1997 20 37	ENGINEERING DATA TRANSMITTAL	Page 1 of 1 609865
---------------	-------------------------------------	-----------------------

2. To: (Receiving Organization) Project Integration & Control	3. From: (Originating Organization) Project Integration & Control	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: THRS	6. Design Authority/ Design Agent/ Cog. Engr: JM Vann	7. Purchase Order No.: N/A
8. Originator Remarks: Transmittal of initial revision for release		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: N/A
11. Receiver Remarks: TIA. Design Baseline Document? ☐ Yes ☒ No		12. Major Assn. Desig. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: N/A

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Designator Disposition	Reason for Disposition
1	MNF-SB-WM-CMD-006	N/A	0	CM Modeling Report	N/A	1	1	1

16. Approval Designator (F)		Reason for Transmittal (G)		DISPOSITION (H) & (I)	
1. S 2. O 3. C 4. M 5. N/A 6. See 12.31	1. Approval 2. Release 3. Information	4. Review 5. Post Review 6. Draft (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment	4. Revoked w/comment 5. Revoked w/comment 6. Receipt acknowledged	

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)											
48a Rev sen	0-0 Disp	41 Name	42 Signature	43 Date	44 M/IN	45 Rev sen	46 Disp	41 Name	42 Signature	43 Date	44 M/IN
		Design Authority									
		Design Agent									
2	1	Cog. Engr. JM Vann	<i>[Signature]</i>	1/15/97							
2	1	Cog. Mgr ER Harris	<i>[Signature]</i>	1/15/97							
		QA									
		Safety									
		Env.				3		Central Files			A3-88

18. <i>[Signature]</i> Signature of EDT Originator	19. <i>[Signature]</i> Date Authorized Representative for Receiving Organization	20. <i>[Signature]</i> Date Design Authority/ Engineering Manager	21. DOE APPROVAL (if required) Cert. No. 1) Approved 2) Approved w/comments 3) Disapproved w/comments
---	--	---	--

CM Modeling Report

J.M. Vann

Lockheed Martin Hanford Company, Richland, WA 99352

U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECH: 609865

UC: 2030

Org Code: 71300

Charge Code: J700R

BAR Code: YN0100000

Total Pages: -38- 32^{pg}

Key Words: configuration management, risk assessment, permitting, information availability, document hierarchy, document control, configuration status, baseline cost

Abstract: This report compiles THRS configuration management pre-implementation assessments, categorizes findings, and highlights programs identified for improvement.

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

Printed in the United States of America. To obtain copies of this document, contact: Document Control Services, P.O. Box 550, Mailstop H6-98, Richland WA 99352, Phone (509) 372-2420; Fax (509) 376-4080.

J.L. Burkland 2/7/97
Release Approval Date

Release Stamp

Approved for Public Release

This page intentionally left blank.

Table of Contents

1.0	INTRODUCTION	1
2.0	BACKGROUND	1
3.0	SELECTION CRITERIA	1
4.0	SUMMARY	2
APPENDIX A		A-1
	TABLE 1. BASELINE COST	A-3
	TABLE 2. CONFIGURATION STATUS	A-5
	TABLE 3. DOCUMENT CONTROL	A-6
	TABLE 4. DOCUMENT HIERARCHY	A-17
	TABLE 5. INFORMATION AVAILABILITY	A-19
	TABLE 6. PERMITTING	A-24
	TABLE 7. RISK ASSESSMENT	A-25

This page intentionally left blank

1.0 INTRODUCTION

This report compiles Tank Waste Remediation System (TWRS) Configuration Management pre-implementation assessments, categorizes findings, and highlights programs implemented for improvement. This report is a product of modeling the TWRS CM process, which was performed in support of DOE/RL-95-74, "TWRS Systems Requirement Review Action Plan," task DNF-S-1.

2.0 BACKGROUND

Establishing a Configuration Management (CM) program requires detailed assessments of problems associated with existing systems to establish areas of improvement. Historically, engineering documentation and controls are generated during the project phase, adjusted and modified during operation, and archived after decommissioning. Each activity has been governed by separate contractors using unique systems to control, document, and format the information. These existing systems have not been integrated into a single mechanism for controlling engineered documentation.

The assessments have been used to assist in the development of a configuration management program that will span contractors and establish a standardized mechanism for controlling all information generated on the Hanford Site.

This report compiles and integrates electronic files of assessments provided by TWRS Management Systems and have been categorized in the following tables. These assessment findings have been separated into applicable classifications of Risk Assessment, Permitting, Information Availability, Document Hierarchy, Document Control, Configuration Status, and Baseline Cost Elements.

3.0 SELECTION CRITERIA

The following categories delineate the selection criteria for classification.

Risk Assessment - the process of examining a situation or information that allows recognition of a potential risk. For this evaluation, those items identified in the findings as Risk Assessment are listed.

Permitting - the process of obtaining authorization from Washington State environmental agencies for the execution of work activities.

Information Availability - the accessibility of networked databases containing system/equipment configuration information.

Document Hierarchy - the structure defining the classification and relationship of documents used to meet TWRS mission objectives.

Document Control - the process that identifies, stores, controls, statuses, and retrieves documents. Categorization of findings are those affiliated with site-wide control of information critical to TWRS mission requirements.

September 17, 1996

Configuration Status information relating the status of structures, systems, and components (SSC)

Baseline Cost those findings associated with the TWRS Cost/Schedule/Technical baseline and the Multi-Year Work Plan

4.0 SUMMARY

Evaluating each table individually reveals contributing factors leading to the findings. The contributing factors are a direct result of confusion over information resources, insufficient training of personnel on the different record management systems, and inconsistent directives and guidelines for proper documentation in accordance with configuration management principles.

Several of the findings stem from unclear and fragmented information currently available within the existing records management systems. The information loaded into the databases do not reflect current SSC configuration status, leading to duplication of activities. The current records management systems are not integrated into a single database that facilitates usage. The cumbersome record searching required to obtain SSC configuration status results in omission of information due to unsuccessful identification of applicable information. The resolution for this problem is defining and establishing a standardized information management system based on approved Configuration Management principles. Standardization of internal and external information will simplify the process for accomplishing activities site-wide.

Numerous findings result from personnel being unfamiliar with the different records management systems. These findings could be resolved if personnel were trained on the different systems containing applicable configuration information. Training will provide personnel with the proper tools to obtain information and may accomplish several goals: integrate the existing system by developing links of understanding to the various databases; streamline the change control process through an increase in interaction of the source documents; and identify activities requiring improvement as the system becomes standardized.

A CM document hierarchy will resolve several findings regarding inconsistent guidelines and directives. Such a hierarchy can be developed to show flow down requirements and interfaces among principle program elements. Additionally, it enables the Project Management to identify and eliminate redundancies and inconsistencies in documentation and to implement graded application of CM requirements.

APPENDIX A
SUMMARY OF FINDINGS

This page intentionally left blank.

September 17, 1996

TABLE 1 BASELINE COST FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT		RECOMMENDATION (ACTION/IDE)
1	Twrs Cost Baseline Change Control process is inconsistent and is not fully documented/approved	This results in unnecessary exposure to contractual issues regarding work authorization, accountability, and the propriety of work to be performed		Require that all changes to the currently approved Cost/Schedule/Technical Baseline (e.g. TWRS Annual Budget, Submittal and Multi Year Work Plan) document and summarize those changes in a consistent, controlled, and traceable manner using change control processes and procedures. (Baseline Management)
2	Additional benefits derived from integration of funding, physical configuration, documentation, and personnel resources to the mission requirements are not fully realized	<p>Status and subsequent control of TWRS system assets is not optimal. This suggests that asset levels (think people and material) do not high level respond to mission changes vs. a controlled cycle that maintains only needed assets, allocating, and upgrading on as needed basis to meet peak load requirements, followed by the degrading and reallocation of assets.</p> <p>Manual analysis of funding, resources, schedule, and work scope is required when the budget or work schedule is changed. Benefits and negative impact are not easily defined. Long term ramifications of changes are not easily stated. Account based costing must still incorporate excessive contingency funding to allow for changes.</p> <p>Updates to entire system analyses are performed vs. incorporation of specific changes to the analysis.</p> <p>Compliance requirement system are fragmented to e.g., TWRS Standards/Requirements, Installation Document, Environmental Engineering, Configuration Tracking System, Human Asset Tracking, Safety Management Oversight Team Program, etc.)</p>	<p>2.1</p> <p>2.2</p> <p>2.3</p> <p>2.4</p> <p>2.5</p>	<p>Complete the TWRS Systems Engineering effort</p> <p>Develop criteria for analysis of direct and indirect economic benefits subsequent spin off development and generation of new business opportunities</p> <p>Evaluate new changes for TWRS wide technical and economic application</p> <p>Implement a process that sells spin off technology, credits the baseline with returns, and publicizes the accrued benefits</p> <p>Implement a change status tracking function that evaluates, values, information, prioritizes, and coordinates TWRS engineering assets</p>

TABLE 1. BASELINE COST FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT	RECOMMENDATION (ACTIONEE)
3	The current TWRS Budget Submittal for appropriations does not use a configuration management control and approval process to document changes to the currently approved TWRS Cost/Schedule/Technical baseline.	DOE-RL direction, assumptions, requirements, and approval used to prepare the TWRS Annual Budget submittal may not be fully documented in a uniform configuration management process. This could result in contractual issues regarding work authorization and accountability. Contractor Management may not fully communicate a summary of all impacts, constraints, and issues affecting changes to the currently approved Cost/Schedule/Technical baseline. This could result in DOE-RL questioning the propriety of work to be performed.	The TWRS Annual Budget Submittal should be required to document and summarize changes to the currently approved Cost/Schedule/Technical in a uniform configuration management format.
4	The Multi-Year Work Plan in the implementation year does not use a configuration management control and approval process to document changes to the currently approved TWRS Cost/Schedule/Technical baseline in the performance year.	DOE-RL direction, assumptions, requirements, and approvals used to prepare the implementation year Multi-Year Work Plan may not be fully documented in a uniform configuration management process. This could result in contractual issues regarding work authorization and accountability. Contractor Management may not fully communicate a summary of all impacts, constraints, and issues affecting changes to the currently approved Cost/Schedule/Technical baseline. This could result in DOE-RL questioning the propriety of work to be performed.	The TWRS implementation year Multi-Year Work Plan should be required to document and summarize changes to the performance year approved Cost/Schedule/Technical baseline in a uniform configuration management format.
5	The standard unit rates for labor, services, overhead, and O&A for pricing the baseline are not currently subject to a uniform configuration.	Changes to the TWRS Cost Baseline may not be fully documented, communicated, and approved, which could result in DOE-RL questioning of cost impacts or funding issues.	The Financial Data System standard rates used to develop the cost baseline should be required to document, price impact, and approve changes in a uniform configuration management format.
6	The documentation of underlying price calculation methods, resource assumptions, and developmental approval of changes to Multi-Year Program Plan is not adequately captured.	Insufficient use of the MYPP approval process could result in DOE-RL questioning the accuracy and development of the MYPP.	The finding necessitates implementation of a formal Activity Based Cost (ABC) estimate for the program to document all assumptions, calculations, and developmental changes to the MYPP.

TABLE 2 CONFIGURATION STATUS FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT	RECOMMENDATION (ACTIONSE)
1	An integrated status of authorized configuration changes is not available. Active work status is not actively distributed beyond staff meetings. The current status of work activities, including cancelled, on hold, and partially work completed ECNs is not known.	Drawings are not revised until work is complete. Thus field changes are made with drawings and documentation and operating documents having a built in error period. For ECNs that are cancelled, partial work completed, or on hold, the revision may not occur for significant periods of time. This delay increases the risk of operational error.	<p>1.1 Implement the Design Authority Design Agent and Document Owner process.</p> <p>1.2 Implement a status tracking system linking Job Control System progress to ECNs.</p> <p>1.3 Specify minimum allowable PCN progress.</p> <p>1.4 Implement a mechanism that ensures ECNs not meeting minimum progress are repositioned or revised.</p> <p>1.5 For ECNs cancelled or on hold, specify that any impacted documents critical to site operations are updated to current configuration.</p>
2	An integrated status of active configuration changes is not available.	Active work status is not promulgated beyond staff meetings. The current status of cancelled work activities, including partially work completed ECNs, is not known. Drawings, re not revised until work is complete. Thus field changes are made with drawings having a built in error period.	<p>A status tracking system is needed with authority assigned to track Job Control System work to ECNs for closure. This link should be made via a database.</p> <p>Implement a mechanism to ensure cancelled work activities and partially work completed ECNs are revised for drawing incorporation purposes.</p>
3	There are no standardized requirements to ensure adequate Design Reconstitution efforts are applied to various grades of structures, systems, and components (SSC).	No site wide definitions or implementation guidance exist regarding the graded approach applied when performing design reconstitution for SSC's (i.e., what information and to what detail is generally required to have operative that an SSC can cause or its function be removed or modified without impact to a higher level systems function?).	Revise K Baseline Design Reconstitution supporting document and implement it as an Engineering Practices Guideline. Incorporate references to the EPC in the appropriate Standard Engineering Practices.

September 17 1996

TABLE 3 DOCUMENT CONTROL FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT		RECOMMENDATION (ACTION/EE)
1	The site wide processes for document control do not ensure Document Owner/Design Authority release concurrence exists for engineering documents. The authority of Design Authority to control systems is not fully implemented.	Various Engineer Engineers note that system configuration control has been impacted because other engineering groups make temporary changes against their systems. This results in the loss of system configuration control and do not design control by the responsible engineer. The result of this system configuration information negatively impacts the ability of Engineering Maintenance and Operations to perform work.	1.1 1.2 1.3 1.4 1.5	Form agreements with the operators of the related site wide systems and develop TWRS specific procedures to perform the following (1 2 1.3 1.4 1.5) Implement the jurisdictional statements of the Design Authority/Design Agent policy Implement a listing and update the policy to identify authorizing signatories (i.e. Document Owner Design Authority Design Agent Approval Designators Management) and their areas of responsibility to a specified point of contact Perform screening during the document release process for authorizing signatories Authorize document control personnel to release documents that are not approved by the correct approval authority
2	TWRS site wide document control system is inherently inefficient and does not have the capability to regulate controlled TWRS mission essential documentation.	TWRS lacks data standards for information retrieval. This impacts capability required for information management. Standards are not reviewed updated and implemented to meet changing needs. Tradition of key word and title searches do not provide sufficient resources to determine the information available within documents. Lacking a registration of methods of analysis and baseline data the history and future reproduction of analysis is not consistent. As a result the ability to conveniently reproduce conclusions modify the document or track the historical basis for modification to the document is limited.	2.1 2.2 2.3	Establish a process that evaluates TWRS data requirements sets information retrieval standards and implements upgrade of personnel information access Implement an integrated database that is under change control and contains the TWRS core schedule/technical baseline and publish as a single electronic user interface with search capability Collect indexes from vendor information pre 1987 text documents safety analysis authorization baseline historical baseline data top level requirements standards and the recent records indexing effort and incorporate into the integrated database.

September 17, 1996

TABLE 3. DOCUMENT CONTROL, FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT		RECOMMENDATION (ACTIONEE)
2		<p>For example, the TWRS Multi Year Program Plan is uncontrolled while issued as a Sponsor Limited Publication (SLP).</p> <p>As defined, SLPs are an informal scientific, technical or engineering document intended for release to the DOE as a contract deliverable. Change control for an SLP is optional only, i.e., achieved by changing text, adding side bars, and updating the affected pages on the Record of Revision, or the entire publication may be released adding a revision number. The method used depends on the volume of revisions. Thus, the background assumptions are not traceable, i.e., the assumptions that were used to establish that it is available as supporting document item.</p>	2.4	Collect reference information that is already gathered by TWRS Engineering and incorporate it into the Integrated database.
3	<p>The Vendor Information and Project Data release process for turn key installations is not applied in a standardized method.</p>	<p>The present Vendor/Project/W facility informational process is not integrated, is applied on a project by project basis by personnel and allows material released to the vendor information system to be inconsistent with TWRS needs.</p> <p>Reconciliation efforts are required as a result of operational engineering not having access to properly formatted and indexed drawings, design data, and documents developed under turn key projects.</p> <p>Project documentation by WHC varies by project, with the project group authorized to transmit all project information under one transmission, with no detailed indexing for retrieval.</p>	3.1 3.2 3.3 3.4 3.5	<p>Involve TWRS Engineering in a continuing capacity to perform Design Authority work during any Construction/Project activity.</p> <p>In Statements Of Work, specify that design documents conform to Hanford release requirements.</p> <p>Institute punch list items for information before the 95% complete requirement listed in WHC CM 6.2.</p> <p>Release all engineering documents through the Engineering Release System at the time of definitive design.</p> <p>Release all turnkey vendor information through the Engineering Release System when received by Projects.</p>

TABLE 3. DOCUMENT CONTROL FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT		RECOMMENDATION (ACTIONEE)
3		Background: From the user perspective, project controls the quality, quantity, and type of documentation presented to WHC at turnover, because it controls the enterprise of documentation requirements. Due to this, currently, the project is not under WHC enforceable requirements to produce documentation that can be consistently released into the WHC engineering release system.	3.6	Develop a "roadmap" that identifies project and vendor information available to Engineering.
			3.7	Ensure that Facility Engineering maintains close interface with the design and procurement functions to specify, review, and approve submitted documents throughout SSC's lifetime.
4	Equipment configuration information provided to WHC by architect/engineers is not uniformly useable when received, which impacts time/schedule/funding.	<p>As a standard practice, procurement request for proposal statements do not specify, and project administration does not require, that information from vendors for use by facilities be supplied in electronic format as well as the traditional hard copy.</p> <p>Textual design identification information indexing capability and the datasets producing CAD drawings are not provided to WHC during turnover. Therefore, the facility must generate those assets when required to produce as-built CAD for its operationally required drawings, vendor information indexing, project data indexing, and maintenance and operating procedures.</p> <p>Additionally, before processing a subsequent configuration change, engineering stamps notice (UCN) to any drawing that remains in the Vendor Information system, an altered item CAD II-Series drawing must be generated (generating the drawing requires drafting, review, peer review, draft checking, validation, and rev).</p> <p>User requests for information normally requires an information search followed by hard copy reproduction. The search and hard copy reproduction process would be greatly minimized through precise indexing and availability of electronic data.</p>		Specify and require the delivery of electronic text, indexing, and especially computer-aided design (CAD) datasets for any construction that generates vendor information (e.g., equipment manuals) or drawings.

TABLE 3. DOCUMENT CONTROL FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT		RECOMMENDATION (ACTIONEE)
5	Information pertinent to SSCs are controlled in different locations using different record systems	Each group retains ownership over its inventory of records requiring specialists to perform inventory storage, shipment, and retrieval functions. For TWRs, manually indexed information retrievability problems rise with personnel displacement and record aging process. Because records systems are fragmented, the user's knowledge of SSCs impacts efficiency and control of change implement them is impacted and incomplete.	5.1	Collect and maintain indexes from vendor information pre 1987 test documents, safety analysis authorization phases, financial baseline data, top level requirements, and standards, and publish as a single electronic user interface with search capability.
			5.2	Release records to a standardized method, preferably with the same organization, regardless of record origin.
			5.3	Eliminate the TWRs records storage functions for operating, environmental, maintenance, job control, and training documents.
6	The document declassification process results in different versions of the same document existing with the same identifier	A document with the same title exists with differing number of pages in various locations based on the information allowed in the recipient.		Identify and implement a unique name/number convention that differentiates between versions.
7	Electronic signatures are not authorized for use by WHC. The potential benefit of increased efficiency and lowered operating costs are not realized.	Hard copy document support programs are retained in for users produced, retained, promulgated, modified, and used electronically. A DOE limited and approved electronic signature is used by PNNL. Personnel use unapproved electronic file products documents including drawings.	7.1	Develop and implement an electronic documentation and change control policy.
			7.2	An electronic marking could uniquely identify each approved document either in the text, on the drawing, or in the access to the information.
			7.3	Implement the Design Authority/Design Agent process.
8	The process that ensures Engineering Change Notices (ECNs) change drawings within the specified time is not implemented.	Changes to the physical plant and the revision of documents describing the plant are approved, but are not implemented or tracked in a timely method. Knowledge of actual configuration becomes suspect. Changes that are authorized may not be carried out. Changes are partially implemented with the result that the current system configuration documentation may reside only in a work package.	8.1	Specify the maximum time changes are allowed to be on hold before revision.
			8.2	Specify the maximum number of non-essential drawing changes allowed to accumulate before revision.
			8.3	Incorporate or otherwise disposition (e.g., cancel) unaccomplished ECNs involving specified limits. Alternatively specify that all ECNs need evaluation and incorporation in the next revision.

TABLE 3 DOCUMENT CONTROL FINDINGS AND RECOMMENDATIONS

TABLE 3 DOCUMENT CONTROL FINDINGS AND RECOMMENDATIONS				
	FINDING	IMPACT		RECOMMENDATION (ACTIONEE)
R		<p>Drawings are not revised until work is complete. Then build changes are made, with drawings maintenance and operating documents having a built in error period.</p> <p>NOTE: For ECNs that are cancelled, partially work completed, or on hold, the revision may not occur for significant periods of time. While the change process must allow incomplete ECNs to remain on hold, waiting for parts or other support, the lack of a finite time limit for these cases provides opportunity for operational and maintenance errors. A time limit would also limit the risk of overlooking the on hold ECN when resuming subsequent ECNs in the same drawings.</p>	8.4	Perform screening during release process for maximum allowable changes and time limits
9.1	The Work Complete Signature process is not fully realized resulting in loss of content of engineering documentation	<p>The ECN process has no impacted documentation has incorporated change tracking or information capability. As a result, changes become work complete with the reference not updated. The TWRS PSAR SAR ISB or documentation may be non current.</p> <p>Its procedure: When requested, DRM (BCSR) will provide status of affected documents from its PCN; however, the status of documents released with any records system other than the engineering record system is not available through DRM.</p> <p>For ECNs that have significant change ECNs revised, or not incorporated, or are cancelled, any impacted documentation that is ready for issue must now be reevaluated and revised with any avoidable work.</p> <p>Functionally, the Job Control System is used (whenever a JCS Form 6 is required for work) to verify ECN incorporation into assigned documents. This transfers the responsibility from the Design Authority to Work Control for change incorporation.</p>	<p>9.1 Implement the Design Authority and Document Owner process.</p> <p>9.2 Require ECN Block 19 to specify all documents requiring change.</p> <p>9.3 Specify the authority and priority level that the Design Authority is granted for requiring impacted document ECN incorporation.</p> <p>9.4 Implement a interface between TWRS Management groups to resolve resource prioritization issues.</p> <p>9.5 Implement a status tracking system that updates the Job Control System and links work progress to ECNs.</p> <p>9.6 Implement a process that requires Document Owners to status DRM upon ECN impact incorporation/disposition.</p> <p>9.7 Redefine the work complete signature as including responsibility for incorporation/disposition of ECN into impacted documents.</p>	

TABLE 3. DOCUMENT CONTROL FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT	RECOMMENDATION (ACTIONEE)
10	Need to develop a configuration control database consisting of an equipment database (Master Equipment List) and Controlled Document database that is interactively related so technical relationships are automatically revised when design changes are incorporated. This is not adequately scoped and funded.	The inadequate scoped and funded program results in repetitive redundant and cumbersome record control systems.	Define work scope and acquire funding to integrate existing record management systems in accordance with the TWRs Configuration Management Program.
11	The ECN documentation process needs to be enhanced to provide descriptions and justification for change and requiring USC screening on ECNs and Nonconformances Reports.	Inefficient information and oversight of USC screening could result in a safety/quality reportable incident.	Develop procedure guidance to clarify the extent of explanation necessary for the description and justification sections of the ECN. Currently, the description section of most ECNs lacks an explanation of why the change is needed. The description is referred to the marked-up copies of the documents being changed. The 'Justification' section generally describes why the change is being made and does not address the technical acceptability of the change. This section should provide the same degree of information as is warranted for RFFAIR and ACCEPT-AS-IS NCRs dispositions.
12	ECNs are not implemented within the time limitation.	Changes to the physical plant or the revision of documents describing the SSC are approved, but are not implemented or canceled. Knowledge of actual configuration is suspect. Changes that are authorized may not be carried out. Changes may be partially implemented. The current system configuration documentation may reside only in a work package.	Specify maximum allowable changes allowed before revision for drawings. Incorporate or otherwise disposition (e.g., cancel) non-incorporated ECNs exceeding specified limits. Perform screening during release process for maximum allowable changes.
13	The process that integrates changes to Headend Cleanup System (HCS) configuration and supporting documentation is not developed. Integrated oversight of changes implemented by TWRs is not performed. Updates to entire system analyses are precluded, vs incorporation of specific changes to the analyses.	Status and subsequent control of system assets is non-optimal requiring asset levels (people and material) near peak to respond to mission changes vs. maintaining only base-load assets, allocating and upgrading to an as-needed basis followed by the retiring of peak load assets.	Evaluate new changes for TWRs-wide technical and economic application. Implement a change control process that outputs current system asset status, describes head-end asset requirements, and predicts peak load needs. Develop criteria for analysis of direct and indirect economic benefits, subsequent spin-off development, and generation of new business opportunities.

September 17, 1996

TABLE 3. DOCUMENT CONTROL FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT	RECOMMENDATION (ACTIONEE)
13		<p>The production and realization of financial return on research and applied process enhancements are not tracked, published, and marketed on an organized basis. Direct and indirect economic benefits, subsequent spin-off development, and the generation of new business opportunities may not be realized.</p> <p>TWRS-wide tracking of work-in-progress, awaiting parts, and on hold is not performed. As a result processes awaiting completion of other work have schedules and commitments changed unnecessarily.</p>	<p>Implement a process that sells spin-off technology, credits the baseline with returns, and publishes the accrued benefits.</p> <p>Implement a change status tracking function that evaluates status information, priorities, and coordinates TWRS engineering assets.</p>
14	<p>Indexing activities for engineering test documents stops at the transfer from active to historical documents. (Current track individual records from cradle to grave.)</p>	<p>Individual engineering release documents are indexed on the engineering release system database (ERSDB) as individual records. That control translates into a "single records grouping" of boxes at the storage location. While vast in the Federal Repository, a limit of boxes is the only retention mechanism.</p> <p>A common link between Federal repository box, records holding area, box, and original engineering document index may not be made. Limited documentation capability is lost. Ability to determine required historical information is lost by grouping records as lost in a "TWRS data - 1962 to 1967" method. As a result retrieval of documents requires significant document control personnel resources.</p> <p>Additionally, due to the information storage method the ability to distinguish between viable, historically important records and documents of no lasting import is diminished. Thus DOE is required to retain all records of six nature for minimization of litigation risk. The maintenance, storage, and retrieval costs require above a baseline level.</p>	<p>Adapt ISEARCH capabilities for all TWRS documentation that generates records.</p> <p>Provide software links between document indexing at the records holding area, Federal repository, and the ERSDB.</p> <p>Evaluate record types for the historical and litigation value, sort by index, identify applicable retained records, and disposition the remainder for destruction.</p>

TABLE 3 DOCUMENT CONTROL FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT	RECOMMENDATION (ACTION/IDE)
15	<p>The Vendor Information & Project Data release process is not applied in a standardized method</p> <p>Project documentation output to WHC varies by project with the project group authorized to transmit all project information under one transmittal with no indexing for retrieval purposes</p>	<p>The present Vendor/Project/Facility (undictated) process is not integrated is applied on a project by project basis by new personnel and efforts material released to the vendor information system is incomplete redundant and unindexed</p> <p>Reconstitution efforts are required as a result of operational engineering not having access to properly formatted indexing of available data and document</p> <p>Each TWRS Engineer or Engineer intern/eval indicate some degree of impact from having to reengineer an SSC before operations having to rely on a definition & experience base for release drawings requiring ECN changes to having to search by use of documents on an almost random basis for SSC details</p>	<p>Involve TWRS Engineering in a continuing capacity to perform Design Authority work during any Construction/Project activity</p> <p>Specify in SOW Letters of Agreement and Memoranda of Understanding the quality and type of information acceptable to the Design Authority</p> <p>Release Vendor Information through the ERSDB</p> <p>Collect and integrate indexes from engineering release vendor information pre 1987 text documents safety analysis authorization bases financial baseline data top level requirements and standards and publish as a single electronic user interface with search capability</p> <p>Provide a roadmap that identifies project and vendor information available to Engineering</p> <p>Ensure that facilities engineering maintains close interface with the design and procurement functions to quickly review and approve submitted documents throughout SSC lifetime</p>
16	<p>Document systems control technical information is in different locations with different processes</p> <p>Records such as Vendor Information pre 1987 documentation project information environmental compliance information maintenance information Lock and Tag information master equipment list etc are indexed via essentially standalone mechanisms</p>	<p>Each group retains ownership of its inventory of records requiring specialists to perform inventory storage shipment and recovery retrieval functions. For TWRS manually indexed information retrievability problems arise with personnel displacement and records aging process</p> <p>Because records systems are fragmented the user's knowledge of SSC's impacts of changes and control of change implementation is impacted and incomplete</p>	<p>Collect and maintain indexes from vendor information pre 1987 text documents safety analysis authorization bases financial baseline data top level requirements and standards and publish as a single electronic user interface with search capability</p> <p>Perform records handling functions in a standardized method preferably with the same organization regardless of record origin</p> <p>Eliminate the TWRS records storage functions for operating environmental maintenance job control and training documents</p>
17	<p>The document declassification process requires in different versions of the same document existing with the same identifier</p> <p>A remaining conventional control of partially declassified versions that exist with differing information under the same name may not be an expedient</p>	<p>A document with the same title exists with differing number of pages in various locations but on the information allowed is the recipient</p>	<p>Identify and implement a naming convention</p>

September 17, 1996

TABLE 3 DOCUMENT CONTROL FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT	RECOMMENDATION (ACTIONEE)
18	Electronic Signatures are not authorized for use by WHC In many instances AOs, CAD drawings, procedures, and other documents are review routed electronically. However, signatures authorizing publication are on paper, and are the only recognized approvals.	Hard copy document support programs are redundant for items produced, retained, promulgated, modified, and used electronically. Personnel use unapproved electronically produced documents including drawings.	A DOE funded, approved, electronic signature is used by PNNL. WHC system adoption of that capability would result in increased efficiencies and lowered operating costs. An electronic marking would uniquely identify each approved document, either in the text, on the drawing or in the access to the information.
19	Configuration changes that impact engineering documents have no implementation tracking and closure mechanism. ECN form has no integral work-to-complete closure mechanism to ensure ECN incorporation into impacted engineering documents (i.e., technical specifications, process standards, CSR or SSC 1 & 2 documentation).	The ECN process has no "impacted document/item has incorporated change" capability. As a result changes become work completed and the reference is not updated. The TWRS PSAR, SAK, IND etc. documentation may be out-current.	Develop a plan to implement assignment, tracking, and closure accountability, with an assigned responsible party and managerial oversight. Redesign ECN Block 18 to specify those documents requiring change. Specify the authority and priority level that the Cognized Engineer/Approval Authority is granted the requiring impacted document incorporation. Issue guidance pertaining work complete signature authority as including incorporation of ECN into draft or issued impacted documents. Provide guidance to specify a maximum allowable "work in progress" time before administrative controls.
20	No mechanism exists for generating, approving, and tracking ECN based change implementation for non engineering owned documents.	The ECN process requires a notification of the change to impacted document owners; however, it does not require incorporation, and does not provide accountability tracking, or a closure tracking mechanism. As a result, the Design Authority may not identify all affected parties of the change or notify them of the impact. Thus documents that support the physical configuration may not reflect current configuration. Additionally for ECNs that are not incorporated or are canceled, the change documentation may be ready for review, thereby impacting work.	Develop a plan to implement assignment, tracking and closure accountability, with an assigned responsible party, and managerial oversight. Transfer the JCS group's responsibility for incorporation signatures to the Approval Authority.

September 17, 1996

TABLE 3 DOCUMENT CONTROL FINDINGS AND RECOMMENDATIONS

	FINDING	(IMPACT)	RECOMMENDATION (ACTIONEE)
20		Functionally, the ECN uses the Job Control System (whenever a RLS Form 6 is required for work) to verify ECN incorporation into assigned documents. This transfers the responsibility from the Design Authority to Work Control for accountability that the change is incorporated.	
21	Equipment configuration information provided to WHC by vendors and projects may not be fully usable when received.	<p>On a uniform basis, procurement requests for proposal statements do not specify, and projects do not require, that information from vendors (or use by facilities) be supplied in electronic format, as well as the traditional hard copy.</p> <p>As a result, central design information, information indexing capability, and the datasets producing CAD drawings are not provided to WHC during turn over. Therefore, the facility must generate these assets when required (e.g. produce as-built CAD for any operationally required drawings, vendor information indexing, project data indexing, and maintenance and operating procedures).</p> <p>Additionally, before processing a subsequent configuration change, ECN to any drawing that remains in the Vendor Information system, a CAD IT-2 and/or the generator (generating an IT-2, 98889 requires drafting, review, peer review, re-draft, checking, validation, and issue.</p> <p>User requests for information normally requires information search followed by hard copy reproduction. Due to a lack of precise indexing, the search process normally requires the Logistical Engineer to perform the search at the storage location.</p>	<p>Specify and require the delivery of electronic text, indexing, and especially CAD datasets for any construction that generates vendor information or drawings.</p> <p>Collect SSC reference information that is already gathered by TWRS Engineering and incorporate it into the common baseline.</p>
22	Controls over engineering documentation changes are not consistently applied.	Inconsistent change control of engineering documentation may result in loss of SSC configuration information, resulting in duplication of work activities and loss of configuration control.	Implement a standardized change control process documenting and controlling changes to SSC configuration.

TABLE 3. DOCUMENT CONTROL FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT		RECOMMENDATION (ACTION/EE)
23	The CWRB master equipment list is not being updated and the information being entered is insufficient for cross referencing.	System Configuration Engineers do not feel adequately involved in labeling changes. This results in superseded drawings and supporting documents not being updated. Therefore, maintenance and operating documents are not accurate. Cross referencing information necessary to update references is not gathered during change implementation.	23.1	Require the Cognizant Engineers and Labeling team to share information at the onset of each new labeling effort (H 14).
			23.2	Establish an interface control process with system owner.
			23.3	Implement a change tracking and closure system to update all affected documents and assign responsibility for accuracy.
			23.4	Collect reference data at the same time the labeling effort is conducted.
			23.5	Require the upgrade at the existing MFI.
24	Application of the technical requirements of a design disposition (e.g. repair or rework) in most nonconformance reports is not uniformly employed.	Improper application of technical requirements of a nonconformance report may result in inadequate or incomplete repair or rework of the item.		Reconsider the criteria in WHC CM 4.41, Safety Analysis Manual Procedure 9.10 Revision 1, Safety Classification of Systems, Structures, and Components (SSC) Paragraph 1.3, Step 29. Note: The safety classification of an existing SSC serves only to categorize that item; it does not necessarily indicate that the existing SSC does or does not comply with the current design and Quality Assurance requirements associated with the classification.
25	The process that enables the document owner to release documents exists for engineering documents is not implemented. The jurisdiction of Cognizant Engineers to control systems is not implemented.	Various Cognizant Engineer note that system configuration control has been impacted because other engineering groups issue changes against their systems. This results in the system no longer being in the configuration approved by the Cognizant Engineer. Engineering is working to correct configuration information. Maintenance and Operations may be working to incorrect configuration information.		Implement the jurisdictional statements of the Approval Authority/Design Approval Policy. Perform screening during the release process for authorized Cognizant Engineer signatures. Authorize Engineering Release Station personnel the ability to refuse documents that are not approved by the correct owner/design authority. Implement a listing and update policy to identify the approval signature authority (Cognizant Engineer/Design Authority/Design Agent) to a specified LRM point of contact.

TABLE 4. DOCUMENT HIERARCHY FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT		RECOMMENDATION (ACTIONEE)
1	The procedural hierarchy governing management of TWRS functions is not developed. Procedural compliance is impacted.	<p>TWRS functions that are governed by procedures are not informed of all of the constraints impacting their operations.</p> <p>TWRS functions generating procedural requirements are not fully cognizant of their total impact.</p> <p>Individuals with procedural responsibilities may not be fully cognizant of their total impact.</p> <p>Approved changes in one procedure may not be reflected in another procedure, leading to delays in implementation.</p>	1.1	Determine and publish a procedure hierarchy.
			1.2	Remove upper tier redundancies, and issue WHC IP-0842 as a Level III Controlled Manual.
			1.3	Retrain TWRS personnel on Management's expectations regarding procedural compliance.
			1.4	Implement a document development and review interface between document developer and document user for all procedures issued.
			1.5	Publish and distribute a reference document (the definitive reference source that shows source requirements and implementation linkages and provides administrative control over redundant procedural statements) that indexes functional tasks within procedures (allows individuals to integrate and internalize their job responsibilities, used by the new employee for familiarization, and by the senior employee for review); lists procedures to referencing and referenced procedures and documents (a listing by task that groups all procedures to provide the procedure writer and approval authority with interrelationships to effect changes in impacted references/referencing documents); and lists job responsibilities by title.
			1.6	Train personnel on how to access the referencing document and their responsibilities.
2	A hierarchy of TWRS SSC documentation is not developed.	<p>The item is operability impact and its referenced/referencing documents that are impacted by a change are not changed when required.</p> <p>No support process exists to identify referenced/referencing documents impacted by a change. Documents are not specified as requiring change incorporation. Documents tied to the change on originating document are not modified or evaluated for impact on the originating change. Documents that analyze for conditions that rely on impacted components are not modified.</p>	2.1	Develop a hierarchy of documents, preferably linked by the SSC or Systems Engineering function to the Safety Basis and Operating and Avionization Bases.
			2.2	Gather cross-referencing information from TWRS Engineering, Financial, and Records personnel.
			2.3	Publish an integrated electronic user interface with search capability subject to change control for the new reference information.
			2.4	Implement a plan establishing and defining a graded approach for commensurate levels of analysis, documentation, actions, and resources.

September 17, 1996

TABLE 4. DOCUMENT HIERARCHY FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT		RECOMMENDATION (ACTIONEE)
2		<p>This results in a partial documentation change implementation and by extension promotes an out of sync condition.</p> <p>Electronic dissemination of baseline information is only partially implemented. Information uncovered by an individual is not noted for use across the TWRS organization.</p>	2.5	<p>Incorporate WILC IP 0842 as a level III controlled item.</p> <p>Select and publicize to TWRS personnel Management expectations regarding procedural compliance.</p> <p>Produce and distribute a reference document that indexes function tasks within procedures, links tasks to referenced and referenced documents, and lists job responsibilities by title.</p>
3	<p>A hierarchy of HCS/HSC documentation is not developed.</p> <p>Lacking hierarchy, the item its operability support and its referenced/referencing documents impacted by changes are subject to an individual's knowledge vs. facility knowledge.</p>	<p>No support process or system of checks and balances exists to identify referenced/referencing documents impacted by a change.</p> <p>Therefore, documents that are referenced as needed, change, incorporation or for further evaluation prior to the change may not occur.</p> <p>This results in a partial documentation change implementation and by extension promotes an out of sync condition.</p> <p>Electronic dissemination of baseline information is only partially implemented.</p>		<p>Collect and integrate indexes from engineering release, station vendor information per 1987 text documents, safety analysis, authorization bases, financial baseline data, top level requirements and standards.</p> <p>Confer input from TWRS engineering and records personnel.</p> <p>Publish as a single electronic user manual with search capability.</p>
4	The procedural hierarchy governing management of TWRS functions may not be developed.	<p>TWRS functions that are governed by procedures are in not all cases informed of the constraints impacting their operations.</p> <p>Individuals with particular responsibilities may not be fully cognizant of their total impact.</p> <p>Approved changes in one procedure may not be reflected in the instructions within another procedure, leading to delays in implementation.</p>		<p>Implement a plan to establish and define procedural hierarchy.</p> <p>Develop a training program to educate the cognizant engineers of the procedure development.</p> <p>Establish guidelines for procedure development and control with appropriate checks for a graded approach.</p>

TABLE 5. INFORMATION AVAILABILITY FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT		RECOMMENDATION (ACTIONEL)
1	Productive use of available TWRS information is not realized by users.	<p>Sufficient background (on operational decisions may not be available during decision making processes.</p> <p>Observations: The quantity of available TWRS technical information appears to challenge an individual's information handling skills. The quantity of WHC and TWRS procedural guidance appears to impact an individual's ability to independently absorb appropriate instruction.</p> <p>When specific information is required to perform a task, a search for the information must be performed. Because the amount of search appears dependent on individual indexing quality and previous information location and retrieval experience, some attempts are more successful than others. Hence, personnel made the following kinds of statement: "I had to reengineer the system. I used good engineering judgment. I knew where to go now because I looked through enough work or information boxes last time, and I rely on the decisions I tell you what other drawings are impacted."</p>		See solution recommendations below.
2	TWRS configuration information is not integrated. Exclusivity of information is not sufficiently indexed to allow electronic search capability for required documentation. Information critical to implementing TWRS mission requirements is not registered as change-controlled documentation.	<p>TWRS task data standards for information exist. This implies capability required for information management. Standards are not reviewed/updated and implemented to meet changing need.</p> <p>Limiting if key word and rich searches do not provide with real resources to determine the information available within documents.</p>	2.1	Establish a process that evaluates TWRS data requirements, sets information retrieval standards, and implements upgrade of personnel information access.
			2.2	Implement an integrated database that is under change control and contains the TWRS configuration/technical baseline, and publish as a single electronic user interface with search capability.

TABLE 3. INFORMATION AVAILABILITY FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT	RECOMMENDATION (ACTION-#)
2		<p>Looking a registration of methods of analysis and baseline data in history and future reproduction of analysis is not convenient.</p> <p>As a result, the ability to consistently reproduce conclusions, modify the document, or track the historical basis for modifications to this document is limited.</p> <p>For example, the EWR's Multi-Year Program Plan is uncontrolled which served as an "open" or Limited Publication (SP).</p> <p>As defined, SPs are an informal scientific, technical, or engineering document intended for release to the DOE, as a contract deliverable. Change control for an SP is effective only in revision by changing text, adding sub-headers, and indicating the affected pages on the Record Of Revision, or the entire publication may be reissued adding a revision number. The method used depends on the volume of revision. Since the background and impacts are not traceable, i.e., the assumptions that were used in volume this data are available is supporting documentation. The methodology used is not traceable. Various methodologies were used in the preparation of the Cost Benefit estimates, but the methodology chosen was appropriate for which is highly dependent on the information available.</p>	<p>2.3 Collect indexes from readily information pre 1987 text documents, safety analysis, authorization bases, financial baseline data, top level requirements standards, and the recent reviews indexing effort, and incorporate into the integrated database.</p> <p>2.4 Collect reference information that is already gathered by TWRS Engineering and incorporate it into the integrated database.</p> <p>2.5 Specify that documents (including original calculations in electronic format) establishing the basis to be retained as engineering documents (or subject to formal change control).</p>
1	Technical knowledge of original analyses, changes, technological advances, needs, requirements, commitments, and other organizational commitments remain compartmentalized within the originating organization or records holding group.	<p>Information systems in use are not centrally registered and controlled.</p> <p>Redundant efforts are expended by different groups performing similar work from different perspectives.</p> <p>Duplicate information exists in different databases with different quantities for the same item (e.g., waste inventory). At the low level,</p>	Train personnel on information sources, document publication, document index, large information request methods, and information resource personnel.

September 17, 1996

TABLE 5. INFORMATION AVAILABILITY FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT		RECOMMENDATION (ACTIONEE)
3		<p>available baseline technical structure system and component (SSC) information does not appear to exist because it may not be adequately indexed.</p> <p>In those cases lacking adequate historical documentation, good engineering practice requires some level of redundant work in the reproduction of design and implementation documents.</p> <p>Observation: Each TWRS Cognized Engineer interviewed indicated some degree of impact from having to redesign an SSC before further operations, having to rely on a draftsman's experience for reference drawings requesting LCN changes, or having to search boxes of documents on an almost random basis for SSC details.</p>		
4	<p>TWRS does not have complete knowledge of historical SSC documentation describing facilities processes and changes.</p> <p>Indexing activities for engineering text documents stops at the transfer from active to historical documents. (Engineering cannot track individual records from create to grave.)</p> <p>Source rarely bases documentation is not easily accessed and may no longer be applicable.</p>	<p>A common link between federal repositories (e.g., records holding area box) and the original engineering document is not made. Indexing of individual document from variability is lost.</p> <p>Due to minimal knowledge of individual record contents and the cumbersome retrieval process, the ability to distinguish between viable historically important record and documents of no lasting merit is diminished. (WAP requires retention of all records of any value for minimization of litigation risk.) This document management, storage, and retrieval support needs requirements remain high.</p>	<p>4.1</p> <p>4.2</p>	<p>Adopt the scanning of documents and referencing database (ISEARCH) capabilities for all TWRS documentation that generates records.</p> <p>Provide software links between document indexing at the records holding area, federal repository, and the ERSDB to allow records information functions at the user level.</p>

TABLE 5. INFORMATION AVAILABILITY FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT		RECOMMENDATION (ACTIONEE)
4		<p>TWRS must rely on BCYSR to recall entire groups of records for information regarding an one document. Information searches are therefore more time consuming and less productive.</p> <p>Background: Individual engineering released documents are placed on the ERSDB. As text documents are superseded they are grouped according to record type, date, and destruction schedule. This grouping joins other records and is housed for storage. Following storage, with either record stream, they are transferred to long term storage. In the grouping process, the ability to track the individual record is lost to users.</p>	4.3	<p>Evaluate record types for true historical and litigation value, sort by index, identify applicable released records, and disposition the remainder for destruction.</p>
5	<p>Productive use of available HCS information may not be realized by users.</p> <p>Technical knowledge of original analyses, changes, technological advances, and other organizational culture elements remain compartmentalized within the originating organization.</p>	<p>Sufficient background for operational decisions may not be available during decision making processes.</p> <p>Observations: The volume of administrative and technical information available appear to exceed the grasp of an individual's ability to master or the time available to devote to its mastery. The sheer quantity of WHR and TWRS procedural guidance (downloading) and this may result in an individual's loss of motivation to independently absorb appropriate instructions. Hence, personnel make the following kinds of statements: "If they want me to do something, they'll tell me."</p>		<p>See solution recommendations below.</p>
5		<p>When specific information is required to perform a task, a search for the information must be performed. Because the search results depend on motivation, indexing quality, and previous information navigation experience, some attempts are more successful than others. Hence, personnel make the following kinds of statements: "I had to reengineer the system and I used good engineering judgment. I know where to go now, because I looked there enough, vendor information boxes, I lost track."</p>		

September 17, 1996

TABLE 5 INFORMATION AVAILABILITY FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT	RECOMMENDATION (ACTIONABLE)
6	<p>The process that integrates available HCS information is not developed.</p> <p>HCS information is fragmented and is not sufficiently indexed to allow lifetime search capability for required internal/external SSK, documentation and configuration status.</p> <p>Information critical to implementing TWRS mission requirements is not registered as controlled documents in</p>	<p>Established data standards for information recall do not provide the capability required for information management.</p> <p>Standards are not reviewed, updated and implemented to meet changing needs.</p> <p>Profoundal key word and full-text searches do not provide sufficient resources to determine the information available within documents.</p> <p>Lacking a registration of millions of analyses and baseline data, the history and future reproduction of analyses is not consistent.</p> <p>For example, the TWRS Multi-Year Program Plan is uncontrolled when released as an SP. As detailed Sponsor Limited Publication is an informal scientific technical or engineering document intended for release to the DOE as a controlled deliverable. Change control for SPs is editorial only, revision by changing text, adding side bars, and publishing the affected pages in the RCR. If the entire publication may be revised without revision number. The method used depends on the volume of revision. Additionally, backround assumptions are not traceable. The restrictions that were used to assemble this data are not fully as supporting documentation.</p>	<p>Establish a process that evaluates TWRS data requirements with information retrieval standards and implements upgrade of personnel information access.</p> <p>Train personnel on information sources, search methods, and available reference personnel.</p> <p>Implement an integrated database, or identify the data owner (data stewardship) and have that person act as the clearinghouse (interim manual integration solution).</p> <p>Collect indexes from vendor information pre 1987 test documents, safety analysis, authorization bases, financial baseline data, top level requirements, and standards and publish as a single electronic user interface with search capability.</p> <p>Collect reference information that is already gathered by TWRS Engineering and incorporate it into the common baseline.</p> <p>Specify that documents establishing the baseline be released as engineering documents.</p>

**TABLE 4. PERMITTING
FINDINGS AND RECOMMENDATIONS**

	FINDING	IMPACT	RECOMMENDATION (ACTIONER)
1	State environmental regulatory agency notification before configuration changes of permitted facilities	TWBS may inadvertently violate Washington State permit conditions, causing fines, increased scrutiny, and negative publicity from failures to notify the state of configuration changes before implementation	<p>1.1 Form agreements with the operators of the related site-wide systems and develop TWBS specific procedures to perform the following (1.2, 1.3, 1.4, 1.5, 1.6)</p> <p>1.2 Implement Recommendations for Design Authority release process screening and document release approval authority</p> <p>1.3 List the documents subject to Ecology preapproval/notification requirements</p> <p>1.4 Provide updated listings of documents and the referencing permit for inclusion in the document control database</p> <p>1.5 Release documents listed as subject to Ecology preapproval/notification requirements into the engineering release system to ensure control</p> <p>1.6 Implement an ECN based tracking tool during the release process to minimize delay, missed notifications, and provide assurance of ECOWBS review of designated document types</p> <p>List the documents subject to Ecology preapproval/notification requirements</p> <p>Provide updated listings of documents and the referencing permit for inclusion in the ERSDB</p> <p>Release all listed documents into the ERSDB to ensure control of the various documents</p> <p>Perform screening for Environmental approval designator signatures during the release process</p>

TABLE 7. RISK ASSESSMENT FINDINGS AND RECOMMENDATIONS

	FINDING	IMPACT	RECOMMENDATION (ACTIONER)
1	The TWRS Risk Assessment used in developing work priorities for the Cost/Schedule/Technical Baseline is not subject to a consistent change control process.	This results in unnecessary exposure to contractual issues regarding the propriety of allowable costs and requests for funding.	Require that all changes to the Financial Data System standard rates used in preparing the baseline be required to document, propose, impact and approve changes in a consistent, controlled and traceable manner using change control processes and procedures. (Financial Data System Control)
2	DOE-RI direction, assumptions, requirements and approvals used in evaluations of the TWRS Risk Assessment Ranking is not fully documented in a uniform change control process. Contract Management does not fully communicate and document a summary of all impacts, constraints, and issues affecting changes to the current Risk Assessment Ranking.	This results in unnecessary exposure to accountability issues arising from a contractual guidance history not being documented in a uniform change control process. This lack could adversely impact TWRS responses to stakeholder questions regarding the priority of work performed and subsequent accountability issues.	Require that all provided direction, responding assumptions, and modifications to the TWRS Risk Assessment Ranking be controlled, documented, and summarized in a uniform change control process. (Baseline Management Control)
3	The TWRS Risk Assessment Ranking of the Cost/Schedule/Technical baseline is not subject to a uniform configuration management control and approval process.	DOE-RI direction, assumptions, requirements, and approval used to the TWRS Risk Assessment Ranking may not be fully documented in a uniform configuration management process. This could result in contractual issues regarding work authorization and accountability. Contract Management may not fully communicate a summary of all impacts, constraints, and issues affecting changes to the currently approved Cost/Schedule/Technical baseline. This could result in DOE-RI questioning the propriety of work to be performed.	The TWRS Risk Assessment Ranking should be required to document and minimize changes to ranking and risk of the work scope in a uniform configuration management format.

This page intentionally left blank