Recent and Other Studies

Rate Data 0-5	Rate Doc 0-5 A,W	Report Title
5	SW	Carroll, Chantelle. 1999. *A survey of the small mammals of the Ravenna Arsenal.* Ohio Department of Natural Resources, Columbus, Ohio. pp. 15.
		ODNR (Ohio Department of Natural Resources). 1993. *Species and Plant Communities Inventory.* Ravenna Army Ammunition Plant. Ohio department of Natural Resources and the Nature Conservancy, Columbus, Ohio, various pagination.
		Schalk, Charles W., John S. Turtuliani and Robert A. Darner. 1999. *Identification of Potential Wetlands in Training Areas on Ravenna Army Ammunition Plant, Ohio, and Guidelines for Their Management.* U.S. Geological Survey. Columbus, Ohio, Report 99-68, pp. 78.
		Tawse, Merrill. 1999. *A Survey of the Bats of the Ravenna Arsenal.* Ohio Department of Natural Resources. Columbus, Ohio, pp. 32.

Rate Data 0-5	Rate Doc 0-5 A,W	Report Title
5	5 W	Tertuliani, John S. 1999. *Macroinvertebrate survey in streams at Ravenna Army Ammunition Plant*, Portage and Trumball Counties, Ohio, pp. 44. Draft.
		USACE (U.S. Army Corps of Engineers). 1996a. *Facility-Wide Sampling and Analysis Plan for Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. April 1996.
		USACE (U.S. Army Corps of Engineers). 1996b. *Preliminary Assessment for the Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. April 1996.
		USACE (U.S. Army Corps of Engineers). 1997a. *Phase I Remedial Investigation Report for 11 High-Priority Sites at Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. May 1997.
		USACE (U.S. Army Corps of Engineers). 1997c. *Closure Plan for the Deactivation Furnace Area Hazardous Waste Treatment Unit, Ravenna Army Ammunition Plant, Ravenna, Ohio*. Draft Revised. October 1997.
		USACE (U.S. Army Corps of Engineers). 1998a. *Sampling and Analysis Plan Addendum for the Phase II Remedial Investigation at Winklepeck Burning Grounds and Determination of Facility-Wide Background at the Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. April 1998.
		USACE (U.S. Army Corps of Engineers). 1999. *Phase II Remedial Investigation at Winklepeck Burning Grounds and Determination of Facility-Wide Background at the Ravenna Army Ammunition Plant, Ravenna, Ohio.*
		USACE (U.S. Army Corps of Engineers). 1998b. *RCRA Field Investigation Report for Five Sites at Ravenna Army Ammunition Plant, Ravenna, Ohio*. Final. June 1998.
		USACE (U.S. Army Corps of Engineers). 1998c. *Initial Phase Report, Ramsdell Quarry Landfill Groundwater Investigation, Ravenna Army Ammunition Plant, Ravenna, Ohio*. Draft. September 1998.
		USAEC (U.S. Army Environmental Center). 1995. *Manual for the preparation of installation endangered species management plans*. USAEC, Attn: SFIM-AEC-ECN, Aberdeen Proving Ground, MD.
		USAEHA (U.S. Army Environmental Health Administration). 1983. *Hazardous Waste Management Study No. 37-26-0442-84, Phase 2 of AMC Open-Burning/Open-Detonation Grounds Evaluation, Ravenna Army Ammunition Plant*, 31 October – 3 November 1983.

Rate Data 0-5	Rate Doc 0-5 A,W	Report Title
5	5W	USAEHA (U.S. Army Environmental Health Administration). 1992. *Geohydrologic Study No. 38-26-KF95-92.* Soils, Ground Water, and Surface Water Characterization for the Open Burning and Open Detonation Areas, Ravenna Army Ammunition Plant, Ravenna, Ohio, 20 April – 5 May 1992.
5	5W	USATHAMA (U.S. Army Toxic and Hazardous Materials Agency). 1978. *Installation Assessment of Ravenna Army Ammunition Plant.* Report No. 132.
5	5W	U.S. Department of the Army, Environmental Assessment. 1993.

Attachment C. Listing of Data Types that Could be Included in an Environmental Information Management System

The first table below lists general data categories that could be included in an information management system. In the first column please rate the importance of having electronic access to data of each type for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential. Please add any categories of data that you use that are not listed.

	Data Categories
	This table lists broad categories of data that could be included in a data management system.
Rate 0-5 Scale	**Description**
	Laboratory analyses of field samples:
5	Target analytes
0	Tentatively Identified Compounds (TICs)
	Field quality control results:
5	Field replicates
↓	Trip Blanks
↓	Equipment Rinse
↓	Laboratory Split samples
0	Tentatively Identified Compounds (TICs)
	Laboratory quality control results:
5	Matrix spikes
↓	Matrix spike duplicates
↓	Laboratory control standards
↓	Laboratory blanks
↓	Laboratory replicates
	Field Measurements:
5	Safety-related (such as organic vapor)
4	Site conditions (air temperature, weather)
5	Media related (such as pH, conductivity, depth to water table, water temperature):
3	Instrument calibration records
5	Well construction information (such as boring depth, construction date, construction materials, screen depth)
5	Geotechnical (layer type, depth to layer)
	Other _____

Potential Fields in Environmental Relational Database

The following tables list specific variable fields that could be included in a relational database of environmental data. If you are interested in this level of detail please rate the importance of each field and list additional fields that you would need. Keep in mind that in a relational database information from one table is linked to the other tables by key fields. For example coordinates do not need to be in the sample file because they are in the spatial file and can be linked to the sample file by station ID.

(Continue only if you are interested in this level of detail)

	Field Samples
	This table contains information about the samples that are planned or collected
Rate 0-5 Scale	**Description**
5	Sample ID
N/A	An alternate sample id.
3	Y/N value indicating that the record has been cleared for public use.
2	Y if the sample was collected.
	A comment about the sample collection.
✓	The date the record was added to the table.
5	The date the sample was collected.
5	The time the sample was collected.
4	The date the record was modified.
5	The depth unit the sample was collected. NA if not applicable.
5	The starting depth of the sample.
5	The ending depth of the sample.
5	Field sample type. (e.g. grab, field duplicate..)
5	Media the sample was collected from.
5	Project ID
5	Code for the sampling method.
5	Sampling location
	Other _____
	Chemical Results
	This table contains information about the results from laboratory analyses
Rate 0-5 Scale	**Description**
5	Analysis type+B49 (volatile, semivolatiles)
5	The chemical name.

5	Y/N value indicating that the record has been cleared for public use.
5	The data validator's qualifier.
3	The date the record was added to the table.
3	The date the record was modified.
5	The detection limit.
4	The dilution factor.
5	The error associated with the measurement.
5	Y/N indicating if the result is filtered.
5	Sample ID- key used to identify each sample record.
1-2	Qualifier assigned by the laboratory.
5	Y/N indicating a specific record should be used. Used to identify a single result that should be used when mutiple analyses have been performed.
2	Code for the parameter. Usually the CAS #.
0	Qualifier assigned based on a review of the laboratory and data validation qualifiers. Used so that if not all data has been validated, only have a single field to test for detects.
5	The chemical result value.
5	The units for the analytic results.
5	Codes assigned during validation indicating why qualifiers were assigned.
	Other _____

only include validated data

Laboratory Analysis Information

This table contains laboratory information about the samples analysis.

Rate 0-5 Scale	Description
5	Sample ID
5	Analysis type (volatile, semivolatiles)
?	The EPA analysis level.
5	ID of associated blank
5	The date the sample was analyzed.
5	The date the sample was extracted.
5	The date the laboratory received the sample for analysis.
5	The dilution factor.
3	The extraction method.
5	Y/N indicating if the result is filtered.
2	The instrument number for the instrument the sample was analyzed on.
2	Code for the laboratory.
4	Sample id assigned by the laboratory.
5	The matrix of the sample analyzed. Typically soil or water.
5	The analytic method.
4	The percent solids.
5	Result type (regular, dilution, matrix spike, etc.)

1	The sample delivery group (SDG) number.
2	The date the SDG was received.
3	Sample pH.
3	The time the sample was analyzed.
5	The units for the analytic results.
4	The weight or volume of the sample when analyzed.
	The units for wgt_vol field.
	Other _____
	Spatial
	This table defines the spatial information.

Rate 0-5 Scale	Description
5	The name of the station.
	Description of the station.
	Station type (well, boring, etc.)
	The name for a spatial area (i.e. AOC)
	A comment about the spatial location.
3	The date the record was modified.
5	The station's northing coordinate.
5	The station's easting coordinate.
5	The station's ground surface elevation.
5	Indication of how the coordinates were determined (survey, GPS, estimate, etc).
5	The units (ft, meters) that the elevation is in.
	Other _____
	Project
	This table defines the projects in the database.

Rate 0-5 Scale	Description
5	The project name.
	The contact person for a project.
	The contractor performing the sample collection.
	The project manager.
	Phone number for the project's contact.
	The project number.
	A name where the site is located

	A name for the site.
	Other _____
	Well
	This table defines the well construction information.

Rate 0-5 Scale	Description
	Name of station
	boring depth
	Liner material
	Screen type
	Screen start depth
	screen end depth
	top of casing elevation
	screen material
	driller
	date constructed
	Other Screen Slot Size
V	Geologic unit of Screened interval

	Field Measurements
	This table stores field measurements.

Rate 0-5 Scale	Description
5	Sample ID
	Station ID
	Date measured
	Time Measured
	Parameter
	Result
	Result qualifier
V	Other _____

USACHPPM

RVAAP Information Management Needs Assessment

for
Name Larry Tannenbaum, Matt Bazar by Pat Ryan

Organization USACHPPM

Phone Number _____

Ravenna Site Connection

1. What are your responsibilities at or with RVAAP?

   Technical risk assessment support

2. How does your role fit in the overall Environmental Restoration program?

   Continuing support role

Information Responsibilities

3. Do you generate information that is or should be stored in an Information Management System? If, yes, what type of information? In what format is it currently stored? How do you input information now?

   Memos, letters, position papers generated.
   by hard copy and e-mail

4. Do you use information that is or could be extracted from an Information Management System? If, yes, what type of information? How do you extract information now?

   Summary tables and tables of raw data from site characterization
   Would like to manipulate raw data electronically if available.

5. How up to date should the information be to meet your needs? To the minute? Daily? (Weekly?)

Interface Requirements

6. Would you prefer interactive access (where the users have extensive options available for

specific data types) or "canned" reports with limited options (where the users have one to two button decisions with all functionality behind the scenes) to access information? Explain.

Would like to query specific data

7. Would you prefer spatial interfaces (utilizing maps to partition or access data) or customized query tools (intuitive or knowledge based to partition or access data) to information? Explain.

Would like spatial interface.

Infrastructure

8. What software tools do you most frequently use?
   a. Excel ✓
   b. MS Word ✓
   c. ArcView ✓
   d. other _____

9. What type of hardware do you have?
   a. PC Mac, workstation, mainframe? _____
   b. typical hard drive size?__
   c. typical memory size 64 - 128
   d. processor type/speed Pentium
   e. other _____

10. What is the current server configuration where the data and Web site could reside? What is the operating system? Aberdeen Server NT-based

11. Is there a Local Area Network? If so will Intranet connectivity be required?

12. Is there a DBA or Network Administrator available for consultation for the network that you are using? Dave Davis

Security

13. Who should have access to the information (organization specific)? How? Direct connection or Internet? Should there be different levels of access?

Drafts should not be available to the public.

14. How secure should the system be?

Not critical.

15. Should accessibility to data be governed by the organization?

Current Information Management System/Data Access

16. What is your current biggest complaint about your access to information?

not unique to Ravenna
- only access hardcopy
- not readily subject to manipulation
- not subject to duplication

17. If changes were made to your current IMS, what would you most like them to be?

- customer service

- Raw data available to Excel or SPSS

18. How important is speed?

- faster is better w/ software downloading, etc...

GIS/Maps and their use

19. Attachment A lists maps and associated attribute layers that are available. Please indicate in the first column of the list which maps/layers are important for your work. Use a 0-5 scale with zero meaning unimportant and 5 meaning essential.

20. Are there additional maps or layers that are available that are not listed?

no

21. Are there additional layers required?

Past concentrations + land use.

Current disturbance or site use

22. How important is it for you to be able to select which attribute layers are displayed on maps?

would be beneficial

23. Are there portions of the Ravenna site that are important to you and that should be easy to view without knowledge of viewing software tools? i.e. What parts of the RVAAP site map would you like to easily zoom in on? Be specific.

AOCs - load lines and burning grounds

24. Do you need to be able to plot the distribution of contamination levels for a particular media and analyte type on a map?

if data allows it, yes

Data

25. Attachment B lists studies that may have generated environmental data sets. Please indicate in the first column on the list the importance of having each data set electronically available for your work. Use a 0-5 scale with zero meaning unimportant and 5 meaning essential.

- data is already available in hardcopy - electronic not necessary at this point

26. Attachment C lists specific variables that could be included in an environmental data management system. Please indicate on the list the importance of having each variable electronically available for your work. Use a 0-5 scale with zero meaning unimportant and 5 meaning essential.

27. Are there additional data sets and types that are available that are not listed? Legacy data?

no

28. Are there additional data types required? Be specific.

no

29. What specific type of data is most important to you?

ecological / biological
soils/water

30. Do you want to download data to your workstation to make calculations and generate reports?

yes

Documents

31. Attachment B lists studies that may have generated documents related to the environmental restoration efforts at Ravenna. In the second column please rate the importance of having electronic access to documents from each study for your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential. Add an 'A' to the rating to indicate that you would need only the abstract or summary information or a 'W' to indicate that you would need access to the whole document.

see #25

32. Are there additional documents that are available that are not listed? Historical documents?

no

33. What specific types of documents are most important to you? 1978 Installation Assessment
sampling analysis plans
work plans
RI/FS

34. Do you want to download documents to your workstation or review summary of documents on the Internet and then request a hardcopy for your use?

yes

Internet Requirements

35. Is there a specific type of organization you would like to see for the RVAAP Web site?

no

36. What type of capabilities or functionality would you like see on the Web site? Give specific examples. (For example: site description, summary of environmental restoration process, schedule of activities, site map, site photos, newsletter, facility for submitting

questions/comments, access to documents, access to data)

no

37. What sites would you like to see linked to the RVAAP web site?

USACHPPM

Ohio EPA

Other

38. Would you like to have regulatory information available in an information management system or web site?

already available through other sources but would be nice

39. To what specific regulations would you need access?

Ohio state regs.

water / soil quality

Attachment A. Listing of Maps and Attribute Layers

In the first column please rate the importance of each map or attribute layer to your work using a zero to 5 scale with zero meaning unimportant and 5 meaning essential.

Ohio National Guard Ravenna GIS (06/04/99)

Rate 0-5 Scale	Map Layer	Status
3	National Wetlands Inventory Map- Newton Falls, Windham, and Ravenna Quads	Scanned and digitized
3	C - OHARNG/AMC Boundary	Digital format
5	AP - 1997 Composite Aerial Photo	Scanned
5	USGS Topography - Newton Falls, Windham, and Ravenna Quads	Digital - 1:24,000
2	1400.14-1 - Installation and UTM Coordinate Map	Digital format
3	1200.7 - Boundary Survey	Digital format
5	1400.0 - Plant Communities of the Ravenna Arsenal	Digitized and revised
5	1400.0 - RVAAP Wetland Communities	Digitized
5	Soil Survey- Portage and Trumbull Counties	Digital

Rate 0-5 Scale	Additional Map Layers	Status
5	1940 Aerial Photo	Scanned
2	1998 Infrared Photo	Scanned
2	2-foot contours	Digital (not complete)
3	Watershed map	Digitized
1	Blowout Arcs	Digitized
4	Areas of Concern	Digitized
3	Monuments	Digitized
2	Base Electric	Digital format
2	Base Sanitation	Digital format
2	Base Steam Lines	Digital format
2	Building inventory	Photos, status (active, inactive)
2	Railroads	Railroad removal – modify GIS
5	Habitat survey	Revise based on ground truthing

1	Side roads	GPS?
1	Metadata	FGDC standards, SMMS software
1	3D visualization	Topography
1	Virtual tours	IPIX format

Current SAIC CAD Map Layers

Rate 0-5 Scale	Layer Description
	HYDROLOGY
5	Culvert
5	Drainage Ditch
5	Lagoon Boundary
5	Lake
5	Pond
5	Seep and Spring Location
5	Stream
5	Tributary
5	Wetlands
	ROAD FEATURES
2	Bridge
2	Curb and Gutter
4	Dirt Road
4	Gravel Roads
4	Parking Lot
4	Primary Roads, Highways,
4	Secondary Roads
3	Trails
	SITE FEATURES
2	County Boundary
2	Building

Rate 0-5 Scale	Layer Description
1	Bollards
1	Concrete slab
1	Fence
1	Helicopter Pad
1	Existing Property Pin
1	Proposed Property Pin
1	Guard Rail
1	Parcels
1	Railroad
1	Riprap
1	Sign
1	Tanks
1	General Site Text
5	Trench Locations
1	Sidewalk
	TOPOGRAPHY:
3	Contour Elevation Text
3	Contour 5' Interval
3	Contour 2' Interval
5	Contour 10' Interval
3	Contour 100' Interval
5	Spot Elevations
	UTILITIES
1	Utility Easement
1	Junction Box
1	Utility Lateral Line
1	Catch Basin
1	Electric Light Pole
1	Electric Pole
1	Fire Water
1	Fire Water Hydrant
1	Natural Gas Line

Rate 0-5 Scale	Layer Description
1	Sewer Line
1	Sewer Manhole
1	Storm Drain
1	Sewer Line
1	Telephone Line - Underground
1	Transmission Tower
1	Water Line
1	Water Hydrants
	VEGETATION
5	Grass
5	Lawn
5	Fill
5	Tree Line

Attachments B and C not completed.