

**NORTH DAKOTA  
FULLY AUTOMATED  
CHILD SUPPORT ENFORCEMENT  
SYSTEM  
(FACSES)**

**INDEPENDENT  
VERIFICATION & VALIDATION  
ASSESSMENT REVIEW  
FEBRUARY 24-26, 1999**



**U.S. Department of Health and Human Services  
Administration for Children and Families  
Office of Child Support Enforcement**

# Table of Contents

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EXECUTIVE SUMMARY.....	ii
1. INTRODUCTION.....	1
1.1 BACKGROUND.....	1
1.2 METHODOLOGY .....	2
2. FINDINGS .....	6
2.1 PROJECT PLANNING AND ORGANIZATION .....	6
2.2 PROCESS DEFINITION .....	7
2.3 REQUIREMENTS MANAGEMENT .....	7
2.4 CONFIGURATION MANAGEMENT .....	8
2.5 QUALITY ASSURANCE.....	8
3. RECOMMENDATIONS .....	9
3.1 INDEPENDENT VERIFICATION AND VALIDATION.....	9
3.2 ADDITIONAL STAFFING .....	11
3.3 IV&V MANAGEMENT PLAN .....	11
3.4 PROJECT PLANNING AND ORGANIZATION .....	13
3.5 PROCESS DEFINITION .....	14
3.6 REQUIREMENTS MANAGEMENT .....	15
3.7 CONFIGURATION MANAGEMENT .....	15
3.8 QUALITY ASSURANCE.....	16
APPENDIX A: ACRONYMS .....	17

## EXECUTIVE SUMMARY

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As a result of missing the October 1, 1997 deadline for achieving statewide installation and operation of a comprehensive automated Child Support Enforcement System (CSES) meeting all of the requirements of the Family Support Act of 1988 (FSA88), the North Dakota Fully Automated Child Support Enforcement System (FACES) project became subject to mandatory provisions of Federal regulations at 45 CFR 307.15(b)(10). These provisions require an entity independent of the State Title IV-D agency and of the FACES project management structure to perform Independent Verification and Validation (IV&V) of the FACES project. The Administration for Children and Families (ACF) has the authority under Action Transmittal OCSE-AT-98-26 to grant very limited exceptions to allow a State agency independent of the child support agency and its development project to provide these IV&V services. A preliminary IV&V assessment of the FACES project was conducted by the Federal Office of Child Support Enforcement (OCSE) on February 24-26, 1999. The purpose of the assessment was to determine the extent of IV&V services required on the FACES project. This report presents the findings of our assessment review.

## SUMMARY OF FINDINGS AND RECOMMENDATIONS

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### SCOPE OF REQUIRED IV&V SERVICES

The State must immediately acquire IV&V services for the FACES development project. The IV&V provider who supplies these services shall review and make recommendations on the following areas of the FACES development process as described in Section 3 of this report:

- Project Planning and Organization
- Process Definition
- Requirements Management
- Configuration Management
- Quality Assurance

**IV&V services will be required until such time that North Dakota successfully implements and receives Federal certification of FACES for all requirements of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), as delineated in this report. The acquisition of this "IV&V Service Provider," either through a formal procurement of contract resources or Interagency Cooperative Agreement, will need to commence immediately. To assist the State in this regard, this report's recommendations are structured to present specific IV&V tasks that can be included in the Statement of Work of an IV&V Service Provider. The IV&V Service Provider must supply all plans, reports of findings, and recommendations to ACF Central and Regional Offices at the same time that they are supplied to the State, as specified in 45 CFR 307.15(b)(10)(ii).**

## IV&V SERVICE PROVIDER

**The State must move to begin the identification of requirements for and formulation of a Scope of Work for ongoing IV&V services to the State's FACES project.** It is incumbent on the State to begin the acquisition process for these services now to avoid further schedule delays. Therefore, the State should immediately pursue the identification of potential IV&V resources in-State. If these resources, independent of State's Title IV-D and its umbrella agency, cannot be identified then a contract procurement effort must be initiated. This report has been designed to provide the State with a series of initial recommendations that can be incorporated into a Scope of Work for the project's IV&V Service Provider. To further support the State's IV&V process, OCSE is committed to providing the State with technical assistance in the form of documentation review and recommendations, as needed, to assist the State in the acquisition/procurement of an IV&V Service Provider.

## PRIOR APPROVAL

The Request for Proposals (RFP) and contract (or similar documents if IV&V is performed by another State agency) must be submitted to ACF for prior approval, regardless of the cost or contractual arrangements. The IV&V services contract or agreement with a State agency must include the names and qualifications of key personnel who will actually perform the IV&V services. **For all IV&V activities, the State must submit an Advanced Planning Document Update (APDU) addressing in sufficient detail the IV&V activities and related costs eligible for Federal financial participation (FFP) at the applicable matching rate.**

## IV&V DURATION

**IV&V must be performed at initial activation of the IV&V Service Provider contract or State agency agreement. Thereafter, the IV&V services must be performed semi-annually** until such time that North Dakota successfully implements and receives Federal certification of FACES for all PRWORA requirements. ACF will periodically reevaluate the IV&V scope of work and frequency requirements of FACES based upon project progress or when one or more of the IV&V triggers occurs, as described in 45 CFR 307.15(b)(10)(i), such as failure to meet a critical Advanced Planning Document (APD) milestone.

# INDEPENDENT VERIFICATION AND VALIDATION (IV&V) ASSESSMENT REVIEW REPORT FOR THE NORTH DAKOTA FACES PROJECT

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## 1. INTRODUCTION

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The State of North Dakota missed the October 1, 1997 deadline for achieving Federal certification for system modification to meet the requirements of the Family Support Act of 1988 (FSA88). ACF, as a result, conducted an IV&V Assessment Review including an assessment of the current documentation of the FACES system, as well as historical data on the project. The purpose of the assessment was to enable ACF to make recommendations on the extent of the IV&V services that the State will be required to obtain. This report provides the results of that assessment. The scope of effort identified by the IV&V Assessment Team at the conclusion of its February 1999 visit was based solely upon the team's initial evaluation of the on-site data presented by the State, whereas the findings and recommendations of this final report reflect the on-site visit and subsequent review and analyses of all documentation forwarded by the State.

### 1.1 BACKGROUND

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ACF conducted a site visit to help determine the required scope of IV&V for FACES on February 24-26, 1999 at the FACES development office in Bismarck, North Dakota. The IV&V assessment team consisted of:

Gail Pineda	ACF/Region VIII
Rosanne Robinson	ACF/Region VIII
Stan Slominski	Marconi Systems Technologies

Personnel from the North Dakota Department of Human Services' (DHS) Child Support Division and Information Management Division (IMD), and the North Dakota Information Services Division (ISD) participated for the State. The State representatives consisted of:

Mike Schwindt	IV-D Director
Pat Conrad	FACES Administrator
Dave Emerson	DHS/IMD
Roger Hertz	DHS/IMD
Dave Eckenrode	ISD

## **1.2 METHODOLOGY**

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Prior to the assessment review a list of IV&V related materials and questions were forwarded to the FACSES Administrator, Ms. Pat Conrad, to assist FACSES project staff in understanding the types of items and information the IV&V assessment team would be looking at during its visit. The assessment consisted primarily of a question and answer period for each of the following major areas of interest: management review, system overview, requirements management, software design and code, testing, configuration management, quality assurance, system security, and training. State staff provided more detailed information on these primary areas during the discussions.

A list of documentation and historical data needed to support areas of discussion during and after the review was generated, finalized and agreed to by the State and IV&V assessment team during the on-site review. This initial list of documents, to be forwarded to the Office of Child Support Enforcement (OCSE) for examination, is identified in Table 1. During the process of reviewing the initial list of documents, additional data was requested from and provided by the State to assist the assessment team with its review. This data was in the form of written responses to assessment team questions, State updates to initially forwarded documents, and other amplifying data requested by the assessment team. Recommendations resulting from the on-site visit and subsequent analyses of all forwarded documentation is included in Section 3 of this report.

**Table 1. FACES Documents Reviewed**

No.	Document Description	Originator	Document Date	Date Provided/ Updated
1	Organizational Chart of CSEA	ND DHS	11/1/98 + pen & ink changes	3/1/99 & 6/24/99
2	Organizational Chart of FACES Unit (w/ education, experience, & job duties)	FACES & ND DHS	Chart – no date (Other) – 12/98-1/99	3/15/99
3	Organizational Chart of IMD	ND DHS IMD	1/4/99	3/8/99
4	Organizational Chart of ISD	ISD	10/98	3/25/99 & 6/24/99
5	Organizational Chart of DHS (high level showing relationship of CSEA & IMD to overall organization)	ND DHS	12/17/98	3/15/99
6	Conceptual Design of FACES Support Unit	FACES	Original – Summer 1995 Updates noted – 3/1/99	3/1/99 & 6/24/99
7	Unit descriptions in CSEA	FACES	Original – May 1996 Updates noted – 3/1/99	3/1/99 & 6/24/99
8	Description of external interfaces (IMD, ISD, Clerks of Court, etc.)	FACES	No date – Generated 4/13/99 for IV&V documentation	4/13/99
9	New Cooperative Agreement	ND DHS CSEA	Sample – 2/99	3/8/99
10	Sample of other Cooperative Agreements – list of all in effect	ND DHS	1/93 – 2/99	3/15/99
11	Flowchart of System Design Process; samples of the following:	FACES	No date	3/25/99 & 6/24/99
11A	• Requirements Analysis	ND CSE	1/91	3/1/99 & 6/24/99
11B	• General System Design	ND CSE	6/91	3/1/99 & 6/24/99
11C	• Detailed System Design (non-technical write-up)	ND CSE	7/28/98	3/1/99 & 6/24/99
11D	• Detailed System Design (technical write-up)	ISD	2/25/99	3/1/99
11E	• Acceptance Test Design Procedure	FACES	No date	3/25/99 & 6/24/99
11F	• Acceptance Test Examples	FACES	No date	3/25/99
11G	• Acceptance Test Problem Reporting Methodology	FACES	8/98	3/25/99
11H	• Example of Simple Fix (describe how/when used and how filed)	FACES	3/19/99	3/25/99
11I	• Example of Change Request (describe how/when used + show logging system)	FACES	2/99	3/15/99 & 6/24/99
11J	• Sign-off Documentation	FACES	1/25/99	3/25/99

**North Dakota FACSES IV&V Assessment Review Report**

<b>No.</b>	<b>Document Description</b>	<b>Originator</b>	<b>Document Date</b>	<b>Date Provided/ Updated</b>
12	List of communication w/ system users; examples of each for the following:	FACSES	4/92 – 4/99	4/13/99
12A	<ul style="list-style-type: none"> <li>Regional Offices</li> </ul>	FACSES	4/92 – 4/99	4/13/99
12B	<ul style="list-style-type: none"> <li>Clerks of Court</li> </ul>	FACSES	4/92 – 4/99	4/13/99
13	Complete FACSES User Manual (as issued to date)	FACSES	3/99	3/1/99 & 3/15/99
14	FACSES Task Lists (former & current)	FACSES	3/22/99 (current) 6/30/98 (former)	3/25/99
15	DHS H/W and S/W Standards	ND DHS	No date	3/8/99 & 6/24/99
16	H/W Configuration Diagram	ND DHS	No date	3/1/99
17	S/W Development Tools and S/W used	ISD	No date	3/1/99 & 6/24/99
18	S/W Standards Manual	ISD	Varies by Section	3/1/99, 6/24/99 & 7/9/99
19A	APD Chapters on modules that have been implemented (project history) – APDU dated March 1998	FACSES	3/98	3/1/99
19A	Child Support Enforcement System (FACSES) Summary of Events	FACSES APDU	3/98	3/8/99
19B	APD Chapters on modules that have been implemented (project history) – As Needed APDU dated November 1998	FACSES	11/98	3/1/99
19B	History of the Development of FACSES	FACSES	2/97	3/8/99
20A	Control Report example and description (Monitor Income Withholding Control Report)	FACSES	2/11/99	3/1/99 & 6/24/99
20B	Control Report example and description (Complete Set of Control Reports)	FACSES	2/25/99	3/1/99
21	Test Plan Procedures (from Unit Testing to Integrated Systems Test)	FACSES	2/25/99	4/13/99 & 6/24/99
22	Librarian method of monitoring system updates	ISD	3/17/99	3/25/99
23	Developer Training Outline	FACSES	No date	3/1/99 & 6/24/99
24	ISD's Training Plan	ISD	No date	3/1/99 & 6/24/99
25	S/W Development Process Outline	ISD	Varies by Section	See #18
26	Document describing 3 Regions and how to control transfer of S/W from one level to the next.	ISD	No date	3/1/99, 4/13/99 & 6/24/99
27	Security Plan (ISD back to FACSES); how to	IMD/ ISD/	No date	3/25/99 &



*North Dakota FACES IV&V Assessment Review Report*

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<b>No.</b>	<b>Document Description</b>	<b>Originator</b>	<b>Document Date</b>	<b>Date Provided/ Updated</b>
	determine access; who does, etc.	FACES		6/24/99
28	ISD's Backup Plan	ISD	No date	4/13/99 & 6/24/99
29	User Sign-on & Passwords (description)	ND DHS	No date	3/25/99 & 6/24/99
30	Agenda for current training curriculum	FACES	2/1/98	3/1/99
31	One module from current training curriculum	FACES	No date	3/1/99
32	Handouts from current training curriculum	FACES	No date	3/1/99
33	Evaluation Form used for current training	FACES	Varies	3/1/99
34	Future Training Schedule	FACES	3/7/99	3/8/99

## **2. FINDINGS**

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The findings in this report are based on the discussions held with State staff during the site visit on February 24-26, 1999 and upon review of the FACSES documentation. This report intentionally does not assess past performance except where applicable to current project status. The focus of this report is on what needs to be accomplished by the State to ensure future project success.

### **2.1 PROJECT PLANNING AND ORGANIZATION**

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North Dakota's FACSES personnel are highly motivated to prepare for and request a federal FSA88 certification review for FACSES by September 30, 1999. The IV&V assessment team, together with the ACF Central and Regional Offices are keenly aware of and appreciate the fact that a primary reason for North Dakota not meeting FSA88 system certification requirements in a timely manner was that funding of the necessary resources for developing the system was not available to the project early-on in the effort, nor at those times when it was most needed. With limited project funding and a relatively small FACSES staff turnover rate, there has been little incentive for the project to formally document processes, implement requirements traceability procedures, or institute the use of rigorous Quality Assurance (QA) and Configuration Management (CM) protocols.

The FACSES project has no risk management procedures established to ensure that risks are identified, analyzed, and mitigated. The FACSES development team is comprised of a relatively small number of State employees who have worked together on the project for many years. A significant portion of the project's experience base is held by only a few key staff members. There appeared to be little or no emphasis on staff cross-training, as a risk management effort, to minimize the potential impact to the project of personnel (especially key personnel) permanently leaving the project.

A review of the FACSES cost/schedule estimating history provided by the State indicated the project appeared to repeatedly underestimate staffing requirements as identified in its justifications for cost/schedule revision. Staffing projections developed by the State during the Analysis and Design phases of the project also appear severely underestimated. For example, based on an identified increase in requirements, indications suggest that significantly more support was required to complete the project within the projected schedule.<sup>1</sup>

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<sup>1</sup> [e.g., refer to ISD Original and Revised Cost/Time Estimates dated March 15, 1990 (for period covering July 1990 to October 1995); August 24, 1992 (for period covering August 1992 to June 1994); and September 16, 1993 (for period covering September 1993 to October 1995)].

Project management currently has a Task List (a simple table) to track unfinished FACSES modules. Previously (prior to June 30, 1998), a project management software package was used to track all phases of FACSES development.

The FACSES organizational structure has no formal and documented support for an independent QA and/or CM function.

## **2.2 PROCESS DEFINITION**

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The FACSES project office provided a high-level outline of the process being followed when designing any module of FACSES (refer to Table 1, Document #11). The project office also provided the ISD Design and Programming Standards document (refer to Table 1, Document #18) as an example of the process followed by ISD for State projects that its personnel support. The ISD Design and Programming Standards document provides a detailed description of the processes and deliverables for all phases of a project's development, including checklists, forms, sign-offs, etc., with samples and procedures for completion of each.

The project provided sample evidence to demonstrate that FACSES has been developed in accordance with the process defined in the ISD Design and Programming Standards document. This evidence included samples of most ISD deliverables, identified by development phase, as defined in the standards document. Samples of deliverables not provided were identified as either not done for FACSES or unable to locate [e.g., ISD Project Life Cycle Checklists (unable to locate), Gantt charts (not done), Impact of Project Change ISD70 forms (revised cost estimates used), Project Assurance Review Document (unable to locate), and Function Control Graphs (not done)].

After reviewing the documentation provided it was concluded that a single, CM-controlled description of the development process for FACSES does not exist and needs to be developed/formalized.

## **2.3 REQUIREMENTS MANAGEMENT**

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The FACSES team produced a Requirements Analysis Document in January 1991. This document was the basis for the FACSES General System Design (GSD) produced in June 1991. Both documents provide a sufficient level of detail and sufficient definition of FACSES requirements as of 1991. However, there is no evidence that either of these two documents is actually a "living" document instead of a "one-time" document of FACSES requirements.

Good requirements traceability makes it easier to determine if a change has been completely implemented. It also makes it easier to determine the testing and documentation impact of proposed changes. FACSES provides a "backward" traceability for each section of the GSD to a Requirements Analysis Document requirement and for each section of the Detailed Design to a

GSD requirement. However, FACSES has no overall traceability (backward and forward) of software requirements through design, code and test phases that demonstrates that all FACSES requirements have been implemented and tested.

There is no formal configuration control of FACSES requirements to ensure that all requirement changes are incorporated into final design documents. A result of this project management approach is that additional system changes, to accommodate new requirements, become increasingly more difficult to implement, with the outcome of each change becoming less predictable in terms of its impact on the overall project schedule, budget, and staffing resources.

## **2.4 CONFIGURATION MANAGEMENT**

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The FACSES project has a viable process and tools in place (e.g., ISD's use of Computer Associates' CA-Librarian product) to track and archive changes made to programs that are in production. However, the process that is in place for maintaining FACSES development documents (e.g., requirements, design, code, test, etc.) is undocumented and too informal for a project of this size, complexity, and projected operational life.

Configuration management for the system utilizes three methods for documenting and tracking FACSES problems and changes:

- The "FACSES Problem Log" -- used to forward small problems to ISD to be fixed;
- The "ISD Work Request" -- used when a change is required to a FACSES function that is already in production; and
- The "Acceptance Test Problem Report" form -- used to identify anomalies between expected and actual acceptance test results.

The FACSES project has no formal documented process for the completion, use, and tracking of these control methods and associated documentation (memos, work request lists, project acceptance forms, etc.). There is no formal CM plan or procedures that provide a written description of the CM process.

## **2.5 QUALITY ASSURANCE**

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The FACSES project currently has no Quality Assurance (QA) staff or QA organization and no formal QA plan or procedures.

### 3. RECOMMENDATIONS

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The following recommendations are presented herein based upon the on-site review by the IV&V assessment team on February 24-26, 1999 and analyses of the State's FACES project documentation following the on-site portion of the review.

#### 3.1 INDEPENDENT VERIFICATION AND VALIDATION

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The State must acquire Independent Verification and Validation services in accordance with 45 CFR 307.15(b)(10). These services can be obtained from a contractor via an RFP or from an independent State agency. If a contractor is used, the RFP and contract must be submitted to ACF for prior approval, regardless of the cost or thresholds. The contract must include the names, experience, and skills of key personnel who will actually perform the IV&V analyses. If IV&V is performed by another State agency, similar, equivalent documentation must be submitted, usually taking the form of a detailed Interagency Cooperative Agreement. **The State must then submit an Advance Planning Document Update (APDU) describing in sufficient detail, the prescribed IV&V activities, work products, and costs eligible for Federal financial participation.**<sup>2</sup>

This IV&V activity should describe the level of IV&V services to be provided, consisting of an initial review at contract (or State agency agreement) activation and semi-annual reviews to monitor the overall status and management of the project's development effort. Many aspects of this level of IV&V services are briefly described below, and will be further defined by the State and its IV&V Service Provider. **The IV&V Service Provider must supply all plans, reports of findings, and recommendations to ACF Central and Regional Offices at the same time that they are supplied to the State (including draft documents submitted for comment), as specified in 45 CFR 307.15(b)(10)(ii).**

#### INITIAL AND SEMI-ANNUAL IV&V REVIEWS

An initial (at contract or State agency agreement activation) and semi-annual IV&V reviews shall be required to ensure the project is on schedule and requirements are being met for Federal certification. The frequency and task level of these reviews will be defined in the IV&V Management Plan. The initial and semi-annual reviews will require the IV&V Service Provider to assess system development in areas including, but not limited to, the following:

- a) Analyze project management and organization, evaluate project progress, resources, budget, schedules, work flow and reporting.
- b) Review and analyze project management planning documents.

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<sup>2</sup> IV&V services are eligible for reimbursement at the regular (66 percent) rate of Federal financial participation.

- c) Review and analyze project software development documents.
- d) Review and analyze processes to ensure they are being documented, carried out, and analyzed for improvement.
- e) Assess the project's CM function/organization by reviewing its reports and making recommendations regarding appropriate processes and tools to manage system changes.
- f) Monitor the performance of the QA function/organization by reviewing its reports and performing spot checks of system documentation.
- g) Assess the project's risk management plan and make recommendations regarding organization, processes, policies, and overall effectiveness of the plan to identify, analyze, and mitigate potential project risks.
- h) Assess and recommend improvement, as needed, to assure software testing is being performed adequately through review of test plans or other documentation and through direct observation of testing where appropriate, including participation in and coordination of peer reviews.
- i) Report on the State's efforts to address the findings and recommendations from this IV&V Assessment Review Report.

Some of the above tasks may be assigned to the State's QA function/organization. In that case, the IV&V Service Provider would be responsible for ensuring these tasks are being performed through the review of QA products and reports.

The initial and semi-annual IV&V reviews of system development in the following areas are not currently required for the FACSES project. However, the State is advised to select an IV&V Service Provider with the appropriate technical skills and resources available to support such reviews should they become necessary as a result of significant findings during the semi-annual IV&V reviews.

- a) Assess and recommend improvement, as needed, to assure continuous stakeholder buy-in, support and commitment, and that open pathways of communication exist among all stakeholders.
- b) Assess and recommend improvement, as needed, to assure lines of communication between project staff and State management are in place and engaged.
- c) Assess and recommend improvement, as needed, to assure appropriate user and developer training is planned and carried out.
- d) Assess and recommend improvement, as needed, to assure maintenance of a data center, including data center input to the project regarding operational and maintenance performance of the application.
- e) Review and analyze system capacity studies.

- f) Review system hardware and software configuration and report on any compatibility and obsolescence issues.
- g) Develop performance metrics, which allow tracking of project completion against milestones set by the State.

### **FULL TECHNICAL IV&V REVIEWS**

Full technical (software and hardware) IV&V reviews are not currently required for the FACSES project. However, the State is again advised to select an IV&V Service Provider with the appropriate technical skills and resources available to support such reviews should they become necessary as a result of significant findings during the semi-annual IV&V reviews, such as a need to assess application performance or system capacity issues. These reviews may also be initiated by the State to give it assurance that the project's code base, documentation, etc., is in good shape and to identify and address any problems before they become unmanageable. Full technical IV&V reviews may include, but not be limited to the following areas of review for remediation and elimination of deficiencies:

- a) Perform a detailed review of the system documentation (Requirements, Design, Training, Test, Management Plans, etc.) for accuracy and completeness.
- b) Perform a detailed review of the software architecture for feasibility, consistency, and adherence to industry standards.
- c) Inventory and review the application software for completeness and adherence to programming standards for the project.
- d) Review the traceability of system requirements to design, code, test, and training.
- e) Analyze application, network, hardware and software operating platform performance characteristics relative to expected/anticipated/contractually guaranteed results and industry standards/expectations.

### **3.2 ADDITIONAL STAFFING**

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In addition to acquiring the Independent Verification and Validation services identified in Section 3.1, it is recommended that the State perform a detailed assessment of its need to procure additional technically qualified staffing resources (Contract or State staff) to support the recommendations/requirements to formally document the FACSES software development process, CM and QA plans, procedures and processes etc., identified in Section 3. The milestone steps required to procure these staffing resources should be included in the State's IV&V Management Plan submissions discussed in Section 3.3, as appropriate.

### **3.3 IV&V MANAGEMENT PLAN**

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Many of the recommendations contained in this report are presented to the State in the form of general requirements for the State to incorporate into what this report refers to as an “IV&V Management Plan”.<sup>3</sup> These recommendations are intended to assist the State in creating and refining an acquisition/procurement document's Scope of Work for the eventual solicitation of an IV&V Service Provider. If the IV&V Service Provider is to be a State agency, the IV&V Management Plan, incorporating these recommendations, will be jointly constructed as part of an Interagency Cooperative Agreement defining the roles and responsibilities between the Title IV-D agency and the State agency serving as the IV&V Service Provider. OCSE is committed to providing technical assistance in the form of documentation review and recommendations, as needed, to assist the State in the development of its Interagency Cooperative Agreement or Statement of Work for the acquisition of the IV&V Service Provider.

Figure 1. presents an estimated timeline representing an appropriate order for the major milestones in the FACES IV&V procurement phase, from the issuance of this report through to the IV&V Service Provider being brought onboard to completion of the IV&V Management Plan. The State should use this estimated timeline as guidance in the development of its initial IV&V Management Plan, that will be part of the update to the State's November 1998 As-Needed APDU, and subsequent updates to this plan. A more accurate Critical Milestone Schedule (Figure 1) developed by the State for inclusion in its IV&V Management Plan should reflect and be consistent with North Dakota's procurement processes and timeframes. If an expedited procurement process is an option for the State, the expedited process should be seriously considered for the FACES IV&V procurement. The IV&V Management Plan should be reviewed and updated once the IV&V Service Provider is selected and onboard. This revised and finalized IV&V Management Plan should be one of the first IV&V Service Provider deliverables and should reflect any schedule changes consistent with the IV&V Service Provider's detailed Technical Proposal to the State's IV&V solicitation document.

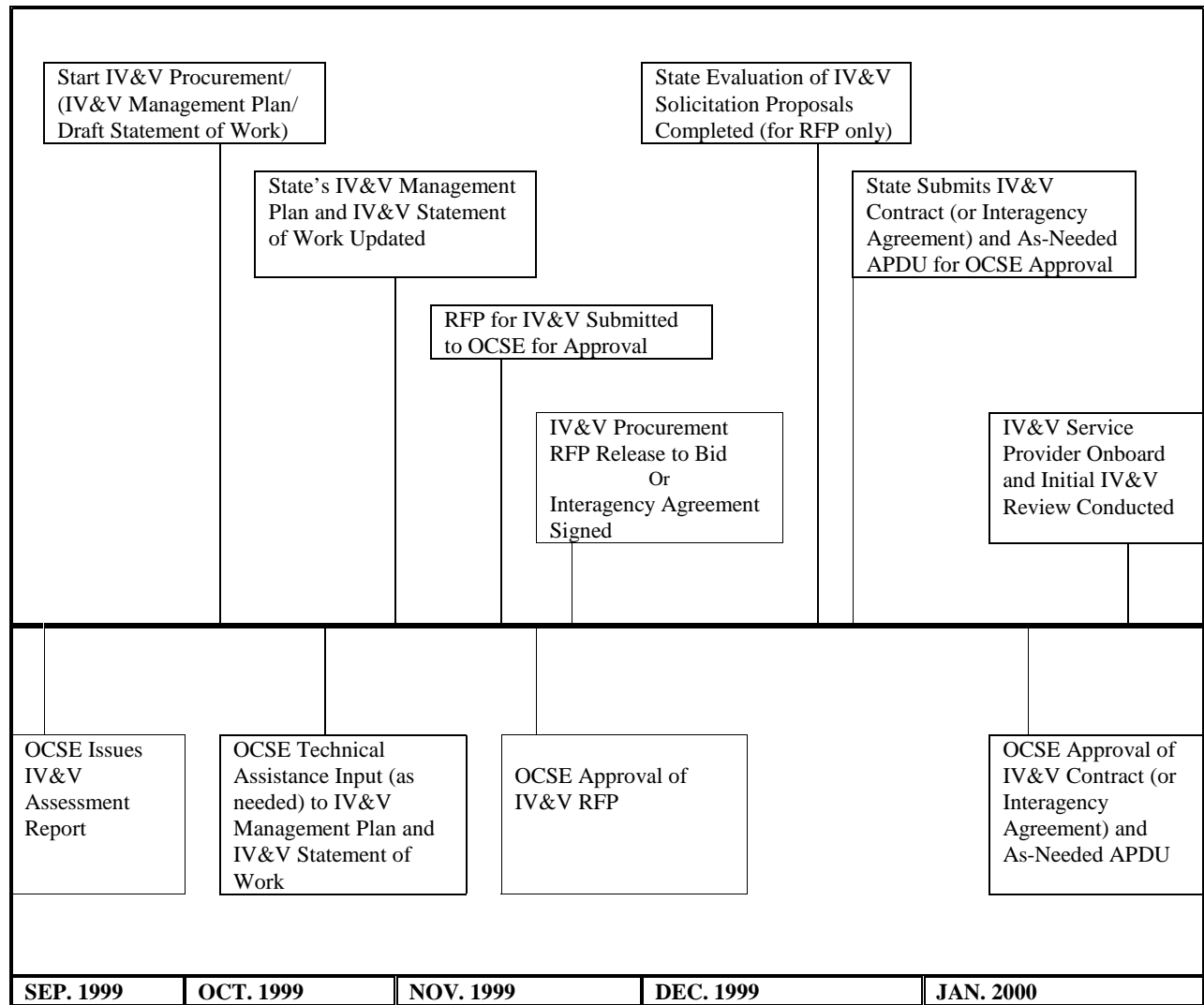
If the FACES Project does not meet the State-provided, OCSE-reviewed/approved milestones the project might then be subject to additional IV&V monitoring. ACF will periodically reevaluate the IV&V scope of work and frequency requirements of FACES based upon project progress or when one or more of the IV&V triggers occurs, as described in 45 CFR 307.15(b)(10)(i), such as failure to meet a critical Advanced Planning Document (APD) milestone."

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<sup>3</sup> The need for an IV&V Management Plan, beyond its use as a basis for a Scope of Work for an IV&V Service Provider (whether contract or State agency) is as a detailed plan of action for periodic independent reviews of the FACES project's critical development and implementation phase milestones and deliverables. In addition, it serves as vital documentation to the State's required update to its As-Needed Advance Planning Document Update dated November 24, 1998.



**Figure 1. Estimated Critical Milestones Schedule in FACSES IV&V Procurement**



### 3.4 PROJECT PLANNING AND ORGANIZATION

The State must take all required steps to ensure that adequate funding and resources are sufficiently available to the FACSES project to enable completion of all Federal and State system requirements in accordance with mandated schedules and timeframes.

The State must develop and execute a FACSES risk management strategy/plan to identify, categorize, analyze, and mitigate project risks.<sup>4</sup> The IV&V Service Provider should evaluate the FACSES risk management strategy/plan when developed, and make recommendations regarding organization, processes, policies, and overall effectiveness of the plan to identify, analyze, and mitigate potential project risks.

It is recommended that the State secure the services of a technical management consultant having significant experience in the successful development and implementation of large, complex software projects comparable to FACSES. It is recommended that these services be used to assist the State in evaluating current and future FACSES tasking and project staffing requirements. The IV&V Service Provider should review and verify that FACSES staffing profiles are reasonable and justified with respect to the tasking for which they are developed, and make recommendations on how to resolve identified staffing deficiencies within the project, including recommendations on resource estimation methodology.

It is recommended that the State utilize any of a number of commercially available project management software packages (as was previously used by FACSES) for both current and future project tasks, such as PRWORA requirements implementation.

The IV&V Service Provider should verify that the FACSES organizational structure adequately supports independent QA and CM of the project and should make recommendations, where appropriate, to ensure the implementation of these functions.

### **3.5 PROCESS DEFINITION**

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The State must ensure that all FACSES development processes are fully and formally documented (e.g., in a Software Development Plan or similar document), approved and controlled in accordance with formally documented CM procedures. The State must also ensure that only a single, CM-controlled description of these processes exists for the FACSES project.

The IV&V Service Provider should:

- Review and make recommendations on all defined processes and product standards associated with the system development;
- Verify that only a single, CM-controlled description of all major development processes exists and that the defined and approved processes and standards are adhered to in development;

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<sup>4</sup> During the site visit of February 1999, the IV&V assessment team recommended that FACSES management attend a Risk Management Workshop similar to one sponsored by the State Information Technology Consortium (SITC), and taught by Software Productivity Consortium (SPC) personnel.

- Verify that all processes and standards are compatible with each other and with the system development methodology, and make recommendations on how to resolve all identified incompatibilities; and
- Verify that all process definitions and standards are complete, clear, up-to-date, consistent in format, and readily available to project personnel, and make recommendations on how to resolve deficiencies that are identified.

### **3.6 REQUIREMENTS MANAGEMENT**

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The IV&V Service Provider should verify that all software requirements can be traced (backward and forward) through the design, code and test phases to ensure that the system performs as intended and contains no unnecessary software elements. For those areas where weaknesses are identified, the IV&V Service Provider should provide detailed recommendations for improvement. These recommendations should, at a minimum and as required, include such aspects as organizational control, resources, and process models. The feasibility of a requirement traceability matrix or similar requirements management method should be evaluated and instituted by the State and verified by the IV&V Service Provider. The IV&V Service Provider should verify that FACES requirements are under formal configuration control.

### **3.7 CONFIGURATION MANAGEMENT**

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The State must ensure that a formal CM plan and associated procedures are developed and implemented for the FACES project.

The IV&V Service Provider should:

- Review and evaluate the CM plan and procedures associated with the FACES development process;
- Make recommendations to manage and ensure that all critical development documents, including but not limited to those associated with requirements definition, design, code, test, etc., are developed and maintained under an appropriate level of configuration control;
- Make recommendations for appropriate processes and tools to manage system changes, including formal logging of change requests, and to ensure the review, prioritization and timely scheduling of maintenance actions; and
- Review the use of CM information (such as the number and type of corrective maintenance actions over time) by project management for trend analysis or other appropriate management indicators.

### **3.8 QUALITY ASSURANCE**

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The State must ensure that an independent QA organization is established to monitor the fidelity of all defined processes in all phases of the FACES project. The State must also ensure that the QA organization develop and implement a formal QA plan, and that associated procedures are also developed and implemented for all phases of the project.

The IV&V Service Provider should:

- Evaluate and make recommendations on the project's QA plan, procedures and organization;
- Evaluate the QA organization to verify that the organization has an appropriate level of independence from project management, and that the QA organization appropriately monitors the fidelity of all defined processes in all phases of the project; and
- Provide recommendations to ensure that formal review and sign-off processes are used to monitor the quality of all products produced by the project, including the use of periodic self-evaluations to improve the process.

## **APPENDIX A: ACRONYMS**

ACF	Administration for Children and Families
APD	Advanced Planning Document
APDU	Advanced Planning Document Update
CA	Computer Associates
CFR	Code of Federal Regulations
CM	Configuration Management
CSE	Child Support Enforcement
CSEA	Child Support Enforcement Agency
CSES	Child Support Enforcement System
DHS	Department of Human Services
FACSES	Fully Automated Child Support Enforcement System
FFP	Federal Financial Participation
FSA88	Family Support Act of 1988
GSD	General System Design
H/W	Hardware
IMD	Information Management Division
ISD	Information Services Division
IV&V	Independent Verification and Validation
ND	North Dakota
OCSE	Office of Child Support Enforcement
PRWORA	Personal Responsibility and Work Opportunity Reconciliation Act
QA	Quality Assurance
RFP	Request for Proposals
SITC	State Information Technology Consortium
SPC	Software Productivity Consortium
S/W	Software