

Rev. 12/29/89

STATEMENT OF WORK

HANFORD ENVIRONMENTAL INFORMATION SYSTEM - FY90 ACTIVITIES



1.0 Objectives and Scope

1.1 Objectives of Activity

This Statement of Work (SOW) authorizes Pacific Northwest Laboratory (PNL) to expand the development of a computer-based technical database and information management system. This system, called the Hanford Environmental Information System (HEIS), will be utilized by the Westinghouse Hanford Company (WHC) in conjunction with activities being conducted in support of the Environmental Restoration Program. HEIS development in FY90 shall be a continuation of activities supported by WHC in FY89 and, in addition, shall include specified tasks defined herein that are directed towards placing selected HEIS subject areas into operation (i.e., accessible and usable by WHC staff). General HEIS requirements are provided by the FY89 SOW and by a requirements document, acceptance criteria, and a draft operational plan generated during FY89.

1.2 Scope of Work

The scope of this SOW includes the following tasks:

- o complete activities necessary for placing geophysics/soil gas and geologic subject areas into operation
- o complete development of a groundwater subject area within HEIS
- o develop a subject area within HEIS for information supplied by the Waste Information Data System (WIDS)
- o develop atmospheric and biota data subject areas
- o procure and install a Geographic Information System (GIS) and associated engineering workstation
- o prepare HEIS operator and user manuals containing procedures for all data subject areas.

In addition, PNL shall provide consultation, user training, and data processing services on a level of effort basis.

## 2.0 Task Descriptions

### 2.1 Continue Development of HEIS Technical Database

#### 2.1.1 Transition Existing Prototype Subject Areas to Operational Status

During FY89, PNL completed prototype development of selected data subject areas (geophysics/soil gas, surveying, geologic, and constituents) and prepared draft procedures. These subject areas will be placed into operation during FY90 after the procedures and software have been revised in response to WHC comments.

#### 2.1.2 Implement Groundwater Data Subject Area

PNL conducted activities in FY89 related to data modeling and design modifications necessary for importing information from the Hanford Groundwater Database (HGWDB). During FY90, all software development and data transfer activities shall be completed that are necessary for making this subject area accessible from HEIS. In addition, procedures for the groundwater data subject area shall be prepared.

A HEIS Technical Advisory Committee (HTAC) composed of WHC and PNL staff personnel shall provide guidance to and will review development of this subject area. A requirements analysis study will be conducted by the committee and HEIS staff to define HEIS capabilities that are needed in this subject area. The results of this study will be utilized to define an acceptance criteria for the groundwater subject area. The committee will provide specific examples of data and graphical display formats to be utilized during development of the HEIS-groundwater-data-subject-area.

PNL staff shall conduct database modeling and design aspects of HEIS development, provide guidance in developing the appropriate displays, develop required software, and perform data administration activities. The committee may request informal prototype demonstrations to ensure that the acceptance criteria are adequately implemented and will coordinate the review of implementing procedures. HEIS operational capabilities in the groundwater data subject area shall be included in a formal demonstration to be provided at the end of FY90.

#### 2.1.3 Develop a Waste Information Data System (WIDS) Subject Area

A WIDS subject area comprised of the WHC WIDS database or some portion thereof shall be incorporated into HEIS. The primary end objective of this work is to provide on-line access to selected WIDS information through HEIS.

WHC WIDS personnel and the HEIS Technical Advisory Committee shall provide guidance to and will review development of this subject area. A requirements analysis study will be conducted by a HTAC subcommittee comprised of HEIS, WHC, and WIDS staff for the purpose of defining HEIS capabilities that are needed in this subject area. The results of this study will be utilized to define an acceptance criteria for the WIDS subject

area. The HTAC subcommittee will specify the WIDS data sets that are to be loaded into HEIS and the frequency of updates.

PNL staff shall design and develop the software necessary to load specified WIDS data into HEIS. The HEIS Technical Advisory Committee may request informal demonstrations to ensure that the acceptance criteria are adequately implemented and will coordinate the review of associated procedures. HEIS operational capabilities in the WIDS subject area shall be included in a formal demonstration to be provided at the end of FY90.

#### 2.1.4 Develop Atmospheric and Biota Data Subject Areas

Atmospheric and biota data subject areas shall be developed and implemented within HEIS during FY90. A HEIS Technical Advisory Committee composed of WHC and PNL staff personnel shall provide guidance to and will review development of these subject areas. A requirements analysis study will be conducted by the committee and HEIS staff to define HEIS capabilities that are needed in these subject areas. The results of this study will be utilized to define acceptance criteria for the atmospheric and biota data subject areas. The committee will provide specific examples of data and graphical display formats to be utilized during development of these subject areas.

PNL staff shall conduct database modeling and design aspects of HEIS development, provide guidance in developing the appropriate displays, develop required software, and perform data administration activities. The committee may request informal demonstrations to ensure that the acceptance criteria are adequately implemented and will coordinate the review of implementing procedures. HEIS operational capabilities in the atmospheric and biota data subject areas shall be included in a formal demonstration to be provided at the end of FY90.

#### 2.2 Procure and Install GIS Software and an Engineering Workstation

During FY89, PNL and WHC staff conducted a review of several commercial Geographic Information System (GIS) software packages. Also reviewed were engineering (UNIX) workstations that may serve as platforms for these packages. GIS and workstation specifications resulted from these studies. The primary objective of this activity was to ensure that state of the art GIS capabilities may be secured that are fully compatible with and optimize the potential of HEIS.

PNL will complete all activities necessary for procurement of PNL GIS software and an engineering workstation during FY90. Also during FY90, the software will be installed on the workstation and a demonstration of GIS capabilities will be provided. Included in this demonstration will be the generation of GIS overlays constructed by retrieval of data from the HEIS database.

WHC will conduct GIS and workstation procurement activities in parallel with those described above. It is intended that a GIS system will be installed by WHC in FY90 that is compatible with that installed by PNL (i.e., identical GIS software and compatible workstations ordered from the same vendors).

### 2.3 Prepare HEIS Procedures Manuals

HEIS operator and user procedures manuals shall be prepared and approved during FY90. An outline of required procedures is presented in Appendix A. WHC shall prepare the procedures identified in the General Administrative Requirements section, with PNL assistance. PNL shall develop HEIS procedures associated with HEIS access and operations and the technical procedures specific to data input and output and GIS operations. In general, data entry procedures will be placed in an operator manual while data output and product generation procedures will be placed in a user manual. The procedures associated with data entry will include instructions for verifying that data is accurately entered into HEIS and will include a data dictionary specifying the format and standards associated with computer-readable files. The HEIS Technical Advisory Committee will ensure that all procedures are adequately reviewed per the schedule presented in Appendix B. The committee may propose the development of additional procedures or procedural revisions, as appropriate.

### 2.4 Provide Consultation, User Training, and Data Processing Services

PNL shall provide user support, training, and consultation services for the operators and users of HEIS and the GIS and shall provide data processing services in conjunction with HEIS development. These services will be provided by PNL on a level of effort basis (\$50K support suggested). WHC will also provide personnel to support data processing.

### 3.0 Deliverables

Specific PNL deliverables for WHC review and approval during FY90 include:

- o Provide monthly status reports. Each monthly report shall include a brief summary of the activities performed during the month, identify any problems encountered or anticipated, provide estimates of percent completion of all tasks versus percentage of budget spent, and provide a comparison of actual progress with the planned progress of all tasks.
- o Develop acceptance criteria for each data subject area jointly with WHC technical staff. The HEIS Technical Advisory Committee shall be the primary forum for providing input to the acceptance criteria. The acceptance criteria shall define specific display formats, GIS overlays, tabular presentations, and related data retrieval capabilities to be implemented during HEIS development.

- o Provide a demonstration of HEIS operational capabilities. This demonstration will include HEIS data retrieval and the generation of GIS and other graphical presentations as defined by the acceptance criteria for the data subject areas identified in Section 2.1 and FY89 acceptance criteria for the geophysical, soil gas, geologic (vadose zone soil), and surveying data subject areas. The demonstration will be conducted using the GIS software and engineering workstation described in Section 2.2.
- o Develop HEIS operator and user manuals (task 2.3).

#### 4.0 Schedule of Major Milestones and Deliverables

Major milestone dates associated with this SOW include:

- o GIS and workstation procurement request for bids out - 1/5/90
- o Complete groundwater requirements analysis - 2/16/90
- o Define acceptance criteria for the groundwater data subject area - 2/23/90
- o Complete WIDS requirements analysis - 3/9/90
- o Define acceptance criteria for the WIDS subject area - 3/16/90
- o Surveying, geophysics, soil gas, and vadose zone soil (geologic) data subject areas operational - 3/19/90
- o GIS and workstation delivered - 5/1/90
- o Complete atmospheric and biota requirements analysis - 6/1/90
- o Define acceptance criteria for the atmospheric and biota data subject areas - 6/8/90
- o Groundwater data subject area operational - 6/15/90
- o Conversion of existing map data to new GIS - 7/2/90
- o WIDS subject area operational - 9/28/90
- o Atmospheric and biota data subject areas operational - 9/28/90
- o Provide demonstration of operational capabilities of HEIS and GIS - 9/28/90
- o Complete approved HEIS Procedures Manuals - 9/28/90

A detailed schedule for preparation of the HEIS Procedures Manuals is presented in Appendix B.

## APPENDIX A. PROPOSED OUTLINE OF HEIS PROCEDURES MANUALS

### Introduction

- 1.0 General Administrative Requirements
  - 1.1 Preparation and Revision of HEIS Operation Instructions
  - 1.2 Deviations from HEIS Operation Instructions
  - 1.3 Records Management
  - 1.4 Indoctrination and Training
- 2.0 HEIS Access
  - 2.1 Acquisition of HEIS Account
  - 2.2 Access Requirements and Security
- 3.0 HEIS Operations
  - 3.1 Using SQL\*Forms
  - 3.2 Using SQL\*Forms Within a HEIS Application
- 4.0 GIS Procedures
  - 4.1 GIS Operations
  - 4.2 Generating GIS Overlays with HEIS Data
- 5.0 Survey Data Management Procedures
  - 5.1 Survey Data - Required Format and Entry into HEIS
  - 5.2 Survey Data - Obtaining Output and Generating Products
- 6.0 Geophysical Data Management Procedures
  - 6.1 Geophysical Data - Required Format and Entry into HEIS
  - 6.2 Geophysical Data - Obtaining Output and Generating Products
- 7.0 Soil Gas Data Management Procedures
  - 7.1 Soil Gas Data - Required Format and Entry into HEIS
  - 7.2 Soil Gas Data - Obtaining Output and Generating Products
- 8.0 Geologic Data Management Procedures
  - 8.1 Geologic Data - Required Format and Entry into HEIS
  - 8.1 Geologic Data - Obtaining Output and Generating Products
- 9.0 Groundwater Data Management Procedures
  - 9.1 Groundwater Data - Required Format and Entry into HEIS
  - 9.2 Groundwater Data - Obtaining Output and Generating Products
- 10.0 Waste Information Data System (WIDS)
  - 10.1 Transfer of WIDS Data to HEIS
  - 10.2 Obtaining WIDS Data from HEIS
- 11.0 Atmospheric Data Management Procedures
  - 11.1 Atmospheric Data - Required Format and Entry into HEIS
  - 11.2 Atmospheric Data - Obtaining Output and Generating Products
- 12.0 Biota Data Management Procedures
  - 12.1 Biota Data - Required Format and Entry into HEIS
  - 12.2 Biota Data - Obtaining Output and Generating Products

APPENDIX B. SCHEDULE FOR DEVELOPMENT OF HEIS PROCEDURES

<u>Category</u>	<u>PNL draft submitted</u>	<u>WHC comments due to PNL</u>	<u>Procedure resubmitted to WHC for approval</u>
HEIS Access	1/15/90	2/5/90	2/26/90
HEIS Operations	9/30/89	12/22/89	1/15/90
GIS	7/31/90	8/31/90	9/28/90
Surveying	2/5/90	2/26/90	3/19/90
Geophysics	2/5/90	2/26/90	3/19/90
Soil Gas	2/5/90	2/26/90	3/19/90
Geologic	2/5/90	2/26/90	3/19/90
Groundwater	5/4/90	5/25/90	6/15/90
WIDS	8/17/90	9/7/90	9/28/90
Atmospheric	8/17/90	9/7/90	9/28/90
Biota	8/17/90	9/7/90	9/28/90

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