E. Test Results: Provisioning Verification (O&P-5)

1.0 Description

The objective of the Provisioning Verification Test (O&P-5) was to perform a comprehensive review of BellSouth's ability to accurately and expeditiously complete the provisioning of Competitive Local Exchange Carrier (CLEC) orders. The test incorporated orders submitted through both the Telecommunications Access Gateway (TAG), tested in (O&P-2), and Electronic Data Interface (EDI), tested in (O&P-1) interfaces. This analysis focused on electronically ordered Unbundled Network Elements (UNEs) and on types of orders that require physical provisioning.

The Provisioning and Verification Test verified that orders submitted were properly provisioned, were completed within the pre-defined BellSouth intervals, and followed BellSouth methods and procedures for provisioning. This evaluation included orders supplemented and cancelled, as well as those submitted with anticipated errors in order to test the impact on provisioning.

For selected scenarios, specifically UNE-Loop orders with local number portability (LNP), involvement of CLECs operating in Georgia was solicited to incorporate the use of their facilities¹, as well as to enhance the "real world" nature of the test. Through interviews, the CLECs were also asked to provide information regarding their experiences with provisioning.

2.0 Methodology

This section summarizes the test methodology.

2.1 Business Process Description

The provisioning process begins once the Service Order Control System (SOCS) produces a complete and accurate service order². The process for provisioning is determined by the type of service order (designed or non-designed). Once SOCS receives the order information, it is transmitted to the Service Order Analysis & Control System (SOAC). SOAC determines which downstream assignment and control systems require information necessary to complete order provisioning based on information contained in the service order.

There are four sub-processes associated with provisioning:

Order Assignment: Orders requiring cable pair assignments are routed to the Loop Facility Assignment Control System (LFACS) or are manually assigned

² See Section V, "Ordering & Provisioning Overview" for a complete description of the ordering process.



¹ The KCI CLEC did not utilize its own switch or facilities.

through the Address Facilities Inventory Group (AFIG). LFACS feeds appropriate downstream systems based on the service work assignment.

<u>Order Design</u>: This sub-process includes all circuit design activities. Orders for designed circuits are routed to the Trunks Integrated Record Keeping System (TIRKS) for automated design model matching, or are manually assigned by the Circuit Provisioning Group (CPG).

<u>Service Work</u>: This sub-process begins once the order assignment and design information is received by the various BellSouth Service Centers (i.e. Work Management Center [WMC] utilizing Work Force Administration [WFA] systems) for service work (i.e., implementation and testing of service). Service work is final once the service center systems are updated with work completion information.

<u>Provisioning Completion</u>: This sub-process begins once the service completion information is received by WFA – Control (WFA-C) for designed services, or by the Line Maintenance Operations System (LMOS) for non-designed services. Provisioning is complete once completion notice information is sent to SOCS and WFA, and billing information has been sent to either the Customer Records Information System (CRIS) or the Carrier Access Billing Systems (CABS).

The BellSouth UNE Center is the focal point for UNE conversions, including UNE analog loops and UNE ports. Specifically, the coordination center is responsible for all provisioning activity involving plain old telephone service (POTS), as well as special service circuits for UNE products, Interim Number Portability (INP), and Local Number Portability (LNP).

CLECs have the opportunity to choose from the following three types of analog loop conversions:

- Non-coordinated Loop conversion occurs on a specific frame due date, with no coordination required from the BellSouth UNE Center.
- Coordinated non-time specific Loop conversion occurs on a specific frame due date and is coordinated with the BellSouth UNE Center prior to the conversion. The BellSouth UNE Center coordinates conversion between the CLEC customer and a Central Office technician(s).
- Coordinated time specific Loop conversion is performed at a specific frame due date and time. The BellSouth UNE Center coordinates conversion between the CLEC customer and a Central Office technician(s).

The provisioning process begins once BellSouth's UNE Center provisioning systems receive local service requests (LSRs). For coordinated analog loop conversions and port orders, a coordinator at the UNE Center verifies the order



and places a call to the CLEC to obtain concurrence. During actual provisioning of a coordinated order, the UNE Center directs the relevant BellSouth provisioning organizations, including the Central Office technician and Recent Change Management Administration Group (RCMAG) switch translation personnel, through the process. Following provisioning, the UNE Center then places another call to the CLEC to confirm completion and obtain acceptance of the ordered service installation.

2.2 Scenarios

Scenarios for this test can be found in Section 2.2 of O&P-1 EDI Functional Test and O&P-2 TAG Functional Test.

2.3 Test Targets & Measures

The test target was the provisioning of UNEs ordered through the EDI and TAG interfaces. Sub-processes, functions, evaluation criteria and associated test cross-reference numbers are summarized in the following table. The last column "Test Cross-Reference" indicates where the particular measures are addressed in section 3.1 "Results & Analysis."

Table V-5.1: Test Target Cross-Reference

Sub-Process	Function	Evaluation Criteria	Test Cross-Reference
Receive Completion Notification	Receive completion notification transaction	Timeliness of Response Completeness of Data Accuracy of Response	O&P-1-2-4, O&P-1-3-4, O&P-2-2-3, O&P-2-2-4
	Match response to order transaction and confirmation	Provisioning Validation	O&P- 5-1-1
	Verify timeliness of completion	Provisioning Timeliness of Response/ Completion	O&P- 5-1-1
Support Provisioning Process	Perform provisioning activity accurately	Provisioning Accuracy Procedural Adherance OS/DA Accuracy	O&P-5-2-1, O&P-5-2-2, O&P-5-2-3, O&P-5-2-4, O&P-5-2-5, O&P-5-2-7
	Confirm provisioning on orders requiring coordination	Provisioning Coordination Procedural Adherence	O&P-5-2-3, O&P-5-2-4
	Manage provisioning process	Provisioning Accuracy Procedural Adherence	O&P-5-2-1, O&P-5-2-2, O&P-5-2-3, O&P-5-2-4, O&P-5-2-5, O&P-5-2-6, O&P-5-2-7



Sub-Process	Function	Evaluation Criteria	Test Cross-Reference
BellSouth Provisioned Service	BellSouth provisioning methods and procedures	Procedural Adherence	O&P-5-2-4, O&P-5-3-1, O&P-5-3-2, O&P-5-3-3, O&P-5-3-4, O&P-5-3-5, O&P-5-3-6,

2.4 Data Sources

The data collected for the test are summarized in the table below. The data analyzed for this report include test results collected through January 2, 2001.

Table V-5.2: Data Sources for Provisioning Verification Test

Document	File Name	Location in Work Papers	Source
UNEC/CLEC Timing for Acceptance, MARCH input, and Completion Policy JA-UCTA-001 Issue 1, October, 1999	No Electronic Copy	O&P-5-A-2	BLS
SD/MA Policy Interconnection Services UG-SDMA-001 Issue 2a, September, 1999	No Electronic Copy	O&P-5-A-3	BLS
Central Office Unbundled Local Loops Provisioning Job Aid – September 24, 1999	No Electronic Copy	O&P-5-A-4	BLS
UNE Specific Work Instructions	No Electronic Copy	O&P-5-A-5	BLS
BellSouth Practices BellSouth Telecommunications Standard Unbundled Local Loops (ULL) Section 660-230-338 Draft Issue March 18, 1999	No Electronic Copy	O&P-5-A-6	BLS
UNE Turn-Up Designed Inside Cut Only Conversion Order – Interconnection Services UTDIC001 1b, August, 1999	No Electronic Copy	O&P-5-A-7	BLS
UNE Turn Up - Non-Designed Inside Cut Only Conversion UNE UTNIC001, August, 1999	No Electronic Copy	O&P-5-A-8	BLS
Screening – Designed Provisioning U-SDPR001 1c, September 10, 1999	No Electronic Copy	O&P-5-A-9	BLS
Screening – Non-Designed Provisioning UNE USNDP001 1c, October, 1999	No Electronic Copy	O&P-5-A-10	BLS



Document	File Name	Location in Work Papers	Source
UNE- Ports & Combos Interconnections Services UG- ULSP-001 Issue 3c, September, 1999	No Electronic Copy	O&P-5-A-11	BLS
Network & Carrier Services – Non- Designed, Non-Coordinated, UBL SL1 with LNP	No Electronic Copy	O&P-5-A-12	BLS
BellSouth Interconnections Services Business Process and Performance Measurement Analysis September 3, 1999	No Electronic Copy	O&P-5-B-1	BLS
Provisioning Verification Benchmarks	No Electronic Copy	O&P-5-A-13	KCI
KCI Provisioning Tracking Sheet	No Electronic Copy	O&P-5-A-14	KCI
BellSouth SL1 Unbundled Loops Central Office Operations	No Electronic Copy	O&P-5-A-15	
Interview Summaries	No Electronic Copy	O&P-5-A-16	KCI/BLS
Interview Reports – LCSC, UNE Center, Recent Change Management Administratin Group (RCMAG)/Address Facilities Inventory Group (AFIG), AT&T, NextLink	Disk 2 – GA O&P 5.2.0	O&P-5-A-1	KCI/BLS
BellSouth Job Aid for CLEC Pending Facilities (PF) Report August 16, 1999	No Electronic Copy	O&P-5-A-17	BLS
BellSouth Job Aid – Pending Order Status Required Action by CLECs	No Electronic Copy	O&P-5-A-18	BLS

2.4.1 Data Generation/Volumes

This test did not rely on data generation or volume testing. This test relied on the submission of order transactions across BellSouth's TAG and EDI interfaces and observations of BellSouth provisioning personnel.

2.5 Evaluation Methods

Operational analysis techniques were used to evaluate BellSouth systems and processes. Selected test instances utilized in pre-order and order functional testing were verified for provisioning accuracy and coordination.

The Provisioning Verification Test was conducted through post-order activity validation of Customer Service Records (CSRs), switch translation reports, and



Central Office validation on a sample of accounts. Interviews were held with BellSouth-GA provisioning personnel and with CLECs that purchase UNEs from BellSouth to provide a better understanding of the provisioning process from end-to-end. In addition, Loop "hot cuts" were observed for accuracy of provisioning as well as procedural adherence.

2.6 Analysis Methods

The Provisioning Verification Test included a checklist of evaluation criteria developed by KCI during the initial phase of the BellSouth - Georgia OSS Evaluation. These evaluation criteria provide the framework of norms, standards and guidelines for the Provisioning Verification Test.

The Georgia Public Service Commission voted on June 6, 2000 to approve a set of Service Quality Measurement- (SQM-) related measures and standards to be used for purposes of this evaluation³. For those evaluation criteria that do not map to the GPSC-approved measures, KCI has applied its own standard, based on our professional judgment.

For quantitative evaluation criteria where the test result did not meet or exceed the established standard or KCI benchmark, KCI conducted a review to determine whether the differential was statistically significant.

The data collected were analyzed employing the evaluation criteria referenced above.

3.0 Results Summary

This section identifies the evaluation criteria and test results.

3.1 Results & Analysis

The results of this test are presented in the table below. Definitions of evaluation criteria, possible results, and exceptions are provided in Section II. The results described below include analysis through January 2, 2001.

Table V-5.3: Evaluation Criteria and Results

Test Cross- Reference	Evaluation Criteria	Result	Comments	
Provisioning Validation				
O&P-5-1-1	Provisioning activity occurs on the date and	Satisfied	Since there is no documented BLS standard for timeliness of provisioning,	

³ On January 16, 2001, the GPSC issued an order requiring BellSouth to report for business purposes a set of measures that differs in some cases from the requirements of the June 6 test standards.

Consulting

Test Cross- Reference	Evaluation Criteria	Result	Comments
	time (if applicable) confirmed to the CLEC.		KCI applied a standard of 95% for provisioning timeliness. ⁴ KCI reviewed 308 orders that completed for timeliness of provisioning. Of these, 90% completed on the confirmed due date provided on the Firm Order Confirmation (FOC). (See Table V-5.4) KCI conducted retest activity for timeliness of provisioning. KCI reviewed 130 orders that completed. Of these, 95% completed on the confirmed due date provided on the FOC. (See Table V-5.4)
O&P-5-2-1	Provisioning was completed accurately for orders placed in O&P-1 EDI Functional Test and O&P-2 TAG Functional Test– Switch Translations Verification.	Not Satisfied	Since there is no documented BLS standard for accuracy of provisioning, KCI applied a standard of 95% for provisioning accuracy for switch translations. KCI verified the provisioning activity for 315 lines that have gone to completion. Of these, 91% of lines were provisioned correctly. (See Table V-5.6) KCI conducted retest activity for accuracy of provisioning based on analysis of switch translations. KCI verified the provisioning activity for 89 lines that had gone to completion. Of these, 77 (87)% were provisioned correctly. (See Table V-5.7) KCI has recommended closure of Exception 76 to the GPSC, with results for this evaluation criterion remaining Not Satisfied. See Exception 76 for additional information on this issue.

 $^{^4}$ KCI applied standards based on its professional judgment in the absence of 1) GPSC-approved standards or 2) documented BLS guidelines.



Test Cross- Reference	Evaluation Criteria	Result	Comments
O&P-5-2-2	Provisioning was completed accurately for orders placed in O&P-1 EDI Functional Test and O&P-2 TAG Functional Test – Customer Service Record (CSR) Verification.	Satisfied ⁵	Since there is no documented BLS standard for accuracy of provisioning, KCI applied a standard of 95% for provisioning accuracy for CSRs. KCI verified the provisioning activity for 279 orders that went to completion. Of these, 65% of the orders were provisioned correctly. (See Table V-5.6) KCI conducted retest activity for accuracy of provisioning based on analysis of CSRs. KCI verified the provisioning activity for 72 orders that had gone to completion. Of these, 90% were provisioned correctly. (See Table V-5.7)
O&P-5-2-3	Coordinated Customer Conversions (Hot-Cuts) are completed on time by BLS technicians.	Satisifed ⁶	The BLS Service Quality Measurements Plan – Provisioning – Report Measurement P-6A (revision date 7/00) applies a benchmark of 95% within + or – 15 minutes of the scheduled start time for coordinated customer conversions. KCI observed 63 actual coordinated customer conversions (Hot-Cuts) scheduled with Georgia CLECs. BLS completed 57 (90.4%) of the observed conversions within the specified interval. See Exceptions 82 and 106 for additional information on this issue. Exception 82 is closed. KCI has recommended closure of Exception 106 to the GPSC.

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 $^{^6}$ Although the test percentage is below the benchmark of 95%, the statistical evidence is not strong enough to conclude that the performance is below the benchmark with 95% confidence. In other words, the inherent variation in the process is large enough to have produced the substandard result, even with a process that is operating above the benchmark standard. The p-value, which indicates the chance of observing this result when the benchmark is being met, is 0. 0945, above the .0500 cut-off for a statistical conclusion of failure.



⁵ Although the test percentage is below the benchmark of 95%, the statistical evidence is not strong enough to conclude that the performance is below the benchmark with 95% confidence. In other words, the inherent variation in the process is large enough to have produced the substandard result, even with a process that is operating above the benchmark standard. The p-value, which indicates the chance of observing this result when the benchmark is being met, is 0.0682, above the .0500 cut-off for a statistical conclusion of failure.

Test Cross- Reference	Evaluation Criteria	Result	Comments
O&P-5-2-4	The coordinated provisioning procedures are practiced in the Central Office locations-Methods and Procedures.	Satisfied	Since there is no documented BLS standard for adherence to Methods and Procedures, KCI applied a standard of 85% adherence to specified methods and procedures. In total, KCI observed 1,377 tasks during loop conversions for adherence to Methods and Procedures. Of these, BLS performed 93% of the tasks without Methods and Procedure errors. Initally, KCI observed 220 tasks associated with coordinated loop conversions for which BLS's performance did not meet the target evaluation measures. On May 5, 2000, BLS modified its existing Methods and Procedures for loop conversions. Following release of the modified Methods and Procedures, KCI observed 1,157 tasks. Of these, BLS performed 97% of the tasks without Method and Procedures errors. See Exceptions 58 and 82 for additional information on this issue. Exceptions 58 and 82 are closed.



Test Cross- Reference	Evaluation Criteria	Result	Comments
O&P-5-2-5	Provisioning was completed accurately for orders placed in O&P-1 EDI Functional Test and O&P-2 TAG Functional Test – Directory Listings.	Satisfied ⁷	Since there is no documented BLS standard for accuracy of provisioning of Directory Listings, KCI applied a standard of 95% for provisioning accuracy of Directory Listings. KCI verified 138 Directory Listing orders. Of the 138 orders tested, 88% provided correct directory information. (See Table V-5.6) KCI conducted retest activity for accuracy of provisioning based on analysis of the Directory Listing database. KCI verified the provisioning activity for 55 orders that had gone to completion. Of these, 91% of orders were provisioned correctly. (See Table-5.7) KCI has recommended closure of Exception 76 to the GPSC. See Exception 76 for additional information on this issue.
O&P-5-2-6	Jeopardy (Pending Facilities) Notifications provide complete information.	Satisfied	Seventeen Jeopardy (Pending Facilities) notifications ⁸ have been received by KCI. Of these, 11 were provided electronically, three were provided both electronically and via fax, and three were provided via fax only. Once the jeopardy notification is received, information regarding the status of the Pending Facilities (PF) order can be found on the CLECs personal Web pages (https://clec.bellsouth.com ⁹) provided by BLS. This report includes details

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⁹ This is a secure Web site requiring passwords which are obtained through the BellSouth account team representatives.



⁷ Although the test percentage is below the benchmark of 95%, the statistical evidence is not strong enough to conclude that the performance is below the benchmark with 95% confidence. In other words, the inherent variation in the process is large enough to have produced the substandard result, even with a process that is operating above the benchmark standard. The p-value, which indicates the chance of observing this result when the benchmark is being met, is 0. 1397, above the .0500 cutoff for a statistical conclusion of failure.

 $^{^8}$ Please see O&P-1 and O&P-2 results for additional information regarding Jeopardy Notification completeness.

Test Cross- Reference	Evaluation Criteria	Result	Comments
O&P-5-2-7	Design Layout Records are provided for SL2 (Design) Loops.	Satisfied	regarding the status of the facilities in addition to estimated completion date ¹⁰ (ECD) and estimated service date ¹¹ (ESD) provide by BLS. Information regarding the order is provided on the CLEC Web page while the order remains in PF status. KCI did not observe the Web page prior to orders being removed from PF status. KCI evaluated orders placed into Pending Facilities status during retest activity. Information regarding status of order was found on the CLEC Web page while the order remained in PF status. From December 10, 1999 through April 30, 2000, BLS did not provide Design Layout Records (DLR) for SL2 Loops to
			KCI, as required in BLS internal procedures. On May 1, 2000, BLS began providing KCI with DLRs on SL2 loops. Additionally, BLS has now provided KCI with the DLRs that were not previously received.
Methods and P.	rocedures		
O&P-5-3-1	Procedures in the coordination process are in place.	Satisfied	The procedures for coordinated conversions are currently in place. This information is found in the <i>UNE Specific Work Instructions</i> , a BLS internal document. This document includes activities for both the UNE Center and the Central Office. Based on information obtained from CLEC interviews, this information is also included in CLEC contracts.

¹¹ Estimated Service Date provides information regarding when the CLECs end-user will be placed in service. This information is posted to the Web site within five days of the order being placed into PF status.



 $^{^{10}}$ Estimated Completion Date is provided by BellSouth engineering when construction jobs are necessary to resolve a PF condition. This information is posted to the Web site within five days of the order being placed into PF status.

Test Cross- Reference	Evaluation Criteria	Result	Comments
O&P-5-3-2	Procedures for Central Office work are defined and utilized.	Satisfied	The processes for BLS Central Office work are documented in internal BLS M&Ps regarding provisioning activities for both coordinated and non- coordinated conversions, as well as for designed and non-designed conversions. These M&Ps include: - Non-Design Unbundled Voice Loops and Non-Designed Unbundled Sub- Loops (5/5/00) - Designed 2-Wire Loops and Ground Start Voice Loops (5/5/00) - Unbundled Local Loops ULL (section 660-230-338 5/5/2000) - Central Office UNE Specific Work instructions - Central Office Unbundled Loop Provisioning Job Aid - Interconnection Service, UNE Turn Up documents - BellSouth Practices-BellSouth Telecommunications Standard Section
O&P-5-3-3	Procedures for placing an order into Missed Appointment (MA) Status are defined.	Satisfied	(660-230-338). Procedures are documented in the SD/MA Policy Interconnections Services internal BLS document. The CLEC is responsible for supplementing an order in all cases in which it is placed in Missed Appointment (MA) status.
O&P-5-3-4	CLEC procedures for escalation are defined.	Satisfied	The escalation procedures, cycle times, and contact numbers are documented in the <i>CLEC Facilties Based Advisory Guide</i> (10/22/98). The escalation procedure begins with the UNE Center representative and can rise to the AVP level.
O&P-5-3-5	Non-available facilites (Pending Facilities) policy is clearly defined.	Satisfied	Definitions for an order placed in Pending Facilities (PF) are clearly defined in the <i>Job Aid for CLEC Pending Facilities (PF) Report</i> posted on the BLS Web site (http://www.interconnection. bellsouth.com/carrier/carrier_pdf/910 81508.pdf).



Test Cross- Reference	Evaluation Criteria	Result	Comments
O&P-5-3-6	Policy for acceptance of completed orders is clearly stated.	Satisfied	The policy for acceptance of conversions by CLECs is clearly stated in the UNEC/CLEC Timing for Acceptance, MARCH input and Completions Policy (10/99).

Table V-5.4: Initial Results¹² - Provisioned Date¹³ vs. FOC Due Date¹⁴

Interval (Provisioning Date) – (FOC Due Date)	Number of Instances	Percent of Total
-2	1	3%
-1	2	6%
1	7	22%
2	3	10%
4	1	3%
5+	18	56%
Total	32	100%

Table V-5.5: Retest Results¹⁵ - Provisioned Date vs. FOC Due Date

Interval (Provisioning Date) – (FOC Due Date)	Number of Instances	Percent of Total
-4	1	14%
1	2	29%
2	1	14%
4	2	29%
5	1	14%
Total	7	100%

¹⁵ Data presented in this table includes provisioning verification results for transactions submitted during the retest conducted on August 2000 through October 2000.



¹² Data presented in this table includes provisioning verification results for transactions submitted during the initial test conducted December 1999 through July 2000.

¹³ Provisioned date is defined by BellSouth as the date on which provisioning work, inclusive of systems, Central Office, and field activity, has been completed

¹⁴ FOC Due Date is defined as the due date provided in the FOC. It is the date on which BellSouth commits to complete provisioning of a customer's service, subject to a facilities check.

Table V-5.6: Initial Results¹⁶ - Summary of Provisioning Validation Results¹⁷

	Total Tested	Accurately Provisioned	% of Total	Number of Errors - Flow Through ¹⁸	% of Total Errors	Number of Errors- Non-Flow Through	% of Total Errors
Customer Service Record	279	181	65%	42	43%	56	57%
Switch Translation	315	288	91%	17	63%	10	37%
Directory Listing	138	121	88%	6	35%	11	65%

Table V-5.7: Retest Results19 - Summary of Provisioning Validation Results20

	Total Tested	Accurately Provisioned	% of Total	Number of Errors - Flow Through ²¹	% of Total Errors	Number of Errors- Non-Flow Through	% of Total Errors
Customer Service Record	72	65	90%	2	29%	5	71%
Switch Translation	89	77	87%	0	0%	12	100%
Directory	55	50	91%	0	0%	5	100%

²¹ For electronically submitted LSRs, a flow through service request proceeds through BellSouth's OSS to generate an FOC without manual intervention. A non-flow through service request falls out for manual handling prior to generation of an FOC.



¹⁶ Data presented in this table includes provisioning verification results for transactions submitted during the initial test conducted on December 1999 through July 2000.

¹⁷ For CSRs and Directory Listings, validation was conducted on a per-order basis. For switch translations, validation was conducted on a per-line basis. Note that some of the validation figures are disputed by BellSouth. Meetings to validate KCI data are in progress.

¹⁸ For electronically submitted LSRs, a flow through service request proceeds through BellSouth's OSS to generate an FOC without manual intervention. A non-flow through service request falls out for manual handling prior to generation of an FOC.

¹⁹ Data presented in this table includes provisioning verification results for transactions submitted during the retest conducted on August 2000 through October 2000.

²⁰ For CSRs and Directory Listings, validation was conducted on a per-order basis. For switch translations, validation was conducted on a per-line basis. Note that some of the validation figures are disputed by BellSouth. Meetings to validate KCI data are in progress.

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