2. To: (Receiving Organization) Fluor Daniel Hanford Company		3. From: (Originating Organization) Fluor Daniel Hanford Company, Quality Assurance Division		4. Related EDT No.: N/A				
5. Proj./Prog./Dept./Div.: SM5.5/MDM31/ESH&Q/QA:		6. Design Authority/ Design Agent/Cog. Engr.: M.L. Hermanson		7. Purchase Order No.: N/A				
8. Originator Remarks: This document has been prepared in response to the Fluor Daniel Hanford Company performance agreement SM5.5 "Develop and implement a single, site-wide, consolidated, automated, deficiency management tracking, trending, and reporting system as a part of a site-wide management system".				9. Equip./Component No.: N/A				
				10. System/Bldg./Facility: N/A				
11. Receiver Remarks: 11A. Design Baseline Document? ☐ Yes ☒ No				12. Major Assm. Dwg. No.: N/A				
				13. Permit/Permit Application No.: N/A				
				14. Required Response Date: N/A				
15. DATA TRANSMITTED								
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	HNF-SD-GN-SMSD-501 -CSWD- JB		0	Deficiency Tracking System, Conceptual Business Process Requirements.	N/A	1	1	
16. KEY								
Approval Designator (F)		Reason for Transmittal (G)			Disposition (H) & (I)			
E. S. Q. D or N/A (see WHC CM-3-5, Sec 12.7)		1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)			1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged			
17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)								
(G) Reason	(H) Disp.	(J) Name, Affiliation, MISN.			(K) Signature (L) Date			
2	1	Program Authority, G.W. Grier, VP, FDH/QA, B1-13			3/14/97.			
1	(2)	* DOE-RL. J.L. Pfeiffer, DOE, QA, A5-55			3/17/97			
1	1	Cog.Eng., M.L. Hermanson, FDH/QA, G1-50			03/03/97			
1	1	Cog. Eng. Mgr., J.W. Willis, FDH/QA, B1-14			3-3-97			
1	1	T.M. Lutter, LMSI, B3-56			3-4-97			
1	1	J.R. Lang, DES, X3-80			3-10-97			
1	1	S.S. Sittner, DYN, G3-25			3-4-97			
1	1	W.V. Witherspoon, BWHC, N2-13			3-6-97			
1	2	S.M. Byers, LMHC, S1-57			3-12-97			
1	1	D.W. Duncan, SGN, B4-51			3/5/97			
1	1	A.K. McKay, FDNW, B1-11			3/3/97			
18. Signature of P.E. Originator, M.L. Hermanson		19. N/A Authorized Representative Date for Receiving Organization		20. N/A Design Authority/ Cognizant Manager, J.W. Willis		21. DOE APPROVAL (if required) Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments		

ENGINEERING DATA TRANSMITTAL

Page 2 of 25
EDT 620476

16. (CONTINUED)		KEY	
Approval Designator (F)		Reason for Transmittal (G)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information	4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	Disposition (H) & (I) 1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged
17. SIGNATURE/DISTRIBUTION (CONTINUED) (See Approval Designator for required signatures)			
(G) Reason	(H) Disp.	(J) Name, Affiliation, MISN,	(K) Signature (L) Date
1	1	D.G. Farwick, BWHC, R3-56	<i>D. Farwick</i> 3/7/97
1	1	A.R. Hawkins, NHC, H5-25	<i>A.R. Hawkins</i> 3/7/97
1	(2)	T.L. Moore, RFSH, H6-30	<i>T.L. Moore</i> 3/7/97
3		Central Files A3-88	

DON'T SAY IT --- Write It!

DATE: March 17, 1997

TO: J. C. Allen-Floyd	X3-71
S. M. Byers	S1-57
D. W. Duncan	B4-51
D. G. Farwick	R3-56
G. W. Grier	B1-13
M. D. Hassebrock	S1-57
A. R. Hawkins	H5-25
J. R. Lang	X3-80
T. M. Lutter	B3-56
A. K. McKay	B1-11
T. L. Moore	H6-30
J. E. Parker	N2-11
J. L. Pfeiffer	A5-55
D. G. Price	G3-05
S. D. Protsman	G3-05
S. S. Sittner	G3-25
L. J. Voigt	A4-35
J. W. Willis	B1-14
W. V. Witherspoon	N2-13

FROM: M. L. Hermanson G1-50

Telephone: 376-2257

SUBJECT: DEFICIENCY TRACKING CONCEPT DOCUMENT

You have been identified as a participant in the "Deficiency Tracking Systems Requirements" workshop.

Attached is the "Deficiency Tracking Concept" document for your review. The requirements workshop is scheduled for March 26-28, 1997 in the "Deception Falls" room of HTC. We will be examining data descriptions, data models and functional models to determine your deficiency reporting and trending needs.

THANKS!

Mark L. Hermanson

[16] From: Terry L Moore at ~HANFORD01E 3/7/97 8:54AM (2275 bytes: 1 ln)
 To: Mark L Hermanson at ~HANFORD06A
 Receipt Requested
 cc: David B Van Leuven, Edward S Jr Aromi at ~HANFORD08A, Duane L Renberger at ~HANFORD08B
 Subject: Comments on Conceptual Business Process Requirements-Defici

----- Message Contents -----

Please include the following comments in the record for the subject document (ref.-- Deficiency Tracking System upgrade) so they can be addressed during subsequent project phases.

1. Accountability for deficiencies and corrective actions cannot simultaneously reside with two parties; it should remain with the PHMC entity (FDH, LMHC, RFSH, etc.) responsible for the deficiency. Ref. Section 2.2- para. 3.

2. Expansion of the tracking system to include all deficiency types may bottleneck the system with no net benefit, just as the inclusion of all levels of deficiencies would. We need to perform a balanced cost/benefit analysis to establish what level of tracking of which types of deficiencies ("screening criteria") provides the greatest benefit. Ref. Section 2.2- para. 1, Section 3.6- para.4, Section 4.2- para.1, and Section 4.3.2- para. 3.

3. A risk to the project is the conflicting nature of objectives and constraints. [We want a simpler, easier to use system, yet we want it to do more than the current system; also, we need it complete by 7/31/97, yet we do not have unlimited resources to build nor maintain the system.] We need to determine what is the most useful system we can produce by 7/31/97 that meets RL's minimum needs. Ref. Section 3.6.

4. The system should record the assignment of corrective action responsibilities as agreed to between parties; it should not be a substitute for the process of reaching agreement. Ref. Section 4.2.1- para. 3, and Section 4.3.1- para. 2.

Deficiency Tracking System Conceptual Business Process Requirements, HNF-SD-GN-SWSD-501, Rev.1, reviewed by DOE-RL, QSH, is approved with comment.

Section 4.3.2, System Functions, third paragraph which states: "If the deficiency does not require corrective action the item is listed as closed with no further action required." is not consistent with Section 1.4, Definitions for the phrases "corrective action" and "remedial action", and also the consensus agreement arrived at in the workshop 2/12-13/97.

2/15/97

Deficiency Tracking System, Conceptual Business Process Requirements

Mark L. Hermanson

Fluor Daniel Hanford, Richland, WA 99352

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

EDT/ECN: EDT-620476

UC: 2000

Org Code: 02E00

Charge Code: R70342 (RFS WO#E23175)

B&R Code: EW3135040

Total Pages: 29

Key Words: Management Tracking; PHMC Contract SM5.5

Abstract: This document has been prepared in response to the Fluor Daniel Hanford Company Performance Agreement SM5.5, "Develop and implement a single, site-wide, consolidated, automated deficiency management tracking, trending, and reporting system as a part of a site-wide management system."

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 950, Mailstop H6-08, Richland WA 99352, Phone (509) 372-2420; Fax (509) 376-4989.

C. L. Burkland 4/18/97
Release Approval Date

Release Stamp

Approved for Public Release

HNF-SD-GN-CSWD-501
Revision 0

March 3, 1997

**Deficiency Tracking System,
Conceptual Business Process Requirements**

Prepared by
Mark L. Hermanson

for

Fluor Daniel Hanford Quality Assurance Division

TABLE OF CONTENTS

1.0	INTRODUCTION	3
1.1	PURPOSE	3
1.2	SCOPE	3
1.3	OVERVIEW	3
1.4	DEFINITIONS	4
2.0	CONCEPT DEFINITION/COMMITMENT	5
2.1	STATEMENT OF NEED	5
2.2	SCOPE OF NEED	5
2.3	URGENCY OF NEED	5
2.4	SOLUTION OBJECTIVES	6
2.5	SOLUTION PROPOSALS	7
3.0	EXECUTIVE SUMMARY	8
3.1	BACKGROUND	8
3.2	SCHEDULES	9
3.3	SPONSORING ORGANIZATIONS	9
3.4	COSTS	9
3.5	STRATEGIC DIRECTION	10
3.6	RISK ANALYSIS	11
4.0	PROBLEM IDENTIFICATION	12
4.1	USER PROFILE	12
4.2	USER'S NEEDS	12
4.2.1	Deficiency Status Tracking	13
4.2.2	Reporting	13
4.2.3	Trending	14
4.2.4	Security	15
4.3	USER ENVIRONMENT	16
4.3.1	System Context:	16
4.3.2	System Functions:	18
4.3.3	Network Environment	20
4.4	CONSTRAINTS	23
4.4.1	Regulations, Procedures, and Policies	23
4.4.2	Interfacing Functions	24
4.4.3	Existing Limitations	24
4.4.4	Development, operations and maintenance	24
4.4.5	Acceptance Criteria:	25
5.0	FEASIBILITY ANALYSIS	26
5.1	IMPACT ANALYSIS	26
5.1.1	User/System Impacts	26
5.1.2	Input/Output Impacts:	26
5.1.3	Conversions and Data Sharing	26
5.1.4	Compatibility	26
5.1.5	Reconciliation	27
5.1.6	Growth	27
5.2	ALTERNATIVES	27
6.0	REFERENCES	28

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this document is to describe the conceptual business process requirements of a single, site-wide, consolidated, automated, deficiency management tracking, trending, and reporting system. This description will be used as the basis for the determination of the automated system acquisition strategy including the further definition of specific requirements, a "make or buy" determination and the development of specific software design details.

1.2 SCOPE

This document describes the objectives, relative scope, and informational context of the proposed new system. It also describes the conceptual business process functions, system constraints, and organizational characteristics of the system users. Specific functional requirements and design details are not included. This document provides some information related to the history of existing Hanford corrective action tracking systems. The integration of this project with other PHMC strategic objectives, references to project drivers and essential milestones are also included. This document includes a preliminary assessment of strategic alternatives; estimated project costs; difficult issues; and anticipated impacts on users, related systems, and PHMC policy. The concepts described in this document should not be viewed as a final design commitment nor should these concepts be viewed as sufficient determination of requirements to commence with software construction.

1.3 OVERVIEW

This project responds to the performance agreement SM5.5 between DOE-RL and Fluor Daniel Hanford Company. This performance agreement is a subset of the overall performance agreement SM5 ENVIRONMENT, SAFETY AND HEALTH. This portion of the agreement requires FDH to *"Develop and implement a single, site-wide, consolidated, automated, deficiency management tracking, trending, and reporting system as a part of a site-wide management system"*. The new system will serve as the official source of deficiency tracking information for FDH and contractors performing work under the FDH contract. The new system will provide a central repository of deficiency identification and corrective action tracking information. There will not be any other approved systems that perform this function for the FDH contract. Other project specific applications designed to assemble reports and perform trending may interface with this system but may NOT be used as an exclusive resource to store and status corrective action data in lieu of this system.

The corrective action management principles, customer and user expectations used to establish the concepts presented in this document were derived from existing Company policies and the results of a facilitated consensus workshop. Representatives from DOE-RL and each of the major PHMC projects participated in the workshop session.

1.4 DEFINITIONS

AD-HOC: Report capability using unconstrained selection of data fields and information parameter characteristics.

SITE-WIDE: Refers to the responsible organizations and physical locations affected by the scope of work defined within the Project Hanford Management Contract (PHMC).

CORRECTIVE ACTION: Measures taken to remedy conditions adverse to quality, safety, or the environment and, where necessary, to preclude repetition.

REMEDIAL ACTION: Initial measures taken to mitigate the continuation, spread, or worsening of an adverse condition.

AUTOMATED: The system will have certain automated functions (implementing appropriate information technology) where it is determined to be most cost effective and efficient in the processing of deficiency tracking, trending and reporting data. Automated functions may include: notification of ownership of deficiencies, delinquencies, capability to provide custom reports sorted by time periods, status, subject matter, contractor, facility, etc..

DEFICIENCY: An inclusive term applied to adverse conditions, deviations, failures, malfunctions, defective items, nonconformance or activities affecting quality, safety, health, operability, or the environment.

NONCONFORMANCE: A deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate.

REPORTING: On-line documents and summaries provided to management and the client that describe the current status of deficiencies tracked in the system.

TRACKING: The monitoring and reporting to management of the status of deficiencies from the point of initiation, acknowledgment, and validation of the deficiency document to the completion, verification of completion, and closure of all actions related to the deficiency.

TRENDING: The analysis of data to compare the relationship of items over time to identify changes in relative status such as quantity, frequency, or relationship to other items.

VALIDATION: A determination that information contained in a document is accurate and relevant.

2.0 CONCEPT DEFINITION/COMMITMENT

2.1 STATEMENT OF NEED

The purpose of the system described in this concept document is to collect, store, and maintain the status of data related to deficiencies and corrective actions managed under the PHMC. The system will provide the capability to use the data to prepare reports including the identification of trends. The data managed within this system is intended to be used to provide management with sufficient visibility of deficiency and corrective action information to evaluate the occurrence of deficiencies and monitor the status of corrective actions. This system is intended to be a tool that will be used by management and is not intended to replace the responsibility or the authority of management to evaluate related data for possible trend information.

2.2 SCOPE OF NEED

The system will be a single, site-wide, consolidated, automated, deficiency information tracking, trending, and reporting system for all deficiencies, above a predetermined level of significance, identified by or requiring action by DOE-RL, FDH and all contractors performing Hanford related work under the FDH Contract.

The system is needed to provide each manager with a flexible resource to collect and report deficiency and corrective action data, unique to the scope of their charter. This system must also effectively consolidate, report and track the combined status of deficiencies reported by DOE-RL, FDH and all FDH contractors performing work for Hanford under the FDH contract. The scope definition of each major project and related list of major sub-contractors may change as programmatic changes are made within the FDH contract. The system must be designed with sufficient flexibility to adapt to the dynamics of such programmatic changes.

The system must be designed to indicate that the accountability for the items entered and tracked within this system are assigned to the appropriate organization within the Management and Integration (M&I) contractor. Responsibility for actions may be assigned to the major subcontractors. The M&I contractor and the major subcontractors will retain responsibility for corrective actions even if specific actions are outsourced to enterprise companies or private vendors.

The system is not intended to be a:

- Compliance Management System
- Commitment Tracking System for items other than deficiencies as defined in Para. 1.4
- Work Control, Schedule Management System
- Maintenance Tracking System
- Record Information Indexing System or Records Repository
- Financial Data Management System

2.3 URGENCY OF NEED

The Performance Agreement schedule for SM5.5 requires:

April 15, 1997	Develop and submit system plan and recommendation
May 1, 1997	DOE-RL review and concur
July 31, 1997	Complete system development

DOE-RL has agreed the conversion of existing corrective action data, into the new system, will occur after July 31, 1997.

2.4 SOLUTION OBJECTIVES

- A method is required to assess the nature of deficiencies for the purpose of determining whether or not they will be entered into the system. The system must provide a basis for each user to consistently assess the significance of each deficiency and clearly understand when a deficiency and related corrective actions must be entered into the system.
- The system must include a simple user interface to encourage broader acceptance and use.
- The system must retain sufficient historical data to support "time based" trend reporting.
- The system must produce timely standard reports published for authorized onsite viewing through network services such as Soft Reporting, or the Hanford Internet.
- All levels of management must have the ability to accomplish "ad-hoc" reporting and identify trends specific to their needs.
- The system must provide the capability to trace deficiencies to source requirements.
- The system must optimize the use of standard data elements and assure query fields are consistent, ie: require input and constrain data entry to a standard syntax in fields that are available for query.
- Optimize the relational utilization of network systems such as PEOPLE CORE, and FACILITY CORE, to minimize redundant data input and facilitate data consistency.
- The system must provide the capability to identify closure authority and the need for independent verification of corrective actions.
- The system must provide data security measures commensurate with established corrective action management responsibilities and levels of authority.
- The system must be supported by a centralized administrative authority to be able to monitor data entry for consistency and completeness.

2.5 SOLUTION PROPOSALS

Several options are being considered including:

- (1) Redesign the functions of the existing system (HATS).
 - Add a daily "download" of core data distributed to client servers to accommodate greater freedom with ad-hoc query and custom trend reporting.
 - Retaining historical data sufficient to support ongoing trend reporting.
 - Create a new online trending module with easy access, simple ways to select trend parameters and generate standard trend report graphics.
 - Add automated editors to enhance input consistency.
 - Simplify input screens.
 - Provide the capability for interaction with other data sources to facilitate data integrity, traceability, reduce data redundancies, and eliminated data input errors.
 - Provide the capability to view the text of referenced documents while on line within the proposed system.
 - Require standard input in all data fields available for certified query.
 - Integrate CAMS and NON-CAMS data for the purpose of reporting and trending. Identifiers would still distinguish NON-CAMS items.
 - Simplify the scope of the existing HATS to include only deficiency and corrective action related information and remove NON-CAMS and private data domains.
- (2) Design and implement a new system that is customized for our unique purposes.
 - The development of a new system would involve the full evaluation of requirements determination, design definition, and code construction.
- (3) Conduct a search for commercially available software that can be adapted for this use.
 - This option would give preference to a platform that supports the broader initiative for the site wide integration of action tracking, work management, procurement, and inventory control.
 - Any commercially available system would also be evaluated using the conceptual business requirements described in this document.
- (4) Evaluate other existing tracking systems at Hanford.
 - Any existing system current being used on site must meet or be available for modification to meet the business requirements described in this concept document.

3.0 EXECUTIVE SUMMARY

3.1 BACKGROUND

DOE Order 5700.6C is required for compliance in the PHMC contract. This order states in Criterion 3, Quality Improvement: "The organization shall establish and implement processes to detect and prevent quality problems and to ensure quality improvement. Items and processes that do not meet established requirements shall be identified, controlled, and corrected. Correction shall include identifying the causes of problems and preventing recurrence. Item reliability, process implementation, and other quality-related information shall be reviewed and the data analyzed to identify items and processes needing improvement".

10CFR830.120 is required by law to be applied to all "nuclear facility applications". This Federal code also contains requirements similar to those described in DOE Order 5700.6C and is subject to enforcement by all appropriate means, including the imposition of civil and criminal penalties.

The history of contractor deficiency tracking at Hanford includes several major structural changes in how this process was accomplished. Prior to 1990, the process was not centralized and risk ranking was limited to a determination of "significant" or "not significant". In 1992, the corrective action management system was centralized and incorporated the elements of root cause analysis, lessons learned evaluations, a risk ranking system, and a graded approach to determining the degree of corrective action required. By 1994, the system had evolved into a complex process described in a Level II controlled manual that included the maintenance of the central database. The Corrective Action Management Board (CAMB), made up of representatives from each company division, determined the policies that governed deficiency and corrective action tracking.

In 1995, DOE-RL canceled the directive that mandated many aspects of the corrective action management policies related to the tracking database. The company policies were extensively revised to reflect new management philosophy of aligning authority with responsibility. This was accomplished by allowing the owners of deficiencies the direct control of their data through the Hanford local area computer network. Deficiency closure authority was granted to the responsible manager (except when DOE specified otherwise in writing). Prior to this decision input was mandated for several of the data fields in the system that are now approached as optional. This appeared to improve the timeliness of corrective action status updates and item closure, but significantly impaired data consistency. The tracking database (HATS) was separated from corrective action management policy and rules for HATS use were controlled by the HATS Council with members from each user group. DOE-RL participated in the development of the new system and used it to some extent but did not develop full confidence in the system. They continued to operate their own tracking database, the Central Information Control System (CICS).

Now, DOE-RL has specified in Performance Agreement SM5.5: "Develop and implement a single, site-wide, consolidated, automated, deficiency management tracking, trending, and reporting system as part of a site-wide management system". Early discussions with DOE-RL indicate that they prefer a system that is far less complex than HATS that tracks only those items meeting the

definition of "DEFICIENCY" (see Section 1.4). Central control and clear definition of authority for making changes to the database are also expectations of the new system. When DOE-RL has accepted the new system, they intend to discontinue the CICS database and use the new system for their data.

3.2 SCHEDULES

The responsibilities, authority, and deliverables of the project will be identified in a project plan. The major milestones of the performance agreement are:

Develop and submit a plan and recommendation	April 15, 1997
DOE-RL review and concur with recommendations	May 1, 1997
Complete system development	July 31, 1997

This is an extremely ambitious schedule and will require the full support of all PHMC organizations.

3.3 SPONSORING ORGANIZATIONS

Fluor Daniel Hanford Company, in response to the contractual performance agreement SM5.5 is sponsoring the development of this automated system. The interpretive authority for the M&I contractor's corrective action management policy is within the charter of the Fluor Daniel Hanford Quality Assurance Division. The corrective action management business process must remain in compliance with that policy. The business process model presented in Section 4.2 of this concept document was established, by consensus, during a facilitated workshop at which each of the M&I contractor's major project directors were represented. Funding authority for the development of this system is provided through WBS element 6.7, which is managed by the Quality Assurance Division. The Fluor Daniel Hanford Quality Assurance division will lead the development and implementation of this task with technical support from Lockheed Martin Services Inc.

The funding and direction for the maintenance and operation of the system will be managed by the office of Fluor Daniel Hanford's Chief Information Officer (CIO). The system will be maintained and made available by the FDH CIO for use by the Department of Energy Richland Operations, Fluor Daniel Hanford Company, and each of the major Subcontractors as described in paragraph 2.2 of this concept document.

3.4 COSTS

The costs discussed are based on the solution proposals identified in section 2.5 of this document. These costs are described in activities and functions needed to support each proposed solution and not dollars. Once a solution is chosen dollars can be budgeted for the required activities to accomplish the work.

- 1) Redesign the functions of the existing system (HATS).

Since there is staff and end user familiarity with HATS the emphasis is in the cost of gathering requirements; analyzing current system; vendor hardware and software maintenance;

programming changes; testing against requirements; acceptance; documentation updates; data conversion from other systems; and training in two areas - 1) system changes and 2) trending techniques and analysis.

- (2) Design and implement a new system that is customized for our unique purposes.
This solution will require the cost following the Hanford Software Practices from "cradle to grave" life cycle that includes; gathering requirements; documentation generation and maintenance; data management; configuration management; project schedule; testing against requirements; acceptance; vendor hardware and software maintenance; data conversion from HATS and other systems; and training in two areas - 1) system changes and 2) trending techniques and analysis. Other areas where costs may occur are possible initial purchase of hardware & software, hardware & software setup and installation, and programmer(s) and users training.

- (3) Conduct a search for commercially available software that can be adapted for this use.

Conducting a search for commercially available software based on gathered requirements will add the competitive acquisition process, and vendor evaluation activities to the solution costs. The purchase of hardware & software, hardware & software setup and installation, and programmer(s) training should be addressed. Appropriate compliance with Hanford Software Practices and data management direction may be necessary. Retraining may be vital for support and end user staff. The "cradle to grave" life cycle cost should be factored into this solution.

- (4) Evaluate other existing tracking systems at Hanford.

This effort will require that requirements are gathered; formal evaluation process and team established, documented, and implemented; programming changes; testing; acceptance; data tracking process established, documented, and assessed; and system and user training required.

3.5 STRATEGIC DIRECTION

This project is in response to a performance agreement SM5.5 which requires the development of a "single, site wide, and consolidated," deficiency management tracking system. The Information Resource Management (IRM) performance agreement SM12.1.1 requires an IRM strategic plan to be published by March 31, 1997. Specific consideration is being given to the high cost of multiple redundant automated systems in the development of the IRM strategic plan. The PHMC Management and Integration Plan (CM-1-PLA-1, Rev 0) Section 6.5 specifically requires the simplification of the *"complex mix of applications and databases currently used on site"*. This project directly supports the objectives of both plans regarding the minimization of action tracking systems. When implemented, the new system will be the only supported deficiency action tracking system recognized by the PHMC.

Section 2.3.11 of the PHMC M&I Plan requires the *Regulatory Affairs Department*, under the Vice President, Quality Assurance, to administer the Site-wide deficiency management tracking and trending system. Section 9.0, OVERSIGHT AND CORRECTIVE ACTION, states: "The oversight functions include Development of Authorization Basis, S/RIDS management, Conduct of Operations, Quality Assurance, and Occurrence Reporting. Deficiencies in these areas are identified and tracked, and corrective action plans to remedy the deficiencies are implemented".

3.6 RISK ANALYSIS

The success of this business process concept will require some specific policy and procedural changes. The authority to assess and accept the full impact of these policy changes is outside the scope of this project. An additional risk to the success of this project is the general level of departmental commitment to comply with the requirements of this system. An overall criteria for the success of this project is to provide a tracking system that can integrate deficiency and corrective action data across the PHMC for the purpose of reporting and trending. If PHMC departments and major subcontractors do not conform to the requirements of this system and input necessary data items, the output of this system will not be credible.

As described in paragraph 5.1.4 of this document, an initiative to consolidate all "cross-cutting" management functions to an integrated platform is being considered for the Hanford Site. If a new direction that will require the redevelopment of this system is eminent, the practicality of continuing with this project independent of that initiative should be considered.

Large costs were incurred during the development and implementation of the HATS system. It can be anticipated that some will question if it is appropriate to start a new development phase if it does not make use of the system that has already been developed.

This proposal recommends that all types of deficiencies be included and that a screening criteria be established to discriminate against the inclusion of insignificant deficiencies. This is necessary to accurately evaluate the occurrence of deficiencies and meet the expectations of DOE. The screening criteria will be developed in subsequent phases of this project. If affected organizations cannot agree on the relative scope and nature of items to be included in this system, trending and other assessments will not be credible and the system will not meet customer expectations.

4.0 PROBLEM IDENTIFICATION

4.1 USER PROFILE

Users will consist of DOE-RL, FDH, and all FDH contractors performing work for Hanford under the FDH contract (see paragraph 2.2). Each of these organizations may designate as many users as they determine are necessary. Users are defined as 1) individuals using the system to view data and produce reports, 2) individuals that are responsible for providing initial data item input and periodic updates, 3) individuals assigned responsibility to indicate the performance of an independent verification, and 4) individuals that are responsible for maintenance and central operation of the system. The online functions of the system will not be made available to the general public. Specific items referenced in the system, however, may be available to the general public through the freedom of information act. The general public is defined as any citizen or resident of the general population.

Users of the system or data produced by the system are expected to be, as a minimum:

FDH Office of the President, Site Planning and Integration, Systems Engineering, Project Directors, Engineering and Technology, Shared Support Functions, Infrastructure and Security, Training, Chief Information Officer, ES&H, Quality Assurance, Office of External Affairs, Re-engineering and Continuous Performance Improvement, Internal Audit, Acquisitions, Contract Administration, General Counsel, and DOE-RL. The DOE and the M&I contractor may use the corrective action information to support their assessment of contractor performance. The DOE has indicated that information related to deficiencies is expected to be identified within this system.

4.2 USER'S NEEDS

Data produced by the system will be used to identify issues, trends, deficiencies and corrective actions at Hanford. This system is considered part of the site-wide management system. The system must be able to identify the occurrence of all deficiencies above a determined level of significance even if corrective action, as defined in section 1.4 of this document, is not required. The system must correctly model the different status requirements of deficiencies determined to require remedial action as apposed to those requiring corrective action. This is necessary to effectively assess the occurrence of deficiencies and identify trends. A screening criteria must be established and consistently used to determine which deficiency items will be entered and tracked using this system.

Users require the ability to quickly determine the individual and/or collective status of deficiencies and related corrective actions. Users must be able to generate reports that identify the status of deficiencies and corrective actions for management presentations, assessment of regulatory compliance, planning, and pursuing continuous quality improvement. Users must be able to identify trends that flag both worsening and improving conditions

and performance. The system must provide users with the ability to directly provide status updates while maintaining the assurance data entries are checked for syntax consistency. Access for the purpose of editing data will be granted only to individuals authorized to input and change data.

4.2.1 Deficiency Status Tracking

Users must be able to determine, at any time, the outstanding deficiencies that they are responsible for correcting. Along with that information, they must also be able to assess the relative risk value of not resolving the issue, be able to quickly view cause determinations of the problem, what corrective actions are required, which organization is responsible for the corrective actions, and the estimated completion date.

Deficiencies to be entered in the tracking system must be consistently characterized regardless of the governing process/procedure used to generate the initial finding, eg: audits, surveillances, inspections, assessments, etc. This will require the use of a standardized data input coversheet, coversheets, or checklist to be used with all oversight or problem identification programs. The cover sheet must directly indicate the required data fields and provide instructions pertaining to data format, standards, and syntax.

The notification process will be external to the deficiency tracking system. The notification will occur via the electronic mail system to alert an individual that they have a deficiency requiring attention. The notification process informs the individual without that individual being logged onto the system.

4.2.2 Reporting

Standard reports will be generated at designated intervals and published using a predetermined combination of network services such as Soft Reporting or the Hanford Internet. The format, relative time period and other characteristics of standard reports will be administratively controlled through an established council. Request for new reports or modifications to existing reports will be administratively controlled.

The new system must provide the flexible access to ad-hoc reporting capability. To achieve this flexibility either a complete set of data or a predetermined subset of data from the central record database will be periodically copied to selected client file servers. Depending on file server and network capacity, some organizations may want only a subset of the database that represents their activities. The frequency of the data download to client servers will be determined from design characteristics such as the volatility of data changes, network speed and capacity, etc.

Users, given access, will be able to freely query from the files transferred to the client servers. User access will be designed to minimize impacts on HLAN traffic. The data configuration will be current within 24 hours or less and will be consistent at all client server locations. Reports generated from client server locations will be date stamped to distinguish the status of the data at the time the reports are generated.

4.2.3 Trending

The objective of this section of the concept is to provide management with the data that will allow the capability to easily generate trend reports from deficiency and corrective action data. It is not intended that this system become a trend analysis authority as an inherent system characteristic. It currently is, and will continue to be, the responsibility of management to identify, evaluate, and respond to possibly significant trends. This facet of the system will be used as a tool by management and will NOT spontaneously generate and publish trend reports.

Many organizations are already performing trending by downloading data from various sources and then manipulating the data within such applications as Excel. There is no standard, prescribed method in which to perform trending. Trending is time-based (ie: the comparison of data values at various designated time intervals) and is not a snap-shot in time (ie: the status of items at one point in time). Trending, can however, be a series of snapshots taken over a specified period of time. The new system must be designed to provide trending without requiring that the data be downloaded into another automated tool, or requiring special skills and software to produce trend reports. The data storage and archive practices must provide the historical framework to make online trending possible.

Flexibility must be built into the system to allow online user generated trends reporting when desired. Additionally, data will be available for those organizations needing such data to support their own trending programs.

The trending capabilities of the system must provide the following:

- Simple user navigation through the module to encourage its use. The user should be able to operate easily in a window environment through the use of tables and the capability to utilize some ad hoc capabilities.
- Users will be able to select parameters on # of fields and be able to display in several different graphical formats (pie charts, bar charts, tabular formats).
- The system will utilize data periodically copied to various file server locations to calculate standard trends using online trending features. The data will also be available at the file server locations to support each organizations own "in-house" trending programs.

Examples of possible standard trends to be available within the system.

- 1) Percent delinquent on a monthly basis - will include response delinquent and actions delinquent. Will be calculated based on first work day of each month for previous month's total. (For example, data will be downloaded on a predetermined periodic basis, such as monthly - download would occur on August 1, 1997 for July 1997's totals.).
- 2) Basic statuses by month. Could be an area chart that displays in progress, delinquent, and pending verification by month.

- 3) Prioritization by month. Could be an area chart that displays items with a PPG of 0 - 6, 7 - 11, 12 - 25, and greater than 25 by month.
- 4) Aging report for the different statuses, in progress, delinquent, and pending verification. Could sort by responsible organization or originating organization.
- 5) Total number of open items by month. Could add the number opened each month and closed each month.
- 6) Total number of new items added each month and the total number of closures each month. Could do a statistical process control (SPC) layover on the change in inventory each month.
- 7) Could do a chart on the number of items identified by outside organizations versus the number of items identified internally.
- 8) Through the use of the functional area and activity fields, a chart could be created for a select area such as safety. The number of safety items identified by month could then be displayed on a histogram. If there were a prioritization schema is included in the new system for these fields, a primary and then a secondary sort could be done. Then the primary select of safety could then be further broken out by electrical, fall protection, excavation, etc.
- 9) Use a pie chart to display the root causes identified for a specified period of time. Could also utilize a modified histogram.

4.2.4 Security

The system must provide data security measures commensurate with established corrective action management responsibilities and levels of authority. When the ownership of a deficiency is assigned, that individual will have the authority to enter data related to the deficiency or delegate that responsibility to an assigned individual. That person or delegate will maintain the authority to input corrective action status updates and closure throughout except where an independent verification of corrective action is required. When an independent verification is required, only the individual assigned to perform that verification or their delegate will be able to enter verification data. The deficiency item will not be allowed to be closed until the verification stamp has been entered. The specific definition of and performance requirements related to "independent verification" must be defined during the requirements and design detail phases.

General security will be administered to the system with one level of access restriction beyond general access to the HLAN. Access levels within the system will include four levels of users where access will be commensurate with their responsibility and level of authority: 1) "read only" access, 2) data input and edit access, 3) independent verification access, and 4) access to perform system administration functions.

4.3 USER ENVIRONMENT

Users will be able to access the system through standard Hanford Site workstation hardware. A minimum technical specification, including memory, CPU speed, etc. may need to be defined. Menu screens will identify user domains and direct use to appropriate facets of the application. Specific domain characteristics will be defined during detailed requirements and design phases. Examples include: the centralized system administration functions, user data entry and status updates, and ad-hoc and trend reporting from data downloaded to file servers.

4.3.1 System Context:

The Context Diagram illustrates the interaction (information flows) of the proposed deficiency and corrective action management with other site information systems. The dotted line items represent potential interactions with other site systems. The relationship of these systems can be summarized as sharing certain data elements to reduce redundant data input and assure consistency.

2/27/97

System Context

Areas for sharing data for the proposed deficiency tracking system will link to Hanford PEOPLECORE using the same data files containing information about personnel such as phone number, office location, MISN, etc. The proposed new system will link to Hanford CC:Mail which will be used to notify an individual he/she has been tasked to work the corrective action. The archival and retrieval environment will contain deficiency tracking system data for later full text search and retrieval. It will accommodate current as well as closed out deficiency data.

Using a reporting tool that is external to the deficiency, all the data can be queried to produce information that can be manipulated to satisfy a specific request. Queries can be saved for repeated use in the future and/or shared with others who have the same needs.

Trending on the data within the deficiency tracking system can adversely impact others accessing the system. It may be that trending data is downloaded, at an established frequency, stored for time based trends, and accessed transparently to facilitate organizational and/or contractor needs.

The requirement driver is another area for potential interaction. This can aid in tying the deficiency and the corrective action back to the actual law, order, or regulations. Generally contractor policies and procedures are mechanisms that show compliance to and implementation of the requirement drivers.

The corrective action management process has interrelated elements that require coordination and standardization. The deficiency tracking is the tool that supports statusing, tracking, reporting, and trending elements. Standardization of the deficiency data collection and input benefits all of the elements promoting consistency and data integrity.

4.3.2 System Functions:

This section provides a high level perspective of the deficiency identification and corrective action management business process. Some of the business functions referenced are outside the scope of the development of an automated deficiency tracking and reporting system. The function diagram identifies data input source activities, data capture and administration functions, and output reporting functions.

Various audit, inspection, and assessment activities are conducted in accordance with established policies and procedures. A listing of these programs is provided in paragraph 4.4.2 of this document. These oversight activities result in reports that identify deficiencies. This proposal recommends that each of these oversight systems adopt the use of a standardizing checklist/data input form to facilitate consistent data capture while conducting the oversight activity. This will help assure consistent data entry when entering items into the new system. These activities are depicted on the right side of the function diagram.

All deficiencies identified will be evaluated according to a screening criteria to determine if they will be entered into the deficiency tracking system. The detailed criteria, administrative controls, and responsibility for implementation of this screening criteria will be developed during requirements definition. Once this determination is made, the essential data elements will be entered into the system and a record created in the system that represents each deficiency. The essential data elements are depicted in the function diagram moving to the left. Once a record of the deficiency has been entered into the system, a judgement is made determining whether or not corrective action will be required. This determination is represented in the function diagram to the left of the essential data elements. If the deficiency does not require corrective action, the item is listed as closed with no further action required. If the deficiency does require corrective action, additional status related information must be recorded. The proposed new system allows for the option to indicate if independent verification of corrective action is required. The system will automatically trigger a security lock on the item closure field if an independent verification is required. In that case, only the individual designated to provide the independent verification will be able to enter a "verification complete" status. The system will not allow the item to be closed if that status is not entered. If the item does not require independent verification, the system will allow the condition owner to complete all data entries and close the item provided all required data elements have been entered.

The data elements that are shown within the scope of the automated system (to the right of the dotted line) are required to achieve the basic functions and overall purpose of the system (shown to the left): deficiency status tracking, reporting, and trending.

4.3.3 Network Environment

The deficiency tracking system record database files will reside on a dedicated file server connected to the Hanford Local Area Network (HLAN). This file server will be partitioned to include two functional drives. The users' client server environments will interface with the "front end" directory. This front end directory will allow users to interact with a data entry/status update holding area. The record database will reside on the other drive. New data input will be checked for consistency and completeness and moved to the record database by the system administrator.

A full set of data will be copied to the users' client servers at least each day. Users will work from data resident at their client server. New data and status updates will be loaded into the record database daily and subsequently copied to the users' client servers, overwriting the previous

days files. This will require a window of time when user transactions must be complete and access to the system will not be available.

Relational databases such as PEOPLECORE will interface with the central file server and will be managed through automated transactions and actions initiated by the system administrator.

Network Environment

4.4 CONSTRAINTS

4.4.1 Regulations, Procedures, and Policies

A deficiency tracking and trending system is an essential element of the management systems required to comply with the following regulations, procedures, and policies:

10 CFR Part 830.120 (1) © (iii) QUALITY IMPROVEMENT:

"Processes to detect and prevent quality problems shall be established and implemented. Items, services, and processes that do not meet established requirements shall be identified, controlled, and corrected according to the importance of the problem and the work affected. Correction shall include identifying the causes of problems and working to prevent recurrence. Item characteristics, process implementation, and other quality-related information shall be reviewed and the data analyzed to identify items, services, and processes needing improvement."

DOE 5700.6C, CRITERION 3, QUALITY IMPROVEMENT:

"The organization shall establish and implement processes to detect and prevent quality problems and to ensure quality improvement. Items and processes that do not meet established requirements shall be identified, controlled, and corrected. Correction shall include identifying the causes of problems and preventing recurrence. Item reliability, process implementation, and other quality-related information shall be reviewed and the data analyzed to identify items and processes needing improvement."

WHC-CM-1-4, CORRECTIVE ACTION MANAGEMENT MANUAL:

Para. 5.2 TRACKING OF CONDITIONS

"Adverse conditions that require corrective action shall be promptly analyzed, resolved, followed up and tracked to completion."

Para. 5.5 TREND ANALYSIS

"CAMS data shall be analyzed to identify trends that adversely impact quality and to identify opportunities to improve items and processes. Statistically significant trends shall be promptly reported to Senior Management."

WHC-CM-4-2, QUALITY ASSURANCE MANUAL:

QR.16.0, CORRECTIVE ACTION

"1. Conditions adverse to quality, safety or the environment shall be promptly identified, controlled, and corrected as soon as practical. 2. Significant conditions detected shall be evaluated to determine the root cause of the condition and corrective action taken to preclude recurrence."

QI 16.1, TREND ANALYSIS

"Procedures shall be established, maintained, and implemented for the performance of trend analysis."

4.4.2 Interfacing Functions

Capability of the system will be limited by the capability of certain interfacing functions of other systems which are part of the HLAN network, such as PEOPLECORE and SOFT REPORTING.

The ability to sort by organization code, for example, is dependent upon information from PEOPLECORE. SOFT REPORTING provides packaged reports over the network.

Procedural programs in place for the verification of compliance and identification of deficiencies generate the information that will be entered into this system. Each of these programs will be required to provide the essential data field inputs in the correct format as described in paragraph 4.2.1 of this concept document. These programs include but is not limited to:

- Quality Assurance Audits
- Internal Audits
- Quality Assurance Inspections
- Supplier Source Evaluations
- Quality Assurance Surveillances
- Independent Assessments
- Management Assessments
- Radiation Condition Assessments

4.4.3 Existing Limitations

The current status of data standards for facility and other geographical identifiers are not known at this time. Data standards must be complete and uniform throughout the system. This may require the development of additional facility and other standard data identifiers to be used as edit files in the proposed system.

User workstation hardware configurations and file server capacity may not be sufficient to effectively access and fully utilize the proposed system.

4.4.4 Development, Operations and Maintenance

* Development

The existing HATS system must be supported and maintained during the development phase of this system. Open deficiencies at Hanford within the scope of the PHMC will form the initial database for the new system. An evaluation will have to be performed to identify the source/s of these items. This data will have to be reconciled against the requirements of the new system before it is entered. Acceptance criteria for data conversion must be determined by the completion of detailed design. A plan for the transition from the use of existing tracking systems to the new system must be published. The new system will be tested with a sample set of data. Data conversion from the existing deficiency tracking systems will take place after July 31, 1997.

* Operations

The proposed system will be operated from a central file server location and connected with users over the Hanford Local Area Network (HLAN) as described in section 4.3 of this

document. The central files server will be partitioned to: 1) allow users to enter deficiency information and make status updates and 2) to provide the opportunity for a specially trained central organization (system administrator) to check data for consistency and completeness before uploading to the record database. This operational approach will provide users with the most timely method of data entry. This approach should also provide a more robust user interface with most of the initial data entry activity taking place between the users workstation and the users file server. Automated data editors and "pick-lists" will constrain the data entry in some of the required fields. When the entry screen(s) are complete, the user will transfer the new information in a batch mode to the partitioned front end of the central file server database. The system administrator will then make sure the new inputs meet requirements and move the new data to the record database at least daily.

The downloading of data from the record database to file server locations will be performed by the system administrator. This operational scenario will provide the greatest flexibility and freedom to users to generate ad-hoc and trend reports. Data copied to the user file servers will always be current within at least 24 hours of the record database. Users will be able to perform ad-hoc and trend reports without creating unmanageable network traffic or interfering with the activities at the central file server.

Standard reports will be generated by the system administrator and downloaded to HLAN (Soft Reporting) periodically. Database Administrators will be on call during normal working hours.

* Maintenance

System maintenance will be performed at night except when the system requires immediate attention to operate. System maintenance will be performed by the existing computer network support personnel that currently support HATS (Lockheed Martin Hanford).

4.4.5 Acceptance Criteria:

Acceptance Criteria for the system will be based on the outcome of business concept, functional requirement, and detailed design determination. Additional specification of requirements and design detail will be generated as the project progresses. DOE-RL, system Users, and other stakeholders will participate in the further development of requirements and acceptance criteria.

5.0 FEASIBILITY ANALYSIS

5.1 IMPACT ANALYSIS

5.1.1 User/System Impacts

Providing daily downloads of the entire system data items to the users file servers will enhance the users' access to the data and freedom to ad-hoc query and generate reports. This approach, however, will require available space on file servers and may increase network traffic during batch transfer operations. Users have indicated they want the additional freedom offered by this approach. Providing the data at the client server locations is the best way to offer this capability with the least demand on network.

Users must conform to data standards that will be added to the system. Automated data editors will not allow illegal data to be entered into certain fields. Adding mandated input to certain fields will cause a halt (the system will not proceed) until required data is entered. This will require the users to know the values for these fields before they can complete their data entry.

5.1.2 Input/Output Impacts:

The use of facility and geographical data is not being consistently used in source documents that identify deficiencies. Priority planning indicators and causal factor indicators appear to be based on a more established standard. The consistent use and general affectivity of standards for geographical, facility, priority planning, causal factor, and other indicators will impact the ability of the new deficiency tracking system to provide accurate reports. Any external database or data standards must be developed such that they are consistent and reliable.

The availability of the site's personnel information system (PEOPLECORE) is generally believed to be credible and well established. No impacts are anticipated relating this system to the new deficiency tracking system. Data processing aspects for the uses of systems such as SOFT REPORTING are also believed to be well established and no impacts are anticipated. The nature of standard reports will initially be determined during the requirements and design phases of this project but will also be an ongoing administratively controlled activity.

5.1.3 Conversions and Data Sharing

It is expected that data from any other databases that track deficiencies as defined herein will be converted to the new system. This system will have the capability to share data through the HLAN network. Data transferred into the new system will have to be reconciled and conditioned to meet the format and syntax requirements. This may necessitate re-keying the data from hard copy documents.

5.1.4 Compatibility

The system will be designed to be compatible with existing hardware, software, and communications systems at Hanford. Decisions related to a new platform for an integrated site-wide management system are now being considered. If a mandate is made to move all computer automated management systems, including action tracking, to a common integrated computing platform this project will have to be re-evaluated.

5.1.5 Reconciliation

This proposal generally supports Company Statements of Strategy as described in section 3.5 of this document. However the details of the PHMC Information Resource Management (IRM)

strategy has not yet been published and therefore cannot be compared to the details of this project. Efforts will be made throughout this project to coordinate with the PHMC IRM strategy as it becomes available.

5.1.6 Growth

This proposal suggests that all managers be provided with the capability to perform ad-hoc and trend reports. This is expected to increase the active users base. Minimum hardware requirements are anticipated. This may require organizations to update workstation configurations. The cost for such upgrades is not considered part of this project, but may affect user organizations.

No problems are anticipated due to estimated growth in data volumes number of users, or traffic on the HLAN. Both operating and archival data storage can be easily increased with additional hardware. Data items will be transferred from the operational database to an archive three years after the item is closed (requiring no further corrective action). New automated data processing (ADP) technologies may become available in the future. These new technologies may become designated as site standards. This project will proceed based on technical ADP standards currently established for the PHMC. As new technologies become available the cost and benefit of using them for this system will be evaluated and considered for future enhancements.

5.2 ALTERNATIVES

- (1) Redesign the functions of the existing system (HATS) to include the features required by the Performance Agreement as proposed in this concept document.

ADVANTAGES: The system is up and running and is reasonably well understood across the site. System changes could be made incrementally while the system continued to operate. This alternative would be the most likely to be achievable within the time constraints of this project imposed by the performance agreement.

DISADVANTAGES: The Client has not developed full confidence in HATS. This lack of confidence in HATS could work against gaining Client approval of the needed changes. The current platform may not be suited for adapting to an integration of other automated management functions.

- (2) Design and implement a new system that is customized for our unique purposes.

ADVANTAGES: Allows the new management philosophies and policies to be reflected and enforced through a system designed especially for their purpose. Provides for more consistent entry of information. More likely to receive Client approval if perceived to be more user friendly than HATS. This alternative could be directed to use a platform that supports the initiative to integrate site-wide management functions.

DISADVANTAGES: Development problems, inability to secure funding, or user resistance could cause schedule delays that result in not achieving the Performance Agreement on time. This alternative is essentially an entire new development and would probably increase project costs.

- (3) Conduct search for commercially available software that can be adapted for this use.

ADVANTAGES: Simple, low cost systems that could provide the basic needs may be readily available.

DISADVANTAGES: Commercial software may not easily adapt to HLAN use, will likely drive significant changes to existing business processes, and may not meet all of the Client expectations. Source software for commercially available system may not be available and would therefore be more difficult to maintain.

- (4) Evaluate other existing tracking systems at Hanford.

ADVANTAGES: An existing system would already be established on site and loaded with data related to it's defined scope.

DISADVANTAGES: It is likely that an existing system is highly specialized for a specific user and would not easily adapt to the PHMC, consolidated, deficiency tracking requirements.

6.0 REFERENCES

WHC-CM-1-4, *Corrective Action Management*, Westinghouse Hanford Company, Richland, Washington

Fluor Daniel Hanford Co., PHMC Management and Integration Plan, CM-1-PLA-1

Fluor Daniel Hanford Co. Performance Agreement, SM5 ENVIRONMENT, SAFETY AND HEALTH.

Fluor Daniel Hanford Co. Performance Agreement, SM12 INFORMATION RESOURCE MANAGEMENT.

ORDER, DOE 5700.6C, QUALITY ASSURANCE

10 CFR PART 830.120, QUALITY ASSURANCE