Test Vendor ID:	EXP 3077
Qwest Internal Tracking ID:	TI 678
Observation/Exception Title:	CLECs Sufficient Testing Capabilities
Test Type/Domain:	Interface Development & Relationship Management
***Date Qwest Received*:**	11/08/2001
***Initial Response Date*:**	11/20/2001
Supplemental Response Date:	12/04/2001
2nd Supplemental Response Date:	12/21/2001
3rd Supplemental Response Date:	01/23/2002
4th Supplemental Response Date:	02/19/2002
5th Supplemental Response Date:	02/25/2002
6th Supplemental Response Date:	04/08/2002

Test Incident Summary:

An exception has been identified as a result of the Qwest documentation review, and information gathered during interviews, for the Test 24.6 OSS Interface Development Review.

Exception:

Qwest's Interconnect Mediated Access (IMA) Electronic Data Interchange (EDI) Stand Alone Test Environment (SATE) does not offer CLECs sufficient testing capabilities.

Background:

Qwest employs a phased approach for CLECs that wish to develop an IMA/EDI application-to-application interface with Qwest's OSS systems. The steps of the current process are listed below:[1]

1. Initial Communications (includes Kick Off conference call)
2. Project Plan (proposed/negotiated)
3. Requirements Review (by the CLEC)
4. Firewall Rules and IA-to-IA Testing
5. Testing - Interoperability and/or SATE environment
6. Controlled Production
7. Production ("Turn-Up")

Qwest developed SATE in May 2001 as an alternative testing environment to the Interoperability environment. By creating SATE, Qwest now offers CLECs the option between the Interoperability

[1] EDI Implementation Guidelines – for Interconnect Mediated Access (IMA) and Facility Based Directory Listings (FBDL), Version 6.0, Released October 11, 2001, Section 2, Implementation Activities, p.6.

environment and SATE for testing their IMA EDI interface. The latest version, SATE 8.01, was implemented as of October 22, 2001.

Issue:

KPMG Consulting has observed through interviews and documentation reviews, that the IMA EDI SATE does not provide sufficient testing capabilities for CLECs prior to connecting to Qwest's production systems. Certain limitations in the IMA EDI SATE have been identified, including the following:

- SATE does not offer true end-to-end testing capabilities through to Qwest's provisioning and billing systems. Currently, SATE does not generate post-order responses in the same manner as they are created in the production environment. Specifically, a Test System Engineer (TSE) manually provides responses to the CLEC that would be system-generated in the production environment (e.g. firm order completion notices, and other post-order responses such as rejections). Manual response generation is not representative of the production environment, and does not provide adequate assurance that CLECs will see similar transaction behavior once in production. Additionally, manual intervention increases the risk of human error.

- Flow-through orders are not supported in SATE, even though these types of orders will be processed in the production environment. Therefore, CLECs are unable to truly test the ability of orders to flow-through (no manual intervention) the IMA systems in production. CLECs will only have limited ability to evaluate the behavior of the system in a manner that is consistent with flow-through orders in production. A test environment should mirror the production environment, and provide evidence of what is to be expected when entering production, including flow-through behavior.

- The volume of order responses supported in SATE is restricted due to manual response handling. As stated in the IMA EDI Implementation Guidelines[2]:

  "As with the Interoperability environment, Post-Order responses are manually generated in SATE and may include Rejects, FOCs, Jeopardys, and Completions. Responses will be generated on posted SATE operation business days as follows:

- FOCs - each day for the first ten Order transactions received the prior business day.
- Progression responses - as negotiated in Project Plan
- Regression responses other than FOCs - within 5 days of a request for a response"

  The number of responses that a CLEC receives in automated format should not be restricted. Because SATE does not support automated response handling, the CLEC can only receive a prescribed number of responses to its order transactions. This capacity limitation does not adequately mirror the production process, and does not allow the CLEC the ability to test large volumes of orders and the expected response behaviors.

- The data contained within the order responses is not consistent, and may not mirror the data that would be found in production responses. According to the IMA EDI Implementation Guidelines[3]:

  "In SATE, pre-order and order transactions are created using Qwest-provided data that, when submitted to SATE, will return consistent responses. These responses will enable the SATE user to test the EDI mapping structure. *Those responses will hold data that could appear in production, however, may not match the response that would be received on the same query sent*

[2] EDI Implementation Guidelines – for Interconnect Mediated Access (IMA) and Facility Based Directory Listings (FBDL), Version 6.0, Released October 11, 2001, Section 2, Implementation Activities, p.16.
[3] EDI Implementation Guidelines – for Interconnect Mediated Access (IMA) and Facility Based Directory Listings (FBDL), Version 6.0, Released October 11, 2001, Section 2, Implementation Activities, p.15.

> *to the Interoperability or Production Environment.* The error codes returned in SATE will mirror the Production environment. *Verbiage on outbound responses in SATE may not exactly mirror what would be returned from Qwest production systems or represent the actual message/data content expected from the result of the transaction.*"

The inability to provide consistent data within the EDI order responses impacts the CLEC's ability to accurately assess the expected outcomes of orders. Additionally, it impairs the CLEC's ability to analyze EDI problems when the CLEC cannot consistently compare actual data outcomes to expected data outcomes.

As a result of an interview with a Qwest employee on September 12, 2001, KPMG Consulting requested clarification for the paragraph quoted above from the EDI Implementation Guide (Data Request No. ID128). Qwest responded that identical queries created in SATE and production may receive different responses due to the differences between the test deck data in SATE and the account data in production. Qwest specifically stated[4]:

> "For example, an address validation query for "999 Van Cleve Rd" would result in an "Exact Match" in SATE, but "No Match" in production. Alternatively, the address "1999 Broadway" would result in an "Exact Match" in production, but no match in SATE."

KPMG Consulting understands that the differences in the test deck data could potentially yield different results in SATE and production. As long as the processing logic in SATE and production is identical, this is not considered a system deficiency. However, Qwest continues in its response as follows:

"Second, SATE stubs do not hold some of the error messages held in production. For example, a query in production for a certain telephone number might result in an error message that says "Host Not Found." In SATE, the CLEC might receive "Bad NPA/NXX." In all cases, the error message received will be a real production error message and in all likelihood, it will be the error message received on such a query, however, such functionality cannot be guaranteed. If a CLEC would like to receive a certain error message in SATE, they can request it be added via the SATE Data Request Process."

KPMG Consulting does not understand how different error messages could be received in SATE versus production for identical queries, other than the case of test deck data specific errors. The response processing logic for SATE should replicate the logic in production, and therefore, no differences should exist between the error messages received in the two environments for identical queries. Based on Qwest's clarification, KPMG Consulting still believes that there is a potential deficiency with SATE in that response data is not necessarily consistent with production.

Impact:

A limited or insufficient testing environment could delay the timely implementation of a CLEC's IMA EDI release. Also, problems could arise in the production environment that may have otherwise been avoided if SATE more closely mirrored the production environment. These factors could increase a CLEC's operating expenses as a result of additional time required to ensure the functionality of the systems, and could inhibit revenues if delays hinder a CLEC's ability to service its customers.

[4] Qwest response to Data Request ID128 received by KPMG Consulting on September 27, 2001

Qwest Formal Response:

The following paragraphs outline Qwest's response to the four concerns raised by KPMG regarding SATE. Each issue has been briefly recapped to more easily correlate the response. Each response identifies current capabilities that are provided and if Qwest has any current plans to enhance the SATE in that area.

1. KPMG concern: SATE does not generate post-order responses in the same manner as they are created in the production environment.

Currently, a Qwest Technical Support Engineer (TSE) uses IMA to create Firm Order Confirmations (FOCs), manual rejects, jeopardies and non-fatal error transactions. IMA then automatically sends the transaction to the CLEC. This manual generation represents what the Interconnect Service Center representative's actions would be in production. However, if the LSR were to flow through, SATE and the Interop environment do not currently automatically generate the FOC, Jeopardy, or Completion that could occur in production. An automatically generated FOC, Completion and other post-order response does occur when the CLEC is performing their Controlled Production Testing.

Additionally, Qwest will provide automated post-order responses in SATE by January 28, 2002.With the launch of automated post-order transactions in SATE, new test scenarios will provide the CLEC with the ability to experience the behavior of IMA consistent with production timing of post-order transactions. It will also ensure that CLECs receive automated responses consistent with those received in production, negating any risk from manual handling. While the current SATE and Interop environments allow the CLEC to test all post order transactions in their EDI interface, these changes will resolve any timing concerns or concerns resulting from manual handling.

- Note: Those post-order transactions currently done manually by an Interconnect Service Center (ISC) representative in production will not be automated. Those transactions, as well as the status updates that follow them, will be done manually using the same interface used today in production by an ISC representative.

2. KPMG concern: Flow through orders are not supported in SATE

Qwest currently works with CLECs to improve their flow through numbers and help CLECs improve their business processes to achieve greater flow through in two ways. First, Qwest as part of its standard EDI implementation process educates CLECs on the key elements affecting flow through. Second Qwest works weekly on an individual basis as needed to provide training that can help a CLEC improve its flow through numbers. This training allows a CLEC to improve its business process, while SATE testing focuses on interface testing and therefore the timing based scenarios referenced in Item 1 above.

Additionally, Qwest will enhance the SATE environment to add a test flow through system and test Service Order Processors (SOPs). Qwest will implement the test flowthrough capability for Western region POTS flow LSRs during the first quarter of 2002. Qwest will implement the remainder of test flow through capabilities by May 20, 2002. Once flow through is implemented in SATE, CLECs will have the option to choose when they want their SATE transaction to be sent to the test flow through systems, or receive a specific test scenario response. If the CLEC chooses to have their transaction sent through the test flow through systems, only flow through eligible LSRs will successfully flow. LSRs, which are not eligible for flow through, will be sent to the queue for manual handling. The option to send the test LSR to the flow through systems will allow the CLEC to experience an immediate response once the flow through order is successfully processed and a manual response if flow through is not successful. CLECs will also be able to contact Qwest regarding the flowthrough of those LSRs sent to SATE for flowthrough testing.

3. KPMG concern: The volume of order responses supported in SATE is restricted due to manual response handling.

First, Qwest does not currently limit the number of post order transactions sent to those CLECs working to implement an EDI interface with Qwest or migrating to a new release of IMA. Qwest only limits the number of post order transactions within a certain window for those CLECs in regression testing. Qwest will however update its EDI Implementation process and the EDI Implementation guide by 12/03/01 to allow CLECs in regression testing to negotiate post-order transaction testing processes. At a CLEC's EDI kick-off conference call, Qwest will negotiate the number of, and manner in which, manual post-order transactions will be sent. The current process, previously agreed to via a CLEC vote, will be used as a starting point for all negotiations.

Second, the post order automation referenced in Item #1 will provide the CLECs with two enhancements. It insures that production timing and scenarios can be tested and it eliminates the need for much of the manual handling done for post order transactions in SATE today. For most post order transactions, a CLEC will no longer need to contact Qwest and request a manual post-order transaction be sent. They can request the specific transaction be sent as part of their test scenario and it will automatically be sent as a result. For those transactions still requiring manual handling (transactions manually handled by an Interconnect Service Center representative in production) after this automation, Qwest representatives will continue to issue responses manually as negotiated at the CLEC's EDI kick-off conference call.

4. KPMG concern: The data contained within the order responses is not consistent, and may not mirror the data that would be found in production responses.

The data instances in SATE are different from production data instances in that SATE contains facilities, addresses, CSRs, and other data instances that do not exist in production. The type of data in SATE mirrors production data, but the SATE data instance is not identical to production data instances. SATE does not contain production data so that a CLEC can easily test any production scenario without concern for end-user or contract-based privacy issues. The CLEC does have the ability to test all relevant situations such as those described in the example of obtaining an “exact match” using the address “999 Van Cleve Rd”. A CLEC could test multiple situations in order to understand responses and the conditions that cause them to occur.

Second, SATE uses specific test data and planned test responses. The responses are similar to production responses as detailed below:

- SATE uses a production (or, in the month prior to an IMA release, pre-production) instance of IMA. Using a production release of IMA ensures that the condition and EDI format of all error messages sent to a CLEC are identical to those messages in production. The business rules by which a message is returned are also identical in SATE and IMA production.
- In SATE those error messages originating from a downstream system are SATE specific to test deck scenarios, which reflect actual production scenarios. These error messages are returned under the same business conditions as in production. If a CLEC wants additional test scenarios, they can request them via the SATE Data Request process.
- Qwest regularly reviews its SATE error messages to ensure that they match production error messages.

SATE allows CLECs to test their code and certify their system to IMA. A CLEC will generally not code to the content of an error message, but to the conditions of the error and the system’s published APIs to ensure the flexibility of the software and to decouple the dependency of their systems on Qwest’s systems. SATE returns error messages consistent with IMA business rules and EDI Disclosure Documents.

Conclusion

In addition to the above stated planned enhancements to SATE, Qwest has established a working sub-team of CMP members to further analyze and define test environment needs to ensure Qwest continues to meet the CLEC’s testing objectives. The introduction of the test environment requirement sessions was done at the 10-18-01 CMP meeting and the first meeting was held on 11-06-01. Qwest has included in this meeting minutes of this first meeting. The purpose of the sessions is to collaboratively define any additional needs

for the test environment. System enhancements resulting from the CLEC requirements sessions will be submitted as Change Requests to the CMP process and prioritized for implementation. The Change Requests can also include upgrades to the test scenarios that will allow the CLECs to more extensively test either their EDI interface, or their business process and LSR construction.

Attachment(s): ROC_TI678_EXP3077_Attachment1_11_20_01 (Meeting Minutes from 11/6/01 requirements session)

Qwest Supplemental Response (12/04/2001):

Qwest stated the following in the 11/20/01 formal response:

> *"Qwest will however update its EDI Implementation process and the EDI Implementation guide by 12/03/01 to allow CLECs in regression testing to negotiate post-order transaction testing processes."*

Qwest completed the EDI Implementation process and guideline updates on 11/30/01. The EDI Implementation Guideline document is posted on Qwest's Wholesale web site at: http://www.uswest.com/wholesale/ima/edi/document.html

The associated industry notification was issued on 12/3/01 with the subject line, "EDI Implementation Guidelines for Interconnect Mediated Access (IMA) and Facility Based Directory Listings (FBDL) Updated."

Qwest Supplemental Response (12/21/2001):

The numbers below correspond to the number used in the 11/20/01 response:

2. Qwest will implement the addition of flowthru capability to SATE in two phases. The first phase is scheduled to be available on February 20, 2001. This phase will include POTS and UNE-P POTS flowthru for Western region LSRs. The second phase will include implementation of all other flowthru eligible products and POTS and UNE-P POTS in the central and eastern regions. This phase is scheduled to be completed prior to May 20, 2002. Qwest will issue a Release Notice announcing the deployment of each release.

3. Qwest does not limit the number of response transactions a CLEC may receive while testing in SATE.

The current IMA EDI Implementation Guide reflects the following information regarding the amount of transaction responses:

In the Project Plan Development/Negotiation section (page 11):

> Qwest will negotiate the number of, and manner in which, manual post-order transactions will be returned to the CLEC. The current approach for returning these responses, previously agreed to via a CLEC vote in CMP, will be used as a starting point for all such negotiations.

In the SATE Transaction Responses section (page 25):

> Post-Order responses are manually generated in SATE and may include Rejects, FOCs, Jeopardies, and Completions. Responses will be generated on posted SATE operation business days as follows:
>
> - FOCs - each day for the first ten Order transactions received the prior business day.

- Progression responses other than FOCs - as negotiated in the Scenario Summary

In Appendix A:

IMPLEMENTATION AREAS	PROGRESSION Interoperability Environment	PROGRESSION Stand Alone Environment	REGRESSION Stand Alone Environment
Number of Transactions Permitted	As negotiated in Project Plan	As negotiated in Project Plan	As negotiated in Usage Plan

These statements do not mean that responses are limited, only negotiated. As responses in the present environment are manual, Qwest has implemented processes to allow Qwest to ensure that proper staffing levels are available for all CLEC testing. Nothing in the above statements are intended to indicate that the volume is limited.

Additionally, when post-order responses are automated with the release of SATE 9.0, CLECs will be able to receive automated responses for their LSRs. The IMA EDI Implementation Guide will be updated accordingly. The updated IMA EDI Implementation Guide for 9.0 will be published on January 21, 2001 with an associated Release Notification.

4. All known differences between the production and IMA versions of SATE are included in the Overview section of the IMA EDI SATE Data Document. As part of the creation of the initial SATE requirements, any case where SATE had to differ from production due to a functional requirement for SATE was noted to be included in the data document.

   On an ongoing basis, every candidate that is placed into IMA is placed into SATE. If the implementation in SATE causes the system behavior to differ from production, this will be added to the Overview section of the IMA EDI SATE Data Document.
   The SATE PID (PO-19) will help ensure that Qwest has a complete and accurate data document in the future. The PID will test on a monthly basis that the data in the data document reflects the data in the system. This will help CLECs to feel confident that a successful test in SATE will mean a successful move to production.

   Based upon the confidential information provided, Qwest observed a common theme in three of the four attached issues. Issue 1, 3, and 4 were all cases of manually generated responses not system generated responses. Thus, these are not problems with the system being out of synch with production. The implementation of automated post-order responses in SATE will resolve this issue. Qwest is modeling the content of the responses after actual similar post-order responses from production. This will ensure that the responses provided to CLECs in SATE reflect those used in production.

   Issue 2 : In Qwest's CLEC CMP SATE User's Group, a CR has been created to change all SATE NPA-NXX values to utilize those that are valid in LERG.

   As part of the flowthru upgrade to SATE, Qwest must change all NPA-NXX and other central office values to match those valid in production. The flowthru system relies on valid production data. As a result, this request will be fulfilled in two phases to correspond to the SATE flowthru upgrades.

KPMG Comments (01/08/2002):

KPMG Consulting has addressed each of the points outlined in Qwest's November 20 and December 21, 2001 responses. Below, KPMG Consulting has recapped each of the major SATE issues, along with a response.

1. SATE does not generate post-order responses in the same manner in which they are created in the production environment.

   In its response dated November 20, 2001, Qwest states that, *"Qwest will provide automated post-order responses in SATE by January 28, 2002. With the launch of automated post-order transactions in SATE, new test scenarios will provide the CLEC with the ability to experience the behavior of IMA consistent with production timing of post-order transactions. It will also ensure that CLECs receive automated responses consistent with those received in production, negating any risk from manual handling."*

   Based on Qwest's response and proposed SATE enhancements, KPMG Consulting understands that Qwest plans to address the issue of post-order automation within SATE. Qwest has announced the introduction of the Virtual Interconnect Center Knowledge Initiator (VICKI) that will become effective in January 2002. In its White Paper released on January 3, 2002, Qwest has reiterated the business need driving this change: "Production-like Flow Through systems are needed for a CLEC to test whether a given LSR would Flow Through if sent to production.[5]" However, until such proposed enhancements are implemented, the current test environment does not provide a CLEC with an accurate representation of the production environment, due to its current manual handling of responses. Therefore, KPMG Consulting recommends that this issue remain open until the proposed enhancements are fully implemented in SATE.

2. Flow through orders are not supported in SATE.

   In its response dated November 20, 2001, Qwest states, *"Qwest will enhance the SATE environment to add a test flow through system and test Service Order Processors (SOPs). Qwest will implement the test flow through capability for Western region POTS flow LSRs during the first quarter of 2002. Qwest will implement the remainder of test flow through capabilities by May 20, 2002. Once flow through is implemented in SATE, CLECs will have the option to choose when they want their SATE transaction to be sent to the test flow through systems, or receive a specific test scenario response. If the CLEC chooses to have their transaction sent through the test flow through systems, only flow through eligible LSRs will successfully flow. LSRs, which are not eligible for flow through, will be sent to the queue for manual handling. The option to send the test LSR to the flow through systems will allow the CLEC to experience an immediate response once the flow through order is successfully processed and a manual response if flow through is not successful."*

   Qwest further clarified the anticipated SATE flow through enhancements in its December 21, 2001 response by stating, *"Qwest will implement the addition of flowthru capability to SATE in two phases. The first phase is scheduled to be available on February 20, 2001. This phase will include POTS and UNE-P POTS flowthru for Western region LSRs. The second phase will include implementation of all other flowthru eligible products and POTS and UNE-P POTS in the central and eastern regions. This phase is scheduled to be completed prior to May 20, 2002. Qwest will issue a Release Notice announcing the deployment of each release."*

[5] *A White Paper on Flow Through in The Stand Alone Test Environment (SATE)*, January 3, 2001, V1.00, p. 3.

Based on its responses and proposed SATE enhancements, KPMG Consulting acknowledges Qwest's plans to address the issue of flow through capabilities within SATE. However, until such proposed enhancements are implemented, the current test environment does not provide a CLEC with an accurate representation of the production environment's flow through capabilities. Therefore, KPMG Consulting recommends that this issue remain open until the proposed enhancements are fully implemented in SATE, and confirmed and reviewed by KPMG Consulting in cooperation with end users.

3. The volume of order responses supported in SATE is restricted due to manual response handling.

In its response dated November 20, 2001, Qwest states, *"Qwest does not currently limit the number of post order transactions sent to those CLECs working to implement an EDI interface with Qwest or migrating to a new release of IMA. Qwest only limits the number of post order transactions within a certain window for those CLECs in regression testing."*

In its response dated December 21, 2001, Qwest quotes the latest version of the EDI Implementation Guide, stating:

"Post-Order responses are manually generated in SATE and may include Rejects, FOCs, Jeopardies, and Completions. Responses will be generated on posted SATE operation business days as follows:

- *FOCs - each day for the **first ten** Order transactions received the prior business day.*
- *Progression responses other than FOCs - as negotiated in the Scenario Summary."*[6]

For SATE regression testing, the EDI Implementation Guide states:

*"Qwest provides FOCs each business day for the **first ten** product Orders received the prior business day. ISC Rejects, Jeopardies, Non-Fatals, Status Updates, and Completions are provided within 5 business days of a request for a response."*[7]

Finally, Appendix A of the EDI Implementation Guide states the following regarding EDI responses[8]:

[6] EDI Implementation Guidelines–for Interconnect Mediated Access (IMA) and Facility Based Directory Listings (FBDL), Version 8.0, Released November 30, 2001, Section 2, Implementation Activities–Progression Testing, p.25.
[7] EDI Implementation Guidelines–for Interconnect Mediated Access (IMA) and Facility Based Directory Listings (FBDL), Version 8.0, Released November 30, 2001, Section 2, Implementation Activities–Regression Testing, p.41.
[8] EDI Implementation Guidelines–for Interconnect Mediated Access (IMA) and Facility Based Directory Listings (FBDL), Version 8.0, Released November 30, 2001, Appendix A, p.72.

IMPLEMENTATION AREAS	PROGRESSION Interoperability Environment	PROGRESSION Stand Alone Environment	REGRESSION Stand Alone Environment
EDI Response	Provided by TSEs Qwest provides direct feedback on error conditions and responses as negotiated in the Project Plan	Provided by TSEs Qwest provides direct feedback on error conditions and responses as negotiated in the Project Plan	Provided by TSEs Responses other than FOCs generated within 5 business days of e-mail request indicating specific PONs & INQNUMS needing a response. FOCs sent each business day for the first ten Orders or transactions received the prior business day.

The section of Appendix A that Qwest provided in its December 21, 2001 response describes a limitation in the number of transactions submitted to SATE, not the number of post order responses received from the test environment.

For both progression and regression testing in SATE, it appears that Qwest currently places a limit on the number of FOCs generated, due to the manual handling of those responses. The other post order responses are negotiated, also due to the manual handling of those responses. This capacity limitation in SATE is not indicative of the production environment, and, therefore, is considered to be a deficiency in the test environment. Although Qwest intends to automate post order responses, as noted in Point 1 of Qwest's November 20, 2001 response, CLECs are currently constrained by the number of post order responses that they can receive in SATE. Therefore, KPMG Consulting recommends that this issue remain open until Qwest can directly address the post order capacity restraint in SATE.

4. The data contained within the order responses is not consistent, and may not mirror the data that would be found in production responses.

In its response dated December, 2001, Qwest states, *"All known differences between the production and IMA versions of SATE are included in the Overview section of the IMA EDI SATE Data Document. As part of the creation of the initial SATE requirements, any case where SATE had to differ from production due to a functional requirement for SATE was noted to be included in the data document. On an ongoing basis, every candidate that is placed into IMA is placed into SATE. If the implementation in SATE causes the system behavior to differ from production, this will be added to the Overview section of the IMA EDI SATE Data Document."*

KPMG Consulting's expectation is that test environment transaction responses should mirror those from the related production environment. Accordingly, CLECs can gain a reasonable level of assurance that they will receive the same results for the transactions they are testing, once they migrate into production. This should facilitate a smooth transition into production for CLECs, and minimize problems for both the CLEC and Qwest. Although the known differences between the behavior of SATE and the production environment are documented in the SATE Data Document, this does not negate the fact that SATE does not completely mirror the production environment.

Additionally, in its response dated December 21, 2001, Qwest stated, *"The SATE PID (PO-19) will help ensure that Qwest has a complete and accurate data document in the future. The PID will test on a monthly basis that the data in the data document reflects the data in the system. This will help CLECs to feel confident that a successful test in SATE will mean a successful move to production."*

Although the proposed SATE PID, when implemented, will test the data in the data document by running transactions in SATE, it does not contain provisions to run the test deck in the production environment. Therefore, it provides no assurance that the same results will be achieved in the production environment.

KPMG Consulting found specific examples, during its review of CLEC testing experiences, for which the EDI response in SATE differs from the EDI response that would be found in production. The differences relate to EDI segments and data that are normally found in production transactions, but did not appear in the equivalent SATE transactions. As per the Focus Observation & Exception Call held on Thursday, December 6, 2001, KPMG Consulting agreed to provide Qwest with specific examples for which SATE results did not match the results obtained in the production environment. KPMG Consulting provided these in a separate, confidential document.

After its review of the confidential data, Qwest stated in its response dated December 21, 2001, *"Issue 1, 3, and 4 were all cases of manually generated responses not system generated responses. Thus, these are not problems with the system being out of synch with production. The implementation of automated post-order responses in SATE will resolve this issue."*

Qwest addresses the last item by stating, *"As part of the flowthru upgrade to SATE, Qwest must change all NPA-NXX and other central office values to match those valid in production. The flowthru system relies on valid production data. As a result, this request will be fulfilled in two phases to correspond to the SATE flowthru upgrades."*

Based on Qwest's review of the confidential data and its response, KPMG Consulting believes that Qwest will address these issues with the SATE planned enhancements. However, until such proposed enhancements are implemented, the current test environment does not provide a CLEC with an accurate representation of the production environment. Therefore, KPMG Consulting recommends that this issue remain open until the proposed enhancements are fully implemented in SATE.

KPMG Consulting's expectation is that test environment transaction responses should mirror those from the related production environment. Accordingly, CLECs can gain a reasonable level of assurance that they will receive the same results for the transactions that they are testing, once they migrate into production. This should facilitate a smooth transition into production for CLECs, and minimize problems for both the CLEC and Qwest. Until Qwest can provide assurance that SATE produces results that are consistent with those that would be expected in the production environment, KPMG Consulting recommends that this issue remain open.

KPMG Consulting recommends that Exception 3077 remain open until Qwest can address the stated SATE deficiencies, or implement the proposed enhancements.

Qwest Response to KPMG Comments (01/23/2002):

Qwest committed to the following action item in the 12/21/01 response:

> *"When post-order responses are automated with the release of SATE 9.0, CLECs will be able to receive automated responses for their LSRs. The IMA EDI Implementation Guide will be updated accordingly. The updated IMA EDI Implementation Guide for 9.0 will be published on January 21, 2001 with an associated Release Notification."*

Qwest completed the updates to the IMA EDI Implementation Guide on 1/22/02 (pp. 30-34). The updated document can be accessed on Qwest's Wholesale web site at: http://www.qwest.com/wholesale/ima/edi/document.html. The associated industry notification was issued on 1/22/02 with the subject line, "9.0 Release Implementation Guide, FAQ, IMA EDI Corrective

Procedures and Error Codes Document and the FBDL EDI Corrective Procedures and Confirmation/Error Codes."

KPMG Supplemental Recommendation (01/24/2002):

KPMG Consulting reviewed the updated EDI Implementation Guide, dated January 21, 2002, about which Qwest notified CLECs on January 22, 2002. KPMG Consulting noted the additional and revised information relating to the upcoming implementation of the Virtual Interconnect Center Knowledge Initiator (VICKI) in SATE Version 9.0.

As stated in previous responses to this Exception, Qwest has asserted that it will be making several enhancements to SATE over the coming months. Although these enhancements are expected to collectively address the identified test environment issues, Qwest does not anticipate completing the proposed changes until May 20, 2002. Therefore, KPMG Consulting will respond to each enhancement once it has been fully implemented, and the CLEC community has been notified per the release management schedule.

KPMG Consulting recommends that Exception 3077 remain open until Qwest can address the stated SATE deficiencies, or implement the proposed enhancements.

Qwest Response to KPMG Supplemental Recommendation (02/19/2002):

In regards to flow through capability in SATE, the phase one addition as originally described in Qwest's 12/21/01 response, has been rescheduled for a 2/25/02 implementation. The first phase will include POTS and UNE-P POTS flow through for Western region LSRs.

Qwest Supplemental Response (02/25/2002):

Qwest stated the following in the 2/19/02 response:

> *"In regards to flow through capability in SATE, the phase one addition as originally described in Qwest's 12/21/01 response, has been rescheduled for a 2/25/02 implementation. The first phase will include POTS and UNE-P POTS flow through for Western region LSRs."*

Qwest completed implementation of phase one SATE flow through capability on 2/25/02. The associated industry notification was issued on 2/25/02 with the subject line, "Deployment of SATE 9.0 Flowthrough, Phase 1."

KPMG 2nd Supplemental Recommendation (04/03/2002):

Since KPMG Consulting's January 24, 2002 response, Qwest has implemented the Virtual Interconnect Center Knowledge Initiator (VICKI) and flow through capabilities for POTS and UNE-P POTS for Western region LSRs in SATE 9.0. Based on these SATE enhancements, KPMG Consulting has readdressed the issues outlined in its January 8, 2002 response and the current status of SATE in relation to this Exception.

1. **SATE does not generate post-order responses in the same manner in which they are created in the production environment.**

   In its response dated November 20, 2001, Qwest stated:

   > "Qwest will provide automated post-order responses in SATE by January 28, 2002. With the launch of automated post-order transactions in SATE, new test scenarios will provide the CLEC

with the ability to experience the behavior of IMA consistent with production timing of post-order transactions. It will also ensure that CLECs receive automated responses consistent with those received in production, negating any risk from manual handling."

Qwest implemented the Virtual Interconnect Center Knowledge Initiator (VICKI) with the deployment of SATE 9.0 on January 28, 2002. As of the date of this response, KPMG Consulting has not been able to assess commercial activity associated with VICKI. Therefore, KPMG Consulting's evaluation is strictly limited to process documentation regarding the functionality of VICKI.

KPMG Consulting reviewed the following sources of information:

1. *A White Paper on The Stand Alone Test Environment (SATE) Virtual Interconnect Center Knowledge Initiator, Version 1.00, December 7, 2001*
2. *IMA EDI SATE VICKI Paths for the Stand Alone Test Environment (SATE), Version 9.05, March 22, 2002*
3. *EDI Implementation Guidelines for Interconnect Mediated Access (IMA), Version 9.1, February 18, 2002*

Based on the documentation, it appears that VICKI provides CLECs the following:

- Ability to receive specific, expected responses to LSRs, based on the Product, Activity, and Supplemental Type for that LSR (known as "paths")
- Predetermined time delays between responses, based on the Product, Activity, Supplemental Type, and Remarks field combination for the LSR
- Ability to request additional paths for new combinations that CLECs wish to test

CLECs employ VICKI by populating the "Remarks" field of the submitted LSR with the prescribed VICKI path. The Remarks field must also reflect whether the CLEC wants to receive responses with production-like intervals or with shorter time delays specifically designed for interface testing. The VICKI paths currently available in SATE are documented in the *IMA EDI SATE VICKI Paths* document. Post order transaction responses that are handled manually in production by an ISC representative will continue to be manually processed in SATE.

Although VICKI appears to have enhanced some aspects of EDI interface testing, KPMG Consulting noted certain limitations of the application, as described below:

(1) VICKI response times may not match production response times

Qwest states, "responses and timeframes may not exactly match a similar LSR submitted to production."[9] KPMG Consulting would expect that the automated post order response times would accurately reflect the response times obtained in the production environment. The fact that VICKI response times do not necessarily mimic production response times is an indication that the testing environment does not provide CLECs with an accurate depiction of production capabilities.

(2) VICKI response detail may not match production response detail

Qwest states, "due to the complexities of certain responses, the detail on these transactions may not match the detail received on a production response for a similar transaction. FOCs are provided with varying quantities of service orders. Also, with respect to the Service and

[9] *IMA EDI SATE VICKI Paths for the Stand Alone Test Environment (SATE)*, Version 9.05, March 22, 2002, pg.4.

Equipment detail of a Completion notice, VICKI is built to allow a CLEC to understand the EDI Map structure and content of a Completion. It does not return a Service and Equipment section specific to the CLEC's test LSR. If a CLEC desires a specific Service and Equipment section be returned, they can request it be added to VICKI via the Data Request Process."[10] KPMG Consulting would expect that the detail on the post order responses would be the same as the detail found in the production responses. The fact that VICKI response detail does not match the production response detail is another indication that the testing environment does not provide CLECs with an accurate depiction of production capabilities.

(3) VICKI does not support "real world scenario testing"

Although VICKI provides CLECs the opportunity to receive certain post order responses without manual intervention, it does not allow CLECs to experience "real world scenario testing". As stated in the document, *A White Paper on The Stand Alone Test Environment (SATE) Virtual Interconnect Center Knowledge Initiator:*

"Qwest has also recently made plans to move ahead with Real World Scenario Testing for post-order transactions. With real world scenario testing, when a CLEC sends an LSR request to Qwest they are asking "what" would happen to this specific LSR if the telephone numbers, circuits, and facilities in SATE existed in Qwest's Production Network and this specific LSR was sent to Production. Plans for Real World Scenario post-order testing will be addressed in the Flow-Through White Paper to be reviewed on January 8, 2002. These plans were also discussed in the SATE User Group Meeting on November 27, 2001. For post-order processing today, only the above interface testing scenario is supported. Real World Scenario Testing will allow CLECs to test the exact message they would receive in production for the LSR they sent. VICKI allows them to test message formats, messages, and maps for specific pre-determined test scenarios."[11]

KPMG Consulting would expect that a fully functioning and robust test environment would support real world testing as described above.

Although VICKI helps CLECs to understand the EDI mapping structure and to determine if their systems can accept certain types of responses for the orders submitted, by design, it does not appear to adequately support complete interface testing capabilities. The limitations described above prevent CLECs from experiencing transaction responses as they would be received in the production environment. By having to select predetermined paths in order to receive responses automatically, VICKI is inherently dissimilar to the way in which orders are processed in the production environment.

KPMG Consulting acknowledges that Qwest intends to implement a flow through component to SATE, as discussed in Issue #2 below. While the implementation of this component should alleviate the third identified limitation of VICKI, it will not completely overcome the deficiencies noted. Therefore, KPMG Consulting recommends that this issue remain <u>open</u> until the identified issues are addressed.

2. Flow through orders are not supported in SATE.

In its response dated November 20, 2001, Qwest stated, "Qwest will enhance the SATE environment to add a test flow through system and test Service Order Processors (SOPs). Qwest will implement the test flow through capability for Western region POTS flow LSRs during the first quarter of 2002.

[10] *IMA EDI SATE VICKI Paths for the Stand Alone Test Environment (SATE)*, Version 9.05, March 22, 2002, pg.5.
[11] *A White Paper on The Stand Alone Test Environment (SATE) Virtual Interconnect Center Knowledge Initiator*, Version 1.00, December 7, 2001, pg.3

Qwest will implement the remainder of test flow through capabilities by May 20, 2002. Once flow through is implemented in SATE, CLECs will have the option to choose when they want their SATE transaction to be sent to the test flow through systems, or receive a specific test scenario response. If the CLEC chooses to have their transaction sent through the test flow through systems, only flow through eligible LSRs will successfully flow. LSRs, which are not eligible for flow through, will be sent to the queue for manual handling. The option to send the test LSR to the flow through systems will allow the CLEC to experience an immediate response once the flow through order is successfully processed and a manual response if flow through is not successful."

Qwest further clarified the anticipated SATE flow through enhancements in its December 21, 2001 response by stating, "Qwest will implement the addition of flowthru capability to SATE in two phases. The first phase is scheduled to be available on February 20, 2001. This phase will include POTS and UNE-P POTS flowthru for Western region LSRs. The second phase will include implementation of all other flowthru eligible products and POTS and UNE-P POTS in the central and eastern regions. This phase is scheduled to be completed prior to May 20, 2002. Qwest will issue a Release Notice announcing the deployment of each release."

Qwest implemented the flow through capabilities for POTS and UNE-P POTS transactions in the Western region with the deployment of SATE 9.1 on February 25, 2002. As of the date of this response, KPMG Consulting has not been able to assess commercial activity for flow through orders. Also, KPMG Consulting does not have any SATE transaction testing results from the ROC 3rd Party Test to evaluate flow through capabilities. As with VICKI, KPMG Consulting's evaluation is strictly limited to documentation and a process review regarding SATE's flow through functionality.

KPMG Consulting reviewed the following documentation:

1. *A White Paper on Flow Through in The Stand Alone Test Environment (SATE), Version 1.00, January 3, 2002*
2. *EDI Implementation Guidelines for Interconnect Mediated Access (IMA), Version 9.1, February 18, 2002*
3. *Master Red-Lined CLEC-Qwest CMP Re-design Framework Interim Draft – Revised 03-27-02*

Based on the documentation, it appears that CLECs will be able to choose to have orders either sent to VICKI or to a flow through component of SATE. If a CLEC populates the remarks field with a path, then the order will employ the VICKI component; otherwise, the order will automatically be tested against the flow through system. Each order will either receive a FOC, an "Errored" status update if the order failed to flow through, or no response if flow through was not attempted. CLECs must have the Status Updates feature enabled to receive an "Errored" status update.

KPMG Consulting noted that flow through capabilities will not apply to all possible post order responses. The flow through documentation states, "Transactions not mentioned above, specifically those beyond service order creation such as Completions and Service Order Holds, will not be automated with this enhancement." It also states, "Note that no other automated responses will be sent to CLECs beyond the automated FOCs or "Errored" Status Updates mentioned above."[12]

The functionality enhancement does not appear to provide CLECs with a full understanding of how an order could flow through to a "Completed" end state in the production systems. Without complete flow through functionality, CLECs may not be able to gain a complete understanding of how an LSR will react to a given set of conditions within the production environment. KPMG Consulting does not

[12] *A White Paper on Flow Through in The Stand Alone Test Environment (SATE)*, Version 1.00, January 3, 2002, pg.4.

believe that this fundamental objective of interface testing can be fulfilled if CLECs cannot perform end-to-end, real world testing.

As of the date of this response, the new flow through capabilities have only been rolled out to one region for two products. KPMG also noted in CMP documentation that certain components of the test environment have yet to be implemented. The CMP document states, "The CTE contains the appropriate applications for pre-ordering and Local Service Request (LSR) ordering up to but not including the service order processor. Qwest intends to include the service order processor as part of the SATE component of the CTE by the end of 2002."[13] Until the flow through enhancements, including the service order processor, are completely implemented in SATE, the current test environment does not provide a CLEC with an accurate representation of the production environment's flow through capabilities.

Based on the lack of end-to-end flow through functionality and the current implementation time frame, KPMG Consulting recommends that this issue remain open.

3. The volume of order responses supported in SATE is restricted due to manual response handling.

In its November 20, 2001 and December 21, 2001 responses, Qwest stated that it did not limit, but rather negotiated, the number of post order responses received by CLECs. However, KPMG Consulting noted several instances within the *EDI Implementation Guide* where it is explicitly stated that there are limitations to the number of FOCs that Qwest will provide to CLECs. The limitations appeared to stem from the manual response generation required for SATE. With the implementation of VICKI, the resource requirements necessary to support SATE transactions should have been diminished. KPMG Consulting would expect that with a production-like testing environment, Qwest would be able to support CLEC test order volumes without imposing limitations on the response activity. Limitations on the number of post order responses would not occur in the production environment under normal circumstances, and therefore, should not be imposed in the testing environment. Any such limitations are considered to be a deficiency of the test environment. Therefore, KPMG Consulting recommends that this issue remain open until Qwest can directly address the post order capacity restraint in SATE.

4. The data contained within the order responses is not consistent, and may not mirror the data that would be found in production responses.

Qwest stated in its December 21, 2001 response that it documents all known differences between IMA and SATE in the Overview section of the SATE Data Document. Additionally, Qwest stated that the proposed SATE PID (PO-19) will help ensure that Qwest has a complete and accurate data document.

KPMG Consulting maintains its position that test environment transaction responses should mirror those from the corresponding production environment. Accordingly, CLECs can gain a reasonable level of assurance that they will receive the same results for the transactions they are testing, once they migrate into production. This should facilitate a smooth transition into production for CLECs, and minimize problems for both the CLEC and Qwest. Although the known differences between the behavior of SATE and the production environment are documented in the SATE Data Document, this does not negate the fact that SATE does not completely mirror the production environment.

While the proposed SATE PID, when implemented, will test the data in the data document by running transactions in SATE, it does not contain provisions to run the test deck in the production environment. Therefore, it provides no assurance that the same results will be achieved in the production environment.

[13] *Master Red-Lined CLEC-Qwest CMP Re-design Framework Interim Draft – Revised 03-27-02*, pg.69

Until Qwest can provide assurance that SATE produces results that are consistent with those that would be expected in the production environment, KPMG Consulting recommends that this issue remain open.

KPMG Consulting's expectation is that test environment transaction responses should mirror those from the related production environment. Although Qwest is continually enhancing the functionality of SATE, the test environment does not currently have sufficient end-to end testing capabilities that would be expected of a robust and fully functional testing environment.

KPMG Consulting recommends that Exception 3077 remain open until Qwest can address the stated SATE deficiencies, and complete implementation of the proposed enhancements.

Qwest Response to KPMG 2nd Supplemental Recommendation (04/08/2002):

For ease of reading, the KPMG comments from 04/04/02 have been repeated in Italics and Qwest's responses are included under the same headings used by KPMG.

(1.) SATE does not generate post-order responses in the same manner in which they are created in the production environment.

(1.) ***VICKI response times may not match production response times***

The statement quoted by KPMG from the VICKI path document "responses and timeframes may not exactly match a similar LSR submitted to production."[14] was included to provide CLECs with realistic expectations that response times cannot be consistently predicted in production, and as a result, the response times in the test environment may not exactly match production. In the production environment, response times can vary due to many factors including whether the transaction was processed manually or using flow through and levels of use of the system at the time of submission. With VICKI, Qwest has mimicked the system performance of similar production LSRs to determine the appropriate response times.

Qwest will clarify the discussion surrounding this issue in the VICKI Path Document to read as follows:

> Two types of paths are included in this document. The first are those with time delays conducive to testing, and have remarks that begin with "Test". The second are those with time delays that parallel production, and have remarks that begin with "Prod". Qwest has based the paths, responses, and production time frames on actual production responses for similar LSRs. However, these responses and timeframes will be comparable to production but may not exactly match a similar LSR submitted to production due to the variability of the production environment. In production, response times can vary due to many factors including whether the transaction was processed manually or using flow through and levels of use of the system at the time of submission.

This update will be made to the VICKI Path Document with the next scheduled release of the document on April 15, 2002. Based upon a SATE Users' Group decision regarding the issuance of the data document, Qwest is unable to schedule an out-of-cycle release of this document.

(2.) ***VICKI response detail may not match production response detail***

The purpose of VICKI is to provide the CLECs consistent automated responses in a test environment ensuring that CLECs can receive and respond to Qwest's EDI responses. The

[14] *IMA EDI SATE VICKI Paths for the Stand Alone Test Environment (SATE)*, Version 9.05, March 22, 2002, pg.4.

content of the responses provides standardized record output while CLEC input is variable. Although the detail of the responses may vary slightly from the input transaction, the CLEC can still utilize VICKI for the above stated purpose of testing.

Qwest will clarify the discussion surrounding this issue in the VICKI Path Document to read as follows:

> Due to the complexities of certain responses, the detail data on these transactions may not match the detail received on a production response for a similar transaction. The structure of the EDI response will mirror production. FOCs are provided with varying quantities of service orders. Also, with respect to the Service and Equipment detail of a Completion notice, VICKI is built to allow a CLEC to understand the EDI Map structure and content of a Completion. It does not return a Service and Equipment section specific to the CLEC's test LSR. If a CLEC desires a specific detail data in the Service and Equipment section to be returned, they can request it be added to VICKI via the Data Request Process.

This update will be made to the VICKI Path Document with the next scheduled release of the document on April 15, 2002. Based upon a SATE Users' Group decision regarding the issuance of the data document, Qwest is unable to schedule an out-of-cycle release of this document.

Additionally, the specific examples cited by KPMG were included in the VICKI White Paper that was discussed with the CLECs in the CLEC SATE Users' Group on December 11, 2002. CLEC participants raised no issues regarding Qwest's plans as they relate to these examples.

Qwest has also included in the VICKI Path Document the provision that if a CLEC desires to test specific data in their response not already existing, then it can be added to SATE in an expeditious manner using the Data Request Process. This ensures the CLECs' ability to test for specific response content, if needed.

(3.) ***VICKI does not support "real world scenario testing"***

KPMG's latest response includes the statement *"By having to select predetermined paths in order to receive responses automatically, VICKI is inherently dissimilar to the way in which orders are processed in the production environment."* Qwest believes that to best support our CLECs for the purpose of testing an IMA EDI interface, particularly for IMA EDI certification testing, VICKI is purposefully dissimilar in order to allow CLECs to receive all the necessary test responses. To be placed into production, CLECs must test all responses. VICKI is designed to allow CLECs to effectively meet this requirement by making available paths to trigger the various responses.

2. ***Flow through orders are not supported in SATE.***

Qwest believes that to best support our CLECs for the purpose of testing an EDI interface VICKI should be independent of flow through in order to allow CLECs to receive all the necessary test responses for certification. To be placed into production, CLECs must test all IMA EDI responses; however, flow through testing is not a requirement of certification. Flow through testing is designed to facilitate the CLECs' ability to ensure that orders are not manually handled by Qwest Interconnect Center representatives. Thus, the focus of flow through testing is to ensure uniformly successful order submission, whereas VICKI ensures that CLECs can receive all possible transaction responses. Therefore, flow through does not provide the predictable responses needed for CLEC certification.

Additionally, Qwest is making flow through available in SATE to allow CLECs to test if their transactions would flow through to the Service Order Processor in the production environment. The flow through enhancement was not intended to provide information on order completion or

service order holds (jeopardy). The order completion or jeopardy is independent of whether an order was created by a service center representative or automatically with flow through.

If desired by a CLEC, Qwest could provide other responses for a flow through LSR manually, including an order completion or jeopardy. A CLEC would indicate the additional responses desired for a specific scenario on their Scenario Summary prior to the beginning of testing. As a result, Qwest believes that there is no limitation in the ability of a CLEC to test all desired responses with a potential flow through LSR.

In KPMG's response, they question the statement included in the master redline CMP document which states, *"Qwest intends to include the service order processor as part of the SATE component of the CTE by the end of 2002."*[15] Qwest remains committed to adding the service order processor to SATE by the end of May 2002. As a result, Qwest will propose updating the master redline document in the next CMP Redesign meeting.

3. ***The volume of order responses supported in SATE is restricted due to manual response handling.***

As stated in Qwest's supplemental response from 12/21/01, "Qwest does not limit the number of response transactions a CLEC may receive while testing in SATE."

As part of the EDI Implementation Guide updates for 9.0 published on January 22, 2002, Qwest removed all references to the FOC limit in SATE. Qwest believes that this should resolve the perceived post-order capacity restraint in SATE, as referenced by KPMG.

4. ***The data contained within the order responses is not consistent, and may not mirror the data that would be found in production responses.***

KPMG makes the following statement in their last response, "*While the proposed SATE PID, when implemented, will test the data in the data document by running transactions in SATE, it does not contain provisions to run the test deck in the production environment. Therefore, it provides no assurance that the same results will be achieved in the production environment.*" First, the SATE PID is no longer a proposed PID, as the PID has been accepted in both the ROC and in Arizona. Second, during the negotiation of the SATE PID (PO-19), this issue as raised by KPMG here was discussed and dismissed by the CLECs again both in the ROC and in Arizona.

Furthermore, the intent of 'production mirroring' is that while a test environment must mirror production behavior, the exact data within a transaction need not be identical. Based on this understanding and as implied by the definition of the PID, PO-19 measures the extent to which SATE conforms to the same interface specifications as production, ensuring that the SATE mirrors production without relying on comparing transactions with different data elements. The definition implies reliance upon and an adherence to the business rules published in Qwest's IMA EDI Disclosure Documentation, in the same way that the CLEC community relies upon this information.

The IMA code that is used in SATE is the same code as in production. In SATE, the data returned is test data so that predictable test results can be reused. This was the intent and design of SATE. In Production, data changes. Therefore, running the SATE PID in SATE and Production will result in different data being returned for the transaction.

In conclusion, Qwest respectfully requests that KPMG close this Exception and categorize it as "Closed/Unresolved".

Attachment(s): None

[15] *Master Red-Lined CLEC-Qwest CMP Re-design Framework Interim Draft – Revised 03-27-02*, pg.69