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1	WHC-SD-SNF-CM-003	All	0	Spent Nuclear Fuel Project Interface Control Plan	Q	1/2	1	1

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
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(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.
1	1	Cog.Eng.M.A. Reilly	M.a.Reilly	10-16-95	R3-86	T.B. Veneziano			X3-71	1	1
1	1	Cog. Mgr.J.C. Womack		10/16/95	R3-86	M.J. Wiemers			X3-85	1	1
1	1	QA D.W. Smith	for	10/16/95	R3-85	M.E. Witherspoon	for		R3-85	1	1
		Safety				J.P. Schmidt		10/16/95	X3-78	1	1
1	1	Env. G. C. Mooers		10/16/95	R3-11	S.L. Magnas			R3-85	1	1
1	1	E. W. Gerber		10/16/95	R3-86	D.W. Siddoway			R3-11	1	1
1	1	J. L. Denning		10/16/95	R3-11						

18.	19.	20.	21. DOE APPROVAL (if required)
M. A. Reilly M.a.Reilly 10-16-95 Signature of EDT Originator / Date	E. W. Gerber 10/17/95 Authorized Representative for Receiving Organization / Date	J. C. Womack 10/16/95 Cognizant Manager / Date	Ctrl. No. [] Approved [] Approved w/comments [] Disapproved w/comments

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Document Number:	WHC-SD-SNF-CM-003, REV 0
Document Title:	Spent Nuclear Fuel Project Interface Control Plan
Release Date:	10/17/95

This document was reviewed following the procedures described in WHC-CM-3-4 and is:

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Kara Broz 10/17/95

SUPPORTING DOCUMENT

1. Total Pages 15

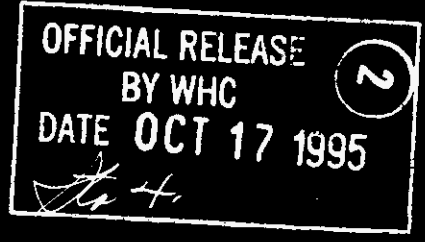
2. Title	3. Number	4. Rev No.
SPENT NUCLEAR FUEL PROJECT INTERFACE CONTROL PLAN	WHC-SD-SNF-CM-003	0

5. Key Words	6. Author
SNF, Spent Nuclear Fuel, Interface Control Plan, Interface Database, ICA, ICP, ICWG	Name: M. A. Reilly M. A. Reilly 10-16-95 Signature Organization/Charge Code 2C300/LB007

7. Abstract

The implementation process philosophy is in keeping with the ongoing reengineering of the WHC Controlled Manuals to achieve interface control within the SNF Project. This plan applies to all SNF Project sub-project to sub-project, and sub-project to external (both on and off the Hanford Site) interfaces.

8. RELEASE STAMP



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WHC-SD-SNF-CM-003, Rev. 0

SPENT NUCLEAR FUEL PROJECT INTERFACE CONTROL PLAN

1.0 PURPOSE

The purpose of this document is to define the process used to identify, document, and control Spent Nuclear Fuel (SNF) Project specific interfaces and any subsequent interface changes.

The SNF Project has committed to Interface Control (IC) in the SNF Project Management Plan, the SNF Configuration Management Plan, and the SNF Systems Engineering Management Plan. The SNF IC process shall be administered in accordance with WHC Controlled Manuals, and as identified within this document.

2.0 SCOPE

IC shall be applied when the design of physical or functional features between equipment items, or between equipment items and facilities may result in a mismatch, omission, interference, or duplication.

Interfaces between the SNF Project to external (both on and off the Hanford site), sub-project to sub-project, and sub-project to external are within the scope of this document. Interfaces internal to a sub-project (i.e., subsystems such as piping, electrical, instrumentation) are not required to follow this plan but may choose to adopt it as guidance to meet requirements set forth in WHC-CM-6-1, *Standard Engineering Practices*, Section EP-1.5, Interface Control Requirements.

3.0 SNF PROJECT INTERFACE DEVELOPMENT PROCESS

3.1 REQUIREMENTS

"Physical/functional design interfaces shall be identified and controlled and design efforts shall be coordinated among the participating organizations. Physical/functional interface controls shall include the assignment of responsibility and establishment of procedures among participating design organizations for the review, approval, release, distribution, and revision of documents involving design interfaces."

"Design information transmitted across organizational interfaces shall be documented and controlled. Transmittals shall identify the status of the design information or document provided, and where necessary, identify

incomplete items which require further evaluation, review, or approval." (Quality Assurance requirements per WHC-CM-4-2, QR 3.0, Section 3.5)

3.2 INTERFACE IDENTIFICATION

Interfaces are identified through the development of the SNF Project and Sub-project Process Flow Diagrams (PFD's), the *SNF Project Technical Baseline Document*, Systems Engineering Function Tree segmentation, Sub-project functions and requirements (FRD) documents, and K Basin Footprint drawings. All additional interfaces identified through other engineering and Hanford Site programmatic development processes, specific to SNF should be brought to the attention of the SNF Project Systems Engineering organization and/or the Interface Control Administrator (ICA) for inclusion into the technical baseline documentation, interface development process, and IC database.

Appendix A is a generic interface list of interfaces, that may be useful in the identification of potential interfaces.

3.3 MEMORANDUM OF UNDERSTANDING (MOU)

A MOU may be used for establishing interface agreements external to the SNF Project. The SNF Project ICA shall be notified of all MOU's under development, including scope and organizations involved. As with interfaces under development, MOU's under development shall be assigned a number, recorded and statused in the SNF Project IC database.

A MOU may be in the form of a supporting document, or internal / external letter. A MOU external to the SNF Project, both on and off the Hanford Site, involving transfer of SNF ownership shall include the review and approval of the Department of Energy, Richland Operations - Spent Nuclear Fuels Project Division.

3.4 INTERFACE CONTROL DATABASE

Each interface and MOU shall be recorded in the SNF Project IC database. Each interface shall be assigned a unique IC number by the SNF Project IC Administrator, Mary Anne Reilly, 376-5486. All interface references shall use the unique number.

The SNF Project electronic database shall be a living document, continuing to be updated as interfaces are identified, parameters defined, and approval/signatures obtained. Interfaces shall continue to be tracked in the database format throughout the project phases. The ICA shall provide the SNF Project File with a monthly complete database status in hardcopy form. Appendix B of this document defines the database fields and their functions.

3.4.1 Changes

Any proposed design configuration change with the potential of affecting an interface boundary shall be noted in the database, and be processed in accordance with Section 3.5.3.

3.5 INTERFACE AGREEMENT COVERSHEET / INTERFACE SCOPE SHEET

The purpose of the SNF Project Interface Agreement Coversheet / Interface Scope Sheet form is to standardize the data form and approvals/signatures required for the interface development and agreement process. Use of this form is not required, but interface documentation submitted to the ICA must meet the intent of the form (interface information and approvals). This SNF Project form is available electronically by connecting to file server WHC339\INTERFAC.RO, file named AGREESHT, or by contacting the Interface Control Administrator, Mary Anne Reilly.

3.5.1 Interface Agreement Coversheet

The Interface Agreement Coversheet records interface boundary agreement approvals/signatures. The interface boundary description and detailed information may be recorded on, or attached to the coversheet. If the attachment is printed from the IC Database, the date printed shall be recorded on the coversheet. To assure a complete package recording of interface information, the total page count, including coversheet, shall be noted on each agreement coversheet.

3.5.2 Interface Scope Sheet

Scope sheets are a Systems Engineering interface identification tool, that may be used to acknowledge an interface. A signed scope sheet only records the commitment between two or more parties to continue interface development. When the interface boundaries are refined, signatures indicating agreement will recorded on a Interface Agreement Coversheet or MOU.

A scope sheet may identify the participants, and describe the physical interface and its parameters in sufficient detail to assure compatibility, throughout the design, procurement, and fabrication phase.

3.5.3 Interface Changes

A completed (signed) Interface Agreement (coversheet plus attachments) or Interface Scope Sheet may be modified with the concurrence of the original signatories or applicable design authorities. The participants shall use an Interface Agreement Coversheet Revision / Interface Scope Sheet Revision form for recording or referencing the interface change.

Any design configuration change made prior to the redefinition of the interface boundary, and approvals/signatures obtained on an Interface Agreement Revision Sheet shall be considered "AT RISK". Design Authorities

shall consider project related impacts, both upstream and downstream of any proposed change.

3.6 INTERFACE CONTROL WORKING GROUP

The SNF Project Interface Control Working Group (ICWG), has been organized with two primary focuses. One concentrated on the 100 K Area interfaces, and the other concentrated on the 200 East Area interfaces. Figure 1 represents this formation pictorially, identifying primary participants in each group. Each sub-project interface must be approved by the appropriate Design Authorities. A design authority may choose to appoint a designee to be dedicated to interface development, however interface approval shall remain the design authority.

Any interface disputes or issues unresolvable at the design authority and project management level shall be forwarded to and addressed by the Technical Issues Management Board. (Point of Contact - Grant Culley)

3.7 FURTHER INTERFACE CONTROL DOCUMENTATION PROCESS

Throughout the SNF Project phases, it may be desirable to release into the Westinghouse Hanford Company Document Control System interface agreements, parameters of design solutions, or clarification to design features for co-functioning equipment, components, and facility. The interface information may be in the form of drawings, supporting documents, or specifications, and shall be released via an Engineering Data Transmittal in accordance with WHC-CM-6-1, *Standard Engineering Practices*, EP-1.6 , Engineering Data Transmittal Requirements.

Changes to all released IC documents, or documents containing interface definitions shall be processed by use of an Engineering Change Notice (ECN) in accordance with WHC-CM-6-1, *Standard Engineering Practices*, EP-2.2, Engineering Document Change Control Requirements.

All SNF Project IC documentation that include a to be determined (TBD) or Hold information shall be prepared, processed and maintained in accordance with WHC-CM-6-1, *Standard Engineering Practices*, EP-1.10, Engineering TBDs/HOLDs.

All documentation shall be identified and statused on the interface agreement signature sheets and in the IC database.

3.7.1 Drawings

SNF Project IC drawings shall not be included as part of a construction/fabrication package. SNF Project IC drawings shall be used as a design control document, and shall be prepared in accordance with WHC-CM-6-1, *Standard Engineering Practices*, EP-1.5, Interface Control Requirements, and WHC-CM-6-3, DS-2.2, DS-6.1, DS-6.5, DS-9.0, *Drafting Standards Manual*.

3.7.2 Text Documents

All SNF Project IC text documents or documents containing interface boundary definition will be prepared in the form of a supporting document, or specification described in WHC-CM-6-1,*Standard Engineering Practices*, EP-1.2, Engineering Specification Requirements, or EP-1.12, Supporting Document Requirements, and identified with a WHC-SD-SNF-ICD-XXX or WHC-SD-(include the correct project #)-ICD-XXX {the XXX number is assigned by Configuration Documentation Work Station (Release Station, 376-7904) #21}.

3.7.3 Required Reviews

Review of interface boundary definitions included in procurement specifications or SOWs shall be in accordance with WHC-CM-3-5, *Document Control and Records Management Manual*, Section 12.7, Approval of Environmental, Safety, and Quality Affecting Documents.

IC documents or documentation containing interface boundary definitions shall be included in structure, systems, and component reviews (i.e., conceptual design review, preliminary design review, and final design review), in accordance with WHC-CM-6-1, *Standard Engineering Practices*, EP-4.1, Design Verification Requirements.

3.8 INTERFACE CONTROL ADMINISTRATOR (ICA)

The approved/signed interface agreements, scope sheets and revisions shall be retained by the IC Administrator. The ICA shall be responsible for a complete and reproducible copy of each signed/approved Interface Agreement or Interface Scope Sheet to be transmitted to the appropriate SNF Project File.

Distribution of hard copy approved/signed Interface Agreements, Scope Sheets, and subsequent revisions will be to those participants of a ICWG meeting, and the SNF Project File.

4.0 REFERENCES

WHC-CM-3-5, *Document Control and Records Management Manual*
WHC-CM-4-2, *Quality Assurance Manual*
WHC-CM-6-1, *Standard Engineering Practices*
WHC-CM-6-3, *Drafting Standards Manual.*
WHC-SD-SNF-CM-001, *SNF Project Configuration Management Plan*
WHC-SD-SNF-SD-003, *SNF Project Technical Baseline Document*
NOTE: WHC Controlled Manuals may be accessed through HLAN Computer Connection to Soft Reporting, or by contacting the SNF Project IC Administrator. The referenced supporting documents may be obtained through "Document Control - Central Files, 376-5421. Care should be given to obtain the most recent revision and all outstanding Engineering Change Notices.

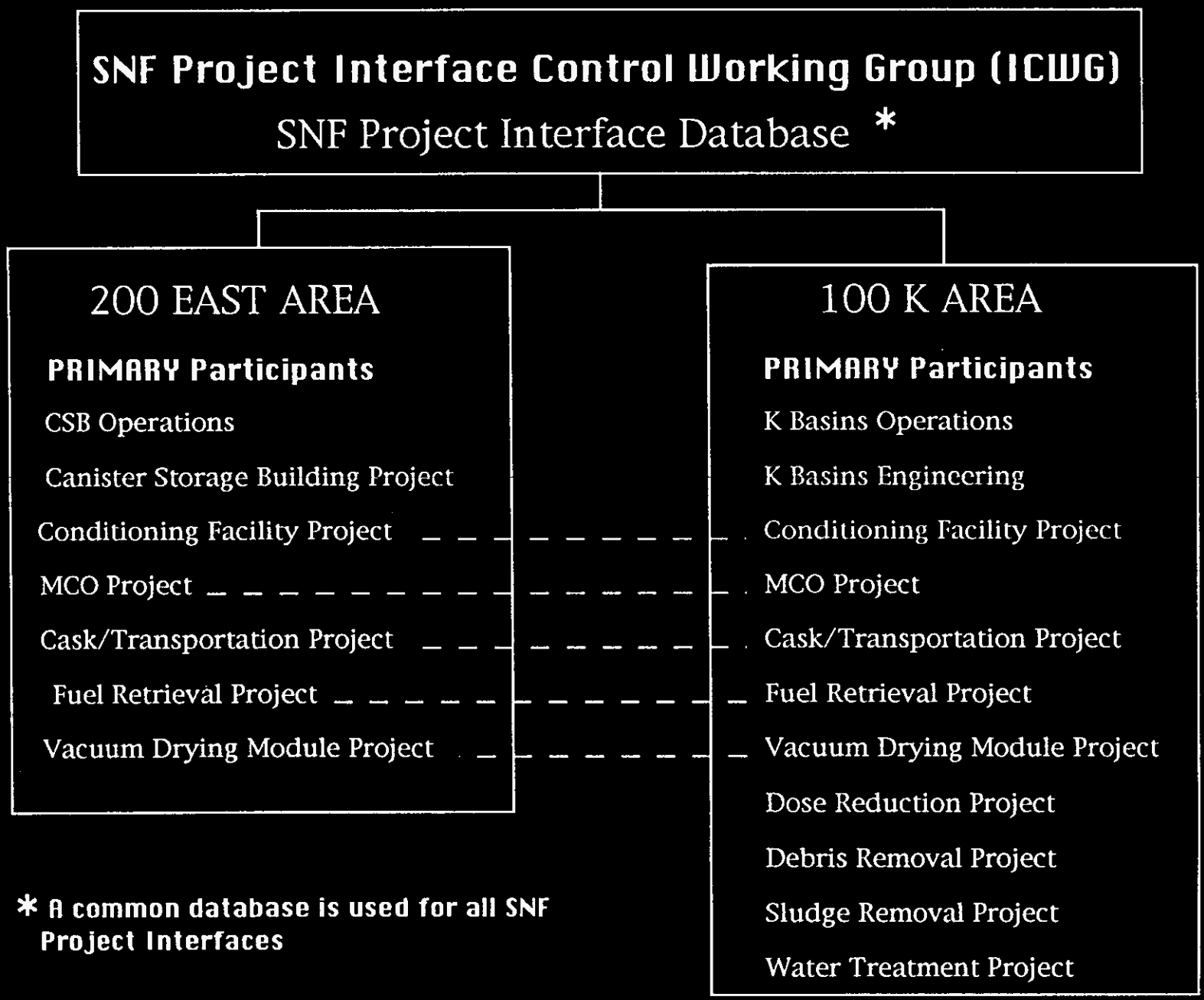

Figure 1
SNF PROJECT INTERFACE CONTROL WORKING GROUP (ICWG)

Figure 2
INTERFACE AGREEMENT COVERSHEET / INTERFACE SCOPE SHEET

SPENT NUCLEAR FUEL PROJECT Page 1 of ___
INTERFACE CONTROL
____INTERFACE AGREEMENT COVERSHEET / ____INTERFACE SCOPE SHEET
(check one of the above)

IC #:

Date Initiated:

IC Title/Description:

Participating Organizations:

Interface Scope:

Equipment/Utility/Process & Responsibility:

Interface Block Diagram or drawing reference:

Issues:

Related ICs:

APPROVALS:

Design Authority Print/Sign/date_____

Design Authority Print/Sign/date_____

Design Authority Print/Sign/date_____

Project Manager (if required) Sign/date_____

Project Manager (if required) Sign/date_____

SNF Project IC Administrator Sign/date_____

SNF Project Systems Engineering - Interface Control Administrator - M. A. Reilly 376-5486

Figure 3
INTERFACE AGREEMENT COVERSHEET / INTERFACE SCOPE SHEET with Annotation

SPENT NUCLEAR FUEL PROJECT Page 1 of ___
INTERFACE CONTROL
___**INTERFACE AGREEMENT COVERSHEET** / ___**INTERFACE SCOPE SHEET**
(check one of the above)

IC #: *Assigned by the SNF Project Interface Control Administrator, Systems Engineering organization.*

Date Initiated:

IC Title/Description: *When possible, title should include identity of interfacing items.*

Participating Organizations: *List organizations that are involved in the interface.*

Interface Scope: *Summary of the scope sheet contents and its intended purpose. May include the methods to be employed to document the interface design parameters, (i.e., installation drawings, process flow diagrams).*

Equipment/Utility/Process & Responsibility:
List of interfacing hardware, software, or facilities, and IC participant responsible for each design.

Interface Block Diagram/or drawing reference:
No required format, may be sketches, process flow diagrams, or cartoon drawings, include sufficient detail, to identify items and participants.

Issues: *All related issues are intended to be entered here.*

Related ICs: *List any related IC that may directly be impacted by or impact this scope sheet agreement.*

APPROVALS:

*Design Authority Print/Sign/date*_____

Design Authority Print/Sign/date_____

Design Authority Print/Sign/date_____

Project Manager (if required) Sign/date_____

Project Manager (if required) Sign/date_____

SNF Project IC Administrator Sign/date_____

SNF Project Systems Engineering - Interface Control Administrator, M. A. Reilly 376-5486

Figure 4
INTERFACE AGREEMENT REVISION COVERSHEET/INTERFACE SCOPE SHEET REVISION

SPENT NUCLEAR FUEL PROJECT Page 1 of ___
INTERFACE CONTROL
__INTERFACE AGREEMENT REVISION COVERSHEET/__INTERFACE SCOPE SHEET REVISION
(check one of the above)

Revised IC #:

Date Revised:

Affected Section:

Revision description:

APPROVALS:

Design Authority Print/Sign/date_____

Design Authority Print/Sign/date_____

Design Authority Print/Sign/date_____

Project Manager (if required) Sign/date_____

Project Manager (if required) Sign/date_____

SNF Project IC Administrator Sign/date_____

SNF Project Systems Engineering - Interface Control Administrator, M. A. Reilly 376-5486

Figure 5
INTERFACE AGREEMENT REVISION COVERSHEET/INTERFACE SCOPE SHEET REVISION with Annotation

SPENT NUCLEAR FUEL PROJECT Page 1 of ___
INTERFACE CONTROL
__**INTERFACE AGREEMENT REVISION COVERSHEET/__INTERFACE SCOPE SHEET REVISION**

Revised IC #: *Number from original scope sheet plus Revision number This number to be assigned by the SNF Project IC Administrator, Systems Engineering organization.*

Date Revised:

Affected Section: *List the original scope sheet section or sections that will be changed by this revision.*

Revision description: *Text or sketches to include a detailed description of the changes made to the original scope sheet.*

APPROVALS:

Design Authority Print/Sign/date_____

Design Authority Print/Sign/date_____

Design Authority Print/Sign/date_____

Project Manager (if required) Sign/date_____

Project Manager (if required) Sign/date_____

SNF Project IC Administrator Sign/date_____

SNF Project Systems Engineering - Interface Control Administrator, M. A. Reilly 376-5486

APPENDIX A

INTERFACE CONSIDERATIONS

- Mechanical
  - Installation
  - Interchangeability
  - Surface finish
  - Location and orientation
  - Holes
  - Fasteners
  - Bonding Instructions
  - Weight and center of gravity (cg)
  - Materials
  - Markings
  - Electrical Connectors (Mechanical aspects
  - Transportation and Handling Conditions
- Envelope Interfaces
  - Hardware Envelopes
  - Cable Envelopes
  - Assembly of Interface Envelopes
- Environmental Interfaces
  - Thermal
  - Heat Transfer (Passive
  - Forced Air Cooling
  - Liquid Cooling
  - Dynamic
  - Electromagnetic
  - Human
    - Reach envelope, manipulation, visual considerations, audio message levels, ambient noise, input acceptance/handling rates, man/machine interaction
  - Special effects
    - Hardware/software circumvention, hardware operating modes, including: failure modes, out of tolerance parameters, data transmission interruption, and recovery; transient effects including power turn-on/turn-off, liquid coolant surges, thermal
- Fluid Interfaces
- Electrical Interfaces
  - Power and Load
    - Voltage and type, frequency, current, transients, ripple, waveform, polarity, phase rotation, protection (overvoltage, undervoltage, current limiting), dynamic source impedance
  - Connectivity
    - Hookup, Wire/Cable characteristics, shielding, bonding and surface preparation, connectors, grounding
  - Circuits
    - Signal/Voltage, pin assignment, source and destination, signal characteristics
  - Driver/Receiver identification
  - Allowable Operating Limits

APPENDIX B

DESCRIPTION OF SNF PROJECT INTERFACE CONTROL DATA BASE

1.0 PURPOSE

The purpose of this document is to describe the management and use of an electronic database for tracking interface definitions, boundaries, and agreements generated during the project design of physical and functional features between equipment items, or between equipment items and facilities that may result in a mismatch, omission, interference, or duplication.

2.0 SCOPE OF DATABASE

This database is used during the active period of the project organization's charted responsibilities or until such time that it is determined that a database is no longer needed.

The Interface Control Database is an interface management tool used to assure responsiveness and agreement of interface definition.

This database is not a replacement for other existing databases applicable to site, plant operations, restart activities, etc. The effect of items existing in other databases is tracked only by global reference to the applicable databases.

3.0 DATABASE MANAGEMENT

The SNF Project Engineering organization shall be responsible for management of the database. The Interface Control Administrator (ICA) under the direction of management assumes the responsibilities of this database that include:

- Database setup and data input
- Assignment of database interface and related agreement numbers
- Issuance of database reports
- Determination of the appropriateness of the data to the database
- Electronic backup of the database
- Providing assistance in preparing and coding interface definitions
- Facilitating generator/receiver reconciliations

- Administrator of Network File Server shared area data access by SNF personnel

- Performing other emergent database management functions

4.0 DESCRIPTION OF DATA BASE FIELDS

The database structure is currently under development as sub-projects identify the best form and use of the interface information. At a later date an engineering change notice will be written to incorporate a text description of field titles in the database structure, and a description of the information type contained in each field.

Additional fields may be added to the database structure, if a need is identified. This database is intended to be a living document, with data to remain fixed after an Agreement Sheet is signed by both sides of the interface. Information is not to be deleted; however, recording of additional IC information during the development of an interface agreement revision is appropriate.

5.0 AVAILABILITY OF DATABASE REPORTS

The IC Database is available in WordPerfect formatted reports by connecting to HLAN file server WHC339. Standard Report forms are currently available. Specialized report forms may be established by contacting the ICA. Execution of the following instructions will set up standard HLAN users to access the SNF Project Interface Information file server area.

Access Dos Prompt, computer screen will appear as "C:\>"
Type the following u: hit enter
Screen will appear as "U:\>"
Type **edit autouser.bat**
Your autouser.bat file will appear on the computer screen
Arrow down to next to the last line or to the line above "NETWIN"
Hit the "END" key, and then Hit the "ENTER" key
A blank line will appear
Type **NET USE P: \\WHC339\INTERFAC.RO**
(if P drive has already been designated for use, select another drive letter not in use)
Move mouse arrow to "FILE", click on "SAVE"
Move mouse arrow to "FILE", click on "EXIT"
The computer screen will appear as "U:\>"
Exit all programs and reboot your computer
After the reboot process is complete
Enter your WordPerfect program
Hit "F5"
Type **P:**
The Interface Information directory will appear and a file may be selected.