

ENGINEERING CHANGE NOTICE

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TWINS Fiscal Year 2001 Data Management Plan

M. R. Adams

CH2M HILL Hanford Group, Inc., Richland, WA 99352
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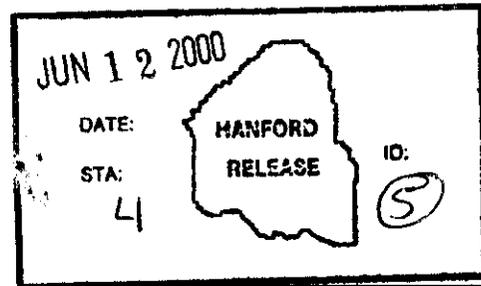
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TWINS Fiscal Year 2001 Data Management Plan

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CH2M Hill Hanford Group, Inc.

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1.0 Management Mission

The mission of TWINS is to provide system users with quality tank data and information when needed, in the form needed and at a reasonable cost.

The TWINS mission is accomplished by:

- Maintaining and managing tank characterization and related data based on business needs and objectives.
- Capturing data where it originates and entering it only once. Electronic data and information management are emphasized to the extent practicable.
- Establishing data quality standards and managing data against the standards to maintain data quality consistent with its importance. Data obtained at high cost with significant implications to decision making regarding tank safety and disposal will be maintained to the highest level of quality.
- Establishing and enforcing data management standards for TWINS including providing mechanisms for discovering and correcting data errors before they propagate.
- Emphasizing electronic data sharing with all authorized users to the extent practicable.
- Safeguarding data and information from unauthorized alteration or destruction.
- Investing in new technology (hardware and software) as necessary to efficiently accomplish data management and delivery.

2.0 TWINS Data Management Functions and Requirements

The data generated and managed by TWINS generated as a result of historical, sampling, analytical and surveillance efforts are managed according to a set of 10 data management functional requirements described below:

2.1 Data Collection

Data are generated from a variety of historical review, modeling, surveillance, instrumental and analytical processes; the latter two are deployed both in the field and in laboratories. TWINS provides a central management and access capability for these data.

The following functional requirements (FRs) are established for data collection:

FR-1 Capture Data at the Source. To the extent possible, data shall be captured once only at the source and in electronic format.

FR-2 Transmit Data. Data to be transmitted to TWINS shall be transmitted in Standard Electronic Format (SEF) receivable by TWINS (Bobrowski 1999 and Lang 1999). The use of SEFs eliminates, to the extent possible, the need for human data manipulation, manual data entry and use of hard copies. Nomenclature and mapping tables shall be standardized and controlled between TWINS and major systems delivering data to TWINS (e.g. Labcore) (Adams 2000a).

2.2 Data Maintenance

FR-3 Store Data. Data shall be subject to applicable configuration control and safe/secure storage standards. TWINS shall comply with appropriate standards relating to hardware, software and data administration (Adams 2000b).

FR-4 Control Data Formats and Software Configuration. Data shall be collated, formatted and/or combined as required by the specific needs of customers. Customer requests for TWINS format design changes shall be placed under configuration control and subject to management approval (Adams 2000c). Software configuration control shall be maintained via implementation of an approved plan (Bobrowski 1998).

FR-5 Manage Data Change Access. Changes and correction access to data in TWINS shall be restricted to authorized personnel (Adams 2000d).

FR-6 Control Data Changes. Changes to data in TWINS shall be subjected to review and approval of the Data Quality Officer per an

established protocol (Adams 2000d). The protocol will ensure that data changes are tracked, reviewed and approved. Errors in data contained in TWINS shall be documented, prioritized, corrected and verified by a formal tracking method (Adams 2000d).

FR-7 Archive Data and Information. The archive for electronic tank characterization data and information is TWINS. Historical documents and hard copy records not archived electronically in TWINS shall be archived in the Tank Characterization and Safety Resource Center (TCSRC) (Adams 2000e). New documents are controlled by release via an Engineering Document Transmittal (EDT) with subsequent changes controlled via an Engineering Change Notice (ECN) (Adams 2000f).

FR-8 Secure and Back-up Data. Tank characterization data in TWINS shall be backed-up on a schedule commensurate with the importance and cost of obtaining the data. TWINS hardware and software shall be physically protected from heat, fire, water, loss of power, unauthorized access and other threats. Contingency plans shall be in place to correct and recover from potential failures (Bobrowski 2000).

2.3 Data Dissemination

The following FRs are established for data dissemination:

FR-9 Supply Data and Information. TWINS shall supply data and information via the internet. Access to data and information shall be provided by data query and searches and by electronic delivery of selected standard reports. Go to <http://twins.pnl.gov:8001>.

FR-10 Support Users. TWINS user support shall be provided for hardware and software troubleshooting, user help desk and applications training. In addition, an electronic user guide and data dictionary shall be maintained online in TWINS.

3.0 Organizational Roles and Responsibilities

Organizational roles and responsibilities are discussed in three areas: 1) data generators, 2) data custodians and 3) data users.

3.1 Data Generators

Data generators produce data about tank contents, tank configuration and tank conditions. These data have usually, but not necessarily, been evaluated, interpreted, analyzed or qualified before being sent to TWINS. Most of these data come from historical, field, in-tank equipment or analytical laboratory instrumentation. The data generated may include not only quantitative data, but also information that relates to the collection of numerical data. The information may be in a myriad of forms and formats including photographs, instrument traces, calibration records, logbook entries, standard forms, reports, drawings, maps and chain-of-custody forms. This information (called metadata) must be compiled and managed to provide complete information. In addition, derivative data are produced by the processors of data including statisticians, engineers and scientists. Data generators may reside in a number of different organizations.

3.2 Data Custodians

For many data types, the data custodian and data generator may be the same person. Most of the data resource custodians perform dual roles, both generating and maintaining custody of the data. Data custody includes maintaining the database or data source from day-to-day, maintaining access and change control, updating the database or data source, and providing data to users in need.

No data are generated by the TWINS custodians, yet TWINS is the official route of access for historical, field and analytical data for the characterization project. Therefore, TWINS must be managed to the highest level of compliance with recognized standards.

3.3 Data Users and Customers

Data users of TWINS include, but are not limited to:

- Individuals and organizations that need data to manage tank waste safety on a day-to-day basis.
- Individuals and organizations that need data to model the health, safety and environmental impacts of various waste management and disposal options in order to formulate alternatives for decision makers.

- Individuals, organizations and agencies that need data to plan, design and operate waste disposal processes.
- Individuals, organizations and agencies that need data and information to make policy decisions for waste management and disposal such that human health and the environment are protected at a cost the taxpayers can afford. The Office of River Protection is in this category.
- Individuals, organizations and agencies that need data and information to supervise, regulate and comment on waste disposal plans and projects. Regulatory bodies are included here including the Washington State Department of Ecology and the Environmental Protection Agency.
- Individuals and groups that need data and information to remain informed or to form positions and to influence waste management and disposal decisions as a matter of Constitutional right. Various stakeholder groups, environmental groups and private citizens are in this category.

Often the data users are scientists or engineers who need data of a specific type, in a specific format, at a specific time with a know level of data quality.

Data users have the following responsibilities:

- Notify the Data Quality Officer by electronic mail if data deficiencies or concerns are detected
- Attend scheduled training courses offered on the use of TWINS (if Hanford employee)
- Responsibly use data provided including understanding the limitations and qualifiers attached to the data.

3.4 Responsibility for TWINS and TCSRC

Organizational responsibility for TWINS resides with the CH2M Hill Hanford Group, Inc. (CHG) Process Engineering organization. Currently, the Pacific Northwest National Laboratory (PNNL) provides CHG with operations and technical support for TWINS via a Letter of Instruction (LOI).

TWINS is deemed to be the official, recognized source for characterization information for the tank characterization project. TWINS contains post May 1989 analytical data collected in accordance with the Tri-Party Agreement (TPA). These data are marked with TPA flags. Data types available in TWINS include:

- Historical analytical data (pre-1989)
- Chemical, radiochemical and physical properties tank waste data
- Tank vapor data
- Best-Basis inventory data
- Temperature, interstitial liquid and surface levels
- Quality Control Data
- Photographs of tank waste and interiors
- Characterization documents
- Links to vadose zone data
- Links to Hanford maps and atlas.

The Process Engineering organization also manages the TCSRC. The TCSRC is located in the 2750E building, room C-116. The TCSRC is managed per an established protocol (Adams 2000e).

4.0 Current TWINS Data Management Practices

4.1 Current Data Flow Process

The current process for characterizing waste tanks is illustrated in the current *Technical Sampling Basis/Waste Information Requirements Document* (Adams 2000f). The current data flow process consists of the following basic steps:

- Identify requirements and develop Data Quality Objectives
- Develop sampling requirements
- Develop sampling and analysis plan
- Develop field instructions
- Collect samples
- Analyze samples
- Issue data packages
- Load analytical data into TWINS

- Issue Tank Characterization Reports (TCR) via an automated TCR tool available via TWINS on the internet.

4.2 Current TWINS Data Management Practices

Protocols are in place to manage TWINS within the functional requirements established in section 2.0 of this document. The following table relates the protocols to the functional requirements.

Table 1: TWINS Data Management Protocols Related to Functional Requirements

FR #	FR Title	Protocols Related to FR
FR-1	Capture data at source	None
FR-2	Transmit data	<ul style="list-style-type: none"> • Adams, M.R., 2000a, RPP-6268, Rev. 0, <i>Twins/Labcore Configuration Control Desk Manual</i>. • Bobrowski, S.F., 1999, HNF-3815, Rev. 0, <i>Standard Electronic Format for Tank Vapor Data MSEXCEL Spreadsheet: Version 1.0</i>. • Lang, L.L., et al, 1999, HNF-3638, Rev. 1, <i>Standard Electronic Format Specification for Tank Characterization Data Loader: Version 3.0</i>.
FR-3	Store data	<ul style="list-style-type: none"> • Adams, M.R., 2000b, HNF-SD-WM-TRD-005, Rev. 4, <i>Self-Assessment Standards Checklist for Data Systems</i>.
FR-4	Control Data Formats and Software Configuration	<ul style="list-style-type: none"> • Adams, M.R., 2000c, HNF-SD-WM-PROC-021, Rev. 3D, Section 24.0, <i>Management of TWINS Design Changes</i>. • Bobrowski, S.F., 1998, Rev. 1.0, <i>Software Configuration Management Plan</i>.
FR-5	Manage Data Change Access	<ul style="list-style-type: none"> • Adams, M.R., 2000d, HNF-SD-WM-PROC-021, Rev. 3D, Section 23.0, <i>Management of TWINS Data Deficiency Tracker Items</i>.

FR #	FR Title	Protocols Related to FR
FR-6	Control Data Changes	<ul style="list-style-type: none"> • See Adams 2000d.
FR-7	Archive Data and Information	<ul style="list-style-type: none"> • Adams, M.R., 2000e, HNF-SD-WM-PROC-021, Rev. 3D, Section 8.0, <i>Operation of Tank Characterization and Safety Resource Center.</i> • Adams, M.R., 2000f, HNF-SD-WM-PROC-021, Rev. 3D, Section 5.6, <i>Supporting Document Release Process.</i>
FR-8	Secure and Back-up Data	<ul style="list-style-type: none"> • Bobrowski, S.F., 2000, <i>Contingency Plan for TWINS, TWINSDEV, TWINSBBIM and PCTWINS; TWINS Project Support Information: Tape Backup Plan at http://pctwins.pnl.gov:9397/TWINSDOC/syssupp.html; TWINS SQL Server Backup Strategy at http://pctwins.pnl.gov:9397/TWINSDOC/twins_backup_and_recovery.html.</i>
FR-9	Supply data and information	Go to http://twins.pnl.gov:8001 .
FR-10	Support Users	None

5.0 Data Management Task Plans for Fiscal Year 2001

The following table outlines the tasks planned for fiscal year 2001. The tasks are described in more detail later in this section.

Table 2: Planned Tasks for FY 2001

Task Title	Task Description	Task Basis	Planned Funding (\$ K)
TWINS/BBIM Operations and Maintenance	See section 5.1.	Past operations history.	560
TWINS Enhancements	See section 5.2.	Preliminary estimate.	210

Task Title	Task Description	Task Basis	Planned Funding (\$ K)
Labcore Support to TWINS Operations	See section 5.3.	Past history.	50
Data Quality Officer Support	See section 5.4.	2000 hrs. @ \$ 68/hr.	136
Contract Support to TIRADE Data Loader	See section 5.4.	Past contract history.	74
Contract Support to Data Quality Officer (Tracker Items)	See section 5.4.	70 tracker items @ \$ 10 K/item based on past history.	700
TWINS Administration	See section 5.5.	750 hrs. @ \$ 68/hr.	51
TWINS User Support	See section 5.6.	750 hrs. @ \$ 68/hr.	51
Data Custodian Support	See section 5.7.	750 hrs. @ \$ 68/hr.	51
TCSRC Records Specialist Support	See section 5.8.	750 hrs. @ \$ 68/hr.	51
Hardware / software upgrades to TWINS users	See section 5.9.	Allowance based on past history.	30
TOTAL			1964

5.1 TWINS/BBIM Operations and Maintenance

This task includes:

- Maintaining and operating TWINS/BBIM servers including troubleshooting, maintenance, security, physical protection, contingency planning and routine upgrades
- Maintaining software configuration control procedures, test plans and test records

- Implementing about 12 design changes requiring reprogramming of TWINS
- Maintaining TWINS records and procedures in accordance with RIDS requirements
- Participation in and response to annual self-assessment audits of TWINS operations
- Backing up and securing TWINS data including maintenance of backup procedures
- Maintenance of licensing and service agreements for hardware and software
- Routine maintenance of the BBIM tool
- Providing user help desk support and quarterly training sessions
- Providing in the field assistance as needed to key users including hardware and software adjustments and one-on-one training
- Maintain online user guide and data dictionary.

5.2 TWINS Enhancements

This task consists of the following components:

- Convert existing system of nightly processing ("cron job") to Data Transformation Services (DTS) technology. DTS is a component of SQLServer 7.0, upgrade which was made in FY 2000. DTS is a database utility that is designed to handle "batch" processing tasks common to data warehousing operations like TWINS. The conversion to DTS will have four beneficial results: first, the cost of maintaining the nightly data will be reduced because the nightly processing will require less manual intervention; second, because DTS is highly graphical and modular in nature, it will be possible for more staff to learn how to support the nightly processing; third, because the DTS process will run more consistently with improved timeliness in the delivery of data to users and fourth, in the event of failure, the data warehouse will be maintained with the previous day's data in an internally consistent manner.
- Analyze TWINS database structures, and re-design them to better support current and future applications development and support. A primary example of where this is required is the TCD database sample structure. The current design does not allow for the representation of composite samples where the material originates from several different tanks. This

limits the ability of the TCD database to respond to requirements that arise out of the retrieval activities.

- Implement Online Analytical Processing (OLAP) capability in TWINS. OLAP is a component of SQLServer 7.0 that provides powerful analytical capabilities. Certain parts of the TWINS system, such as the BBIM database can be implemented as OLAP "cubes" or multidimensional databases readily and this will provide an entirely new type of query interface for the user. In the cube interface, the end-user will be able to generate their own queries in creative ways by aggregating and grouping the data with instantaneous results in the interface.
- Re-design and re-engineer TWINS Data Stewardship interfaces to have common look and feel, documentation and maintainability. This task would include converting MS Access-based applications to be web-based.

5.3 Labcore Support to TWINS Operations

This task provides funding for Labcore personnel to participate in data management team activities, respond to action items, provide assistance on data loading issues and support maintenance of the Labcore/TWINS configuration control manual and standard electronic formats.

5.4 Data Quality Officer Support

This task provides:

- Full time services of the TWINS Data Quality Officer (DQO) to identify, track, fix and close known data deficiencies in TWINS.
- Contract support to the DQO to close the current backlog of about 70 high priority data deficiency items.
- Contract support to the TIRADE data loader used to load laboratory data that does not originate from the Labcore system.

5.5 TWINS Administration

This task includes:

- day-to-day TWINS oversight and management

- maintenance and updates to Labcore/TWINS configuration control manuals, desk instructions and SEFs
- cost account management
- conduct of self-assessment audits
- preparation of Letters of Instruction and supervision of subcontractors
- supervision of the data management team
- maintenance of action item and change order logs
- supervision of the TCSRC
- preparation and implementation of data management plans
- review and approval of TWINS change orders
- conduct of TWINS demonstrations and presentations.

5.6 TWINS User Support

This task includes on-call assistance to TWINS users including hardware and software troubleshooting, one-on-one training, computer adjustments, maintenance of Data Source Access postings and development of special applications on request for specific data handling problems.

5.7 Data Custodian Support

This task includes:

- Posting of Tank Sampling and Analysis Plans on TWINS
- Scanning and posting of sample breakdown diagrams
- Posting of Industrial Hygiene data on TWINS
- Auditing and correction of TCSRC files
- Maintenance of emergency hard copy files of electronic Tank Characterization Reports
- Perform monthly glitch audits of TWINS functionality.

5.8 TCSRC Records Specialist Support

This task includes the following:

- indexing and filing of documents coming into TCSRC including topical reports and lab data packages

- RMIS document searches on request
- document ordering on request
- document release services including Engineering Document Transmittals and Engineering Change Notices
- security of TCSRC holdings
- user support to TCSRC customers.

5.9 Hardware/software Upgrades to TWINS Users

This task includes an allowance for upgrading hardware and software of TWINS users on an on request and as needed basis. The task also includes equipment and furniture upgrades needed as TCSRC continues to expand in space requirements.

6.0 References

Adams, M.R., 2000a, RPP-6268, Rev. 0, *TWINS/Labcore Configuration Control Desk Manual*.

Adams, M.R., 2000b, HNF-SD-WM-TRD-005, Rev. 4, *Self-Assessment Standards Checklist for Data Systems*.

Adams, M.R., 2000c, HNF-SD-WM-PROC-021, Rev. 3D, Section 24.0, *Management of TWINS Design Changes*.

Adams, M.R., 2000d, HNF-SD-WM-PROC-021, Rev. 3D, Section 23.0, *Management of TWINS Data Deficiency Tracker Items*.

Adams, M.R., 2000e, HNF-SD-WM-PROC-021, Rev. 3D, Section 8.0, *Operation of Tank Characterization and Safety Resource Center*.

Adams, M.R., 2000f, HNF-SD-WM-PRO021, Rev. 3D, Section 5.6, *Supporting Document Release Process*.

Bobrowski, S.F., 1998, *Software Configuration Management Plan: Version 1*.

Bobrowski, S.F., 1999, HNF-3815, Rev. 0, *Standard Electronic Format for Tank Vapor Data MSEXCEL Spreadsheet: Version 1.0*.

Bobrowski, S.F., 2000, *Contingency Plan for TWINS, TWINSDEV, TWINSBBIM, and PCTWINS; TWINS Project Support Information Page: Tape Backup Plan and TWINS SQL Server Backup Strategy.*

Lang, L.L., et al, 1999, HNF-3638, Rev. 1, *Standard Electronic Configuration Format Specification for Tank Characterization Data Loader: Version 3.0.*

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