QWEST Corporation
Technical Publication

Network Element Operational and Support Requirements for OSS

77414
Issue B
September 2005

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CONTENTS

Chapter and Section **Page**

1. Introduction

1.1 General

This document provides Network Element (NE) operational and Network Element Provider (NEP) support requirements for improved OSS (Operations Support System) NE provisioning and maintenance in the Qwest network.

1.2 Document History and Reason for Reissue

1.2.1 Document History

Previous issues of this document are listed below, in chronological order:

- Issue A, November 2004

1.2.2 Reason for Reissue

This document reissue incorporates the following revisions/additions:

- **Revised and Simplified** Requirements NMA-R15 and TEAMS-R7:

Replaced general wording in Paragraph (a) for "written verification" with specific requirement for the NEP to provide to Qwest the "Tech Pub 77414 OSMINE Results Summary Sheet" in Appendix A as completed by Telcordia. Also revised Paragraph (b) with specific requirement for the NEP to provide to Qwest the completed "Tech Pub 77414 Issue Resolution Summary or Waiver Request Sheet" in Appendix B. .

- **Revised and Simplified** Requirements TIRKS-R3A:

Replaced general wording in Paragraph (a) for "written certification" with requirement that, if used, the "Charge-Per-Function" process must enable effective Qwest provisioning.

- **Clarified** Requirements TIRKS-R2, TIRKS-R3, NMA-R9, NMA-R15:

Addition and removal of selected text for clarification. (NMA-R9, in particular, has significant additional text clarifying what is meant by "support" for remote provisioning of NE userid/passwords.)

- **New** Requirement TIRKS-R4:

NEP verification requirement similar to NMA-R15 and TEAMS-R7.

- **New** Requirement NMA-R16:

NE support of the RTRV-ALM-ENV, RTRV-ATTR-ENV, and SET-ATTR-ENV commands.

- **New** Requirements TIRKS-R2c and NMA-R17:

Support for effective implementation of NMA Autogen functionality.

- **Corrected** Requirement NMA-R2:

Corrected label and text to indicate "Service Affect (SRVEFF)" code.

- **Corrected** Requirement NMA-R11:

Corrected text to indicate "The EMS must not generate a response to a "RTRV-HDR".

- **Clarified** Requirement TEAMS-R3:

Addition and removal of selected text for clarification. In particular, specified that the issue must be addressed in the OSMINE contract scope of work, to include verification.

- Section 6.1, References:

Added reference to TR-NWT-000835.

1.3 Scope, Applicability, and Relation to OSMINE

The requirements included in this document have been identified by Qwest OSS staff and line personnel to address frequently observed NE behavior and NEP support issues that have all the following attributes:

a) A significant OSS operations impact,
b) Common across many NEs and NEPs, and
c) Technically feasible for NEP implementation and verification.

> ***NOTE:*** *For NEs monitored by NMA, this document also includes requirements necessary to enable NMA Autogen functionality, a critical new capability now being utilized in Qwest NMA operations. (See TIRKS-R2c and NMA-R17.)*

This document currently includes requirements applicable for any NE to be deployed in and supported in the Qwest network using the TIRKS, NMA, or Transport Element Activation Manager (Transport EAM) OSS systems. The reader should refer to the separate section for each OSS for more specific applicability information.

While some of these requirements may be addressed as part of the OSMINE process for a given NE, the reader should carefully note the following:

1. **This document is not intended to replace or supersede the OSMINE process, and Qwest will not consider any claimed conformance with these requirements as a valid NEP justification for failure to cover a given NE under the OSMINE process.**

2. This document does not provide a comprehensive list of all the detailed operational requirements that fall under the scope of the OSMINE process, nor does it replace or supersede any Telcordia requirements documents.

1.4 Additions and Revisions

New and revised requirements will periodically be incorporated into future issues of this document. Additional OSS systems may also be covered in future issues, based on Qwest operational needs.

1.5 Pending Issues

None identified at this time.

1.6 Qwest Contact

Any suggestions, comments, or questions on the content of this document should be directed to:

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Qwest Network Operations
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allen.black@qwest.com

CONTENTS

Chapter and Section **Page**

2. Requirements for TIRKS Operations

2.1 Applicability

These requirements apply to all equipment products to be inventoried in the Qwest TIRKS databases.

In order to place a piece of equipment into the Qwest TIRKS inventory and have it supported by downstream OSS systems (NMA, Transport EAM), Qwest expects that the NEP will contract through Telcordia to take it through the full OSMINE process for TIRKS and each downstream OSS that Qwest will use to support the NE. The requirements in this section are intended to help assure the best possible results from the OSMINE process; that is, OSMINE results that help minimize manual processes, workarounds, and rework.

2.2 Requirements List

TIRKS-R1. Scope of NE Information Provided to Telcordia

The NEP **must** provide to Telcordia full and accurate functionality of the equipment, including full details on shelf, plugs and slots, in addition to applications, all within the timeframe documented in the OSMINE contract.

> ***NOTE**: Inaccurate submissions, or partial submissions late in the OSMINE process, oftentimes result in OSMINE results that are late, incomplete, inaccurate, and/or inclusive of complex workarounds and manual processes. Additionally, it may compromise implementation timeframes.*

TIRKS-R2. Scope of Contracted OSMINE Work

The contracted scope of TIRKS/Common Language OSMINE work for the NE **must** include the necessary information and models:

-A. For all equipment features offered/advertised to Qwest, except for those otherwise exempted by Qwest. Necessary information and models include the following, along with any other items deemed necessary by Telcordia:

- Bank Codes and Attributes,
- Full details on applications, shelf, plugs and slots.
- CLEI/HECI Codes,
- Function Codes,
- Product Codes,
- Equipment Hierarchy,
- Equipment Options - (e.g. frame formatting and line coding for DS1, etc.),

- Equipment and Facility Termination Options – (e.g., 1+1, 0x1, UPSR, Dual-Home Arc, to name a few possibilities), and
- Leadsets.
- Specific CLLI requirements.

-B. For effective Qwest implementation of TIRKS provisioning using all OS features and enhancements applicable for the range of planned NE configurations to be used in the Qwest network. (Some common TIRKS feature examples include Generic SONET, STS-to-STS Connections, Limited VT Matrix, Dynamic Inventory Management (DIM), and Virtual Concatenation.)

-C. To enable 100% implementation of NMA Autogen functionality for NEs monitored by NMA.

***NOTE**: NMA Autogen functionality is dependent on a sufficient set of assignable and non-assignable Hecig values and Unit Numbering scheme used in TIRKS. In some cases this may require a greater number of Hecig values than would otherwise be needed. (Also see Requirement NMA-R17.)*

TIRKS-R3. Use of the Telcordia "Charge-Per-Function" Process

(In addition to Requirement TIRKS-R1 above) For use of the Telcordia "Charge-Per-Function" process (as opposed to full TIRKS OSIA) for a given NE/release and/or Product Change Notice (PCN):

-A. The "Charge-Per-Function" OSMINE results **must** enable effective Qwest provisioning of that NE/release.

***NOTE**: "Effective provisioning" would cover all NE features and configurations, as well as the TIRKS features as applicable in requirement TIRKS-R1 above. As a <u>minimum</u>, it is expected that the Charge-per-Function process would provide:*

- *Full CLEI/HECI codes, Function Codes, and necessary Bank Codes,*
- *CUR number obtained from Telcordia,*
- *Equipment hierarchies (if required).*

-B. The contracted scope of work **must** include full TIRKS catalog support for the resultant Catalog Update Requests (CUR), which **must** contain appropriate Hecig/function code chaining.

NOTE: *As a minimum, all Hecig/function code chaining must be incorporated into the Telcordia master catalog, and retained therein for future TIRKS Catalog releases.*

TIRKS-R4. NEP Verification/Explanation
The NEP **must** provide Qwest with the "Tech Pub 77414 OSMINE Results Summary Sheet" (see Appendix A), with the TIRKS section as completed by Telcordia.

CONTENTS

Chapter and Section **Page**

3. Requirements for NMA Operations

3.1 Applicability

These requirements apply for TL-1 NEs that are monitored by NMA in the Qwest network. While there will be some similar type requirements for NEs that communicate via other languages (e.g., CMISE or SNMP), that is beyond the current scope of this document.

> ***IMPORTANT NOTE**: All requirements in this section refer to the **default** provisioning and NE behavior for the product as it is, or will be, provided to Qwest. **If the NE does not meet a specific requirement under the default provisioning, then the NE does not meet the requirement.** Qwest will not consider the ability of an NE to meet a specific requirement using a non-default setting as a valid basis for any NEP claim of conformance.*

3.2 Requirements List

NMA-R1. Message Type
The message type, alarm ("ALM") or event ("EVT"), for each NE-generated maintenance message **must** be provisioned in accordance with the Telcordia NMA requirements.

NMA-R2. Service Affect Code (SRVEFF)
The "srveff" value ("SA" or "NSA") in each NE alarm message **must** be provisioned in accordance with Telcordia NMA requirements.

NMA-R3. Message Format/Content
The format/content of each NE alarm and event message **must** be such that the message can be parsed and processed by NMA with no errors, or an NMA script that enables error-free processing **must** be provided.

NMA-R4. NE/EMS Com Link Timeout
The NE or EMS **must not** initiate a time-out of the NMA-to-NE/EMS com link.

NMA-R5. Autonomous NE/EMS "Still Alive" Messages
The NE or EMS **must not** autonomously generate any "special" character or message (e.g. a control character) to NMA as an indication that the com link is still active.

NMA-R6. Support of "RTRV-ALM-ALL" Command

a) The NE **must** accept the NMA-generated "RTRV-ALM-ALL" command as built using the nma_monitor screen (as shown below).

RTRV-ALM-ALL:<tid>: : :: , , , , , ;

b) The NE **must** generate an accurate response to this command.

c) The NE response to this command **must** have a format/content that can be parsed and processed by NMA with no errors, or an NMA script to enable error-free processing **must** be provided.

NMA-R7. Support of "RTRV-NETYPE" Command

The NE **must** accept the NMA-generated "RTRV-NETYPE" command formatted as shown below and generate a response with format/content in conformance with Telcordia requirements.

RTRV-NETYPE:<tid>::<ctag>;

NMA-R8. Support of "RTRV-EQPT" Command

The NE **must** accept the NMA-generated "RTRV-EQPT" command formatted as shown below and generate a response in conformance with Telcordia requirements.

RTRV-EQPT:<tid>:ALL:<ctag>;

NMA-R9. Support of Remote Password Provisioning

The NE **must** support remote provisioning of NE userid/passwords, with details and defaults as indicated below, via (one or more of) the following NMA-generated TL-1 commands: ACT-USER, CANC-USER, ENT-USER or ENT-SECU-USER, ED-USER or ED-SECU-USER, and DLT-USER or DLT-SECU-USER. [Note: TR-NWT-000835, Issue 3, 1/93, Page 3-11, CR 3-1.]

a) A single default (root-superuser) user **is** provided with the NE.

b) The user can add a minimum of 10 other uid/pids at various levels of security i.e., "view only", "provision", "superuser".

c) The user can delete the default (superuser) uid/pid entirely, or edit it to "view only" security.

d) The user can specify passwords of 8 char or more using any combination of special characters (e.g., #,$,%,&,!), numbers (0,1,2,…,8 or 9), lower case letters, and upper case letters.

NMA-R10. Fixed AID Format and Structure Between NE Releases
[Where an earlier release of the NE is already deployed and monitored by NMA in the Qwest network] The TL-1 AID format/structure **must not** change in any way for equipment and facility types supported in the previous NE release(s).

NMA-R11. NE/EMS Response to "RTRV-HDR" Command
[Where an EMS (Element Management System) is provided for deployment of the NE] The EMS **must** not generate a response to a "RTRV-HDR" command for any NE that is failed or cannot be accessed by the EMS (e.g., failed EMS-NE link).

NMA-R12. NE SID/TID Values
The NE **must** accept SID/TID values formatted in accordance with the Qwest SID/TID format conventions, as described below.

<CLLI><Relay Rack# w/o delimiter>
(e.g., If CLLI= lttncoml & RR#= 062210.06a, then SID= lttncoml06221006a)

NMA-R13. Com Link Configuration as Subtending NE
The NE **must** support NMA configuration as a subtending NE (e.g., connected via GNE or EMS) for the NMA-to-NE com link.

NMA-R14. Dynamic or NE-Specific AIDs
The NE **must not** use AIDs that are programmable or specific to each deployed NE. (E.G., AIDs that include non-fixed slot number value or the NE-specific relay rack value).

NMA-R15. NEP Verification/Explanation
a) The NEP **must** provide Qwest with the "Tech Pub 77414 OSMINE Results Summary Sheet" (see Appendix A), with the NMA section as completed by Telcordia.

b) The NEP **must** provide Qwest the completed "Tech Pub 77414 Issue Resolution Summary or Waiver Request Sheet" (see Appendix B) that includes a summary of the plan/schedule to meet and/or provide verification, or a waiver request (with justification), for each NMA requirement where Telcordia has checked the "No or Not Determined" column on the "Tech Pub 77414 OSMINE Results Summary Sheet".

NMA-R16. Remote Environmental Alarm retrievals and provisioning
[For NEs that monitor environmental conditions] The NE **must:**

a) Accept the NMA-generated RTRV-ALM-ENV, RTRV-ATTR-ENV, and SET-ATTR-ENV commands formatted as shown below,

RTRV-ALM-ENV:<tid>::ctag;
RTRV-ATTR-ENV:<tid>::ctag;
SET-ATTR-ENV:<tid>:<aid>:ctag::NTFCNCDE,ALMTYPE,\"ALMMSG\"\

b) Generate an accurate response for the RTRV-ALM-ENV command with format/content that can be parsed and processed by NMA with no errors, and

c) Generate an accurate response to the RTRV-ATTR-ENV command with format/content in accordance with Telcordia requirements.

NMA-R17. NMA Autogen Functionality

a) The NE functionality, TL-1 specifications (set of AIDs, etc.), and authorized (GFDS and/or specific NEP-funded) OSS features **must** enable, and

b) The scope of contracted OSMINE work **must** include:

100% implementation of NMA Autogen functionality with no workarounds or manual intervention.

***NOTE**: NMA Autogen functionality is dependent on a sufficient NE TL-1 alarm specification and set of AIDs and, in some cases, may require use of GFDS and/or specific NEP-funded OSS features. It is also dependent on a sufficient set of assignable and non-assignable Hecig values and Unit Numbering scheme used in TIRKS (see TIRKS-R2-C).*

CONTENTS

Chapter and Section **Page**

4. Requirements for Transport EAM Operations

4.1 Applicability

The following requirements apply for the NEs to be provisioned and supported by Transport EAM (TEAM) in the Qwest network.

> ***IMPORTANT NOTE**: All requirements in this section refer to the **default** provisioning and NE behavior for the product as it is, or will be, provided to Qwest. **If the NE does not meet a specific requirement under the default provisioning, then the NE does not meet the requirement.** Qwest will not consider the ability of an NE to meet a specific requirement using a non-default setting as a valid basis for any NEP claim of conformance.*

4.2 Requirements List

TEAMS-R1. OSMINE for OSS Functional Changes
For an NE release with any significant functional change in the support or flow-thru from an upstream or peer OSS (see Note below), the NEP **must** cover that release in an OSMINE project with scope-of-work that includes flow-through and functional verification testing.

> ***NOTE:** Examples would include TIRKS changes in one or more of the following:*
>
> - *HECIG / CLEI Codes*
> - *Function Codes*
> - *Bankcodes*

TEAMS-R2. OSMINE for NE Command Changes
For an NE release with any significant format/structure change in one or more of the commands used by Transport EAM or NMA to provision and query the NE, the NEP **must** cover that release in an OSMINE project with scope-of-work that includes functional verification testing for those commands.

TEAMS-R3. NE Message Provisioning
For any NE alarm message with attribute(s) configurable by the NE, the contracted scope of Transport EAM OSMINE work **must** include verification that the NE will accept and properly configure those alarm attributes when and as specified in a SET-ATTR or SET-ATTR-ENV command generated using the Transport EAM NE Command Interface ("Open Command") with format/content in accordance with Telcordia TL-1 requirements.

***NOTE**: Qwest operations personnel sometimes must use Transport EAM to configure these attributes; thus, for operational reasons it is necessary that NEs not require use of other proprietary commands or SET commands with proprietary content/format.*

TEAMS-R4. Autonomous Provisioning
The OSMINE project scope-of-work **should** include development and verification of a Transport EAM provisioning process where no manual intervention is required between initial establishment of the NE (frame) and generation of the provisioning orders.

***NOTE:** This process could include auto-discovery functionality and/or functionality similar to the existing "Decouple" process developed by Telcordia.*

TEAMS-R5. Autonomous Configuration-Dependent Provisioning
For an NE release with required message provisioning that varies depending on NE/card application or service, the OSMINE project scope-of-work **must** include:

a) Identification of specific flow-thru information (e.g., from TIRKS) that can be used to specifically determine which application or service is to be provisioned,
b) Implementation of autonomous provisioning upon receipt of that flow-through information, and
c) Verification testing.

***NOTE:** The flow-through "trigger" information could be (but is not limited to), a HECIG, Function Code, Signal Level or a combination of such.*

TEAMS-R6. Complete NE Restoration
In the event of a catastrophic NE failure with subsequent repair/replacement, the NE **should** support complete restoration using the Transport EAM application, and verification testing for this capability **must** be included in the OSMINE project scope-of-work.

TEAMS-R7. NEP Verification/Explanation

a) The NEP **must** provide Qwest with the "Tech Pub 77414 OSMINE Results Summary Sheet" (see Appendix A), with the Transport EAM section as completed by Telcordia.

b) The NEP **must** provide Qwest the completed "Tech Pub 77414 Issue Resolution Summary or Waiver Request Sheet" (see Appendix B) that includes a summary of the plan/schedule to meet and/or provide verification, or a waiver request (with justification), for each Transport EAM requirement where Telcordia has checked the "No or Not Determined" column on the "Tech Pub 77414 OSMINE Results Summary Sheet".

CONTENTS

Chapter and Section **Page**

5. Definitions

5.1 Acronyms

AMI	Alternate Mark Inversion
B8ZS	Bipolar with Eight-Zero Substitution
C1	TIRKS Circuit Component System
CAC	Circuit Access Code
CD	Circuit Details; a TIRKS System C1 screen
CIC	Carrier Identification Code
CLCI™	Common Language® Circuit Identification
CLEC	Competitive Local Exchange Carrier
CLEI™	Common Language® Equipment Identification
CLEO	Common Language® Equipment Order
CLFI™	Common Language® Facility Identification
CLLI™	Common Language® Location Identification
CLO	Circuit Layout Order
CMISE	Common Management Information Service Element
CP	Customer Premises
CPE	Customer Premises Equipment
CUR	Catalog Update Request
DCC	Data Communications Channel
DCS	Digital Cross-connect System; electronic; full-featured (*cf.* EDSX)
DSX	A (manual) digital cross-connect frame
DWDM	Dense Wave Division Multiplexing
E1	TIRKS Equipment Component System
E1/REF	Use TIRKS®-E1/REF
E1/TAS	Use TIRKS®-E1/TAS
EDSX	Electronic DSX; less functionality than a DCS (no rate changing, no grooming)

ESF	Extended Superframe Format; a DS3 protocol
F1	Use TIRKS® - F1
FACS	Facility Assignment and Control System
FEPS	Facility and Equipment Planning System Use TIRKS®-FEPS
FEPS/PWS	TIRKS®-FEPS/Planning Work Station
GFDS	Telcordia Generic Feature Development Services (formerly SFGF)
HDSL	High bitrate Digital Subscriber Line
HECI	TIRKS Human Equipment Catalog Item; usually same as the CLEI
HECIG	TIRKS Human Equipment Catalog Item Group; the first eight characters of the HECI code
NE	Network Element
NEP	Network Element Provider
NMA	Network Monitoring and Analysis system
OSMINE	Operations Systems Modification for Intelligent Network Elements
OSIA	Operations Systems Impact Analysis
OSS	Operations Support System
PCN	Product Change Notice
PM	Performance Monitoring
SF	Superframe Format, a DS3 protocol
SID/TID	Source ID/Target ID for a network element
SNMP	Simple Network Management Protocol
SONET	Synchronous Optical NETwork
TIRKS®	Trunks Integrated Record Keeping System
TIRKS	An inventory and provisioning system.
TL-1	Transaction Language 1
Transport EAM	Telcordia Transport Element Activation Manager
TR8	Abbreviation of TR-TSY-000008, the Telcordia document that defines an integrated SLC96 Interface to a local digital switch.

5.2 Glossary

Carrier Access Code (CAC)

The sequence an End-User dials to obtain access to the switched services of a carrier.

Facilities

Facilities are the transmission paths between the demarcation points serving customer locations, a demarcation point serving a customer location and a QWEST Central Office, or two QWEST offices.

SONET

Synchronous Optical Network (SONET): A standard providing electrical and optical specifications for the physical and higher layers, the first stage of which is at 51.84 Mbit/s, the Optical Channel 1 (OC-1) level. Other rates, defined as OC-n where n=3, 12, 24, 48, or 192.

CONTENTS

Chapter and Section **Page**

6. References

6.1 Telcordia Documents

BD-TRANSPORT-xx	Where xx equals all of the vendor documentation as well as administrative documentation (For example, BD-TRANSPORT-FUJ-FLWV4100 or BD-TRANSPORT-ADM)
BD-TIRKSxx	Where xx equals vendor specific or release/feature documentation.
BD-NMAxx	Where xx equals vendor specific or release/feature documentation.
BR 756-552-795	TIRKS Function Encoder Guide
GR-499-CORE	*Transport Systems Generic Requirements (TSGR): Common Requirements*, Issue 3, September 2004.
GR-833-CORE	*OTGR Section 12.3: Operations Application Messages – Network Maintenance: Network Element and Transport Surveillance Messages* (a module of OTGR, FR-439), Issue 3 (Bellcore, February 1999).
SR-1665	*Telcordia™ NMA® System Generic Transport Network Element Interface Support*, Issue 7 (Telcordia, May 2003).
TR-NWT-000835	*Operations Application Messages - Network Element and Network System Security Administration Messages*, Issue 3 (Bellcore January 1993).

6.2 QWEST Technical Publications

PUB 77200	*QWEST DS1 Service and QWEST DS1 Rate Synchronization Service.* Issue D, October, 1995.
PUB 77375	*1.544 Mbit/s Channel Interfaces.* Issue D, October, 1995.

6.3 Ordering Information

All documents are subject to change and their citation in this document reflects the most current information available at the time of printing. Readers are advised to check status and availability of all documents.

Telcordia documents from:

Telcordia Customer Relations
8 Corporate Place, PYA 3A-184
Piscataway, NJ 08854-4156
Fax: (732) 336-2559
Phone: (800) 521-CORE (2673) (U.S. and Canada)
Phone: (732) 699-5800 (Others)
Web: www.telcordia.com

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6.4 Trademarks

COMMON LANGUAGE	Registered Trademark of Telcordia.
QWEST	Registered Trademark of QWEST Communications International, Inc.
TIRKS	Registered Trademark of Telcordia Technologies, Inc.
NMA	Registered Trademark of Telcordia Technologies, Inc.
Telcordia	Registered Trademark of Telcordia Technologies, Inc

Appendix A: Tech Pub 77414 OSMINE Results Summary Sheet

Project Identification

Network Element Provider: _____
Network Element/Release: _____
Associated OSMINE contract number(s): _____
Date of Response: _____
Telcordia Contact Name/Phone/E-mail: _____
_____

Instructions: This form is to be –

1. **Completed by Telcordia, with no NEP comments or responses included.** [NEP plans to address/resolve items or request for waiver must be submitted via the form in Appendix B.]

   - Indicate with an "x" under "Yes" or "No/Not Determined" the one that applies.
   - In the "Summary and/or Reference" column, briefly describe and/or provide reference (OSMINE document Section and paragraph number) for the observed result.
   - Change row height and add additional pages as necessary.

2. **Submitted by the NEP (or by Telcordia if/as authorized by the NEP) via e-mail** as a Microsoft Word or pdf attachment, to the following distribution list:

   Clinton.Cave@qwest.com, Allen.Black@qwest.com, Jo.Speake@qwest.com, Evelyn.LoVerdiCruz@qwest.com

   *To receive form in Word format, send e-mail request to **Allen.Black@qwest.com**.*

Note:
Any reference to "scope-of-work" refers to the agreed-upon scope-of-work between Telcordia and the NEP, including all scope changes, as of the date this sheet is completed.

1. TIRKS System Information

Check the column that applies:

	Yes	No
TIRKS Function Coding: - Recommended by Telcordia? - Included in the scope of work?		
TIRKS OSIA: - Recommended by Telcordia? - Included in the scope of work?		

2. NMA Requirements

NMA OSMINE Analysis or Observed Results (Check the column that applies):
(Based on **default** message provisioning and NE behavior)

Requirement	Yes*	No or Not** Determined	Brief Results Summary and/or Reference
NMA-R1. Message Type The message type, alarm ("ALM") or event ("EVT"), for each NE-generated maintenance message is provisioned in accordance with the Telcordia NMA requirements.			
NMA-R2. Service Affect Code (SRVEFF) The "srveff" value ("SA" or "NSA") in each NE alarm message is provisioned in accordance with Telcordia NMA requirements.			
NMA-R3. Message Format/Content Each NE alarm and event message is parsed and processed by NMA with no errors, or an NMA script that enables error-free processing is provided.			
NMA-R4. NE/EMS Com Link Timeout The NE or EMS does not initiate a time-out of the NMA-to-NE/EMS com link.			
NMA-R5. Autonomous NE/EMS "Still Alive" Messages The NE or EMS does not autonomously generate any "special" character or message (e.g. a control character) to NMA as an indication that the com link is still active.			
NMA-R6. Support of "RTRV-ALM-ALL" Command The NE: a) Accepts the NMA-generated "RTRV-ALM-ALL" command as built using the nma_monitor screen formatted as: "RTRV-ALM-ALL:<tid>: : :: , , , , , ; " b) Generates an accurate response to this command. c) Response to this command is parsed and processed by NMA with no errors, or an NMA script to enable error-free processing is provided.			
NMA-R7. Support of "RTRV-NETYPE" Command The NE: - Accepts the NMA-generated "RTRV-NETYPE" command formatted as "RTRV-NETYPE:<tid>::<ctag>;". - Generates a response with format/content in conformance with Telcordia requirements.			

* Check in this column indicates analysis or observed results in conformance with the requirement.

** Check this column for observed result "no" or item not tested.

NMA OSMINE Analysis or Observed Results (Check the column that applies):
(Cont'd) (Based on **default** message provisioning and NE behavior)

Requirement	Yes*	No or Not** Determined	Brief Results Summary and/or Reference
NMA-R8. Support of "RTRV-EQPT" Command The NE: - Accepts the NMA-generated "RTRV-EQPT" command formatted as "RTRV-EQPT:<tid>:ALL:<ctag>;" - Generates a response with format/content in conformance with Telcordia requirements.			
NMA-R9. Support of Remote Password Provisioning The NE userid/passwords can be remotely provisioned, with details and defaults as indicated below, via (one or more of) the following NMA-generated TL-1 commands: ACT-USER, CANC-USER, ENT-USER or ENT-SECU-USER, ED-USER or ED-SECU-USER, and DLT-USER or DLT-SECU-USER. a) A single default (root-superuser) user **is** provided with the NE. b) The user can add a minimum of 10 other uid/pids at various levels of security i.e., "view only", "provision", "superuser". c) The user can delete the default (superuser) uid/pid entirely, or edit it to "view only" security. d) The user can specify passwords of 8 char or more using any combination of special characters (e.g., #,$,%,&,!), numbers (0,1,2,…,8 or 9), lower case letters, and upper case letters.			
NMA-R10. Fixed AID Format and Structure Between NE Releases [Where an earlier release of the NE is already deployed and monitored by NMA in the Qwest network] The TL-1 AID format/structure has <u>not</u> changed in any way for equipment and facility types supported in the previous NE release(s).			
NMA-R11. NE/EMS Response to "RTRV-HDR" Command [Where an EMS (Element Management System) is provided for deployment of the NE] The EMS generates <u>no</u> response to a "RTRV-HDR" command for any NE that is failed or cannot be accessed by the EMS (e.g., failed EMS-NE link)			

* Check in this column indicates analysis or observed results <u>in conformance</u> with the requirement.
** Check this column for observed result "no" or item not tested.

NMA OSMINE Analysis or Observed Results (Check the column that applies):
(Cont'd) (Based on **default** message provisioning and NE behavior)

Requirement	Yes*	No or Not** Determined	Brief Results Summary and/or Reference
NMA-R12. NE SID/TID Values The NE accepts SID/TID values formatted in accordance with the Qwest SID/TID format conventions, as described below. <CLLI><Relay Rack# w/o delimiter>			
NMA-R13. Com Link Configuration as Subtending NE The NE can be configured as a subtending NE (e.g., connected via GNE or EMS) for the NMA-to-NE com link.			
NMA-R14. Dynamic or NE-Specific AIDs The NE does not use AIDs that are programmable or specific to each deployed NE. (E.G., AIDs that include non-fixed slot number value or the NE-specific relay rack value).			
NMA-R16. Remote Environmental Alarm retrievals and provisioning The NE: a) Accepts the NMA-generated RTRV-ALM-ENV, RTRV-ATTR-ENV, and SET-ATTR-ENV commands formatted as shown below RTRV-ALM-ENV:<tid>::ctag; RTRV-ATTR-ENV:<tid>::ctag; SET-ATTR-ENV:<tid>:<aid>:ctag::NTFCNCDE,ALMTYPE,\"ALMMSG\"\ b) Generates an accurate RTRV-ALM-ENV response with format/content that is parsed and processed by NMA with no errors. c) Generates an accurate RTRV-ATTR-ENV response with format/content in conformance with Telcordia requirements.			
NMA-R17. NMA Autogen Functionality a) The NE functionality, TL-1 specifications (set of AIDs, etc.), and authorized OSS features enable: b) The scope of contracted OSMINE work includes: 100% implementation of NMA Autogen functionality with no workarounds or manual intervention			

* Check in this column indicates analysis or observed results in conformance with the requirement.
** Check this column for observed result "no" or item not tested.

3. Transport EAM Requirements

TEAMS OSMINE Analysis or Observed Results (Check the column that applies):
(Based on **default** message provisioning and NE behavior)

Requirement	Yes*	No or Not** Determined	Brief Results Summary and/or Reference
TEAMS-R1. OSMINE for OSS Functional Changes Does this NE release have any significant functional change in the support or flow-thru from an upstream or peer OSS? (Check "yes" or "no" below) Yes___ No___ If the answer is "yes" above, the OSMINE scope of work includes testing for: - flow-through - functional verification.			
TEAMS-R2. OSMINE for NE Command Changes Does this NE release have any significant format/structure change in one or more of the commands used by Transport EAM or NMA to provision and query the NE. (Check "yes" or "no" below) Yes___ No___ If the answer is "yes" above, the OSMINE scope of work includes functional verification testing for those commands.			
TEAMS-R3. NE Message Provisioning Does this NE release have any alarm message with attribute(s) configurable by the NE? (Check "yes" or "no" below) Yes___ No___ If the answer is "yes" above, the OSMINE scope of work includes verification that the NE will accept and properly configure those alarm attributes as specified in a SET-ATTR or SET-ATTR-ENV command when generated using the TEAMS "Open Command" and with format/content in accordance with Telcordia TL-1 requirements.			

* Check in this column indicates analysis or observed results in conformance with the requirement.
** Check this column for observed result "no" or item not tested.

TEAMS OSMINE Analysis or Observed Results (Check the column that applies):
(Cont'd) (Based on **default** message provisioning and NE behavior)

Requirement	Yes*	No	Brief Results Summary and/or Reference
TEAMS-R4. Autonomous Provisioning The OSMINE project scope-of-work includes development and verification of a Transport EAM provisioning process where no manual intervention is required between initial establishment of the NE (frame) and generation of the provisioning orders.			
TEAMS-R5. Autonomous Configuration-Dependent Provisioning For any required message provisioning that varies depending on NE/card application or service, the OSMINE project scope-of-work includes: a) Identification of specific flow-thru information that can be used to specifically determine which application or service is to be provisioned. b) Implementation of autonomous provisioning upon receipt of that flow-through information. c) Verification testing.			
TEAMS-R6. Complete NE Restoration - After catastrophic NE failure with subsequent repair/replacement, the NE can be completely restored using the Transport EAM application. - Verification testing for this capability is included in the OSMINE project scope-of-work.			

* Check in this column indicates analysis or observed results in conformance with the requirement.
** Check this column for observed result "no" or item not tested.

Appendix B: Tech Pub 77414 Issue Resolution Summary or Waiver Request Sheet

Project Identification

Network Element Provider: _____
Network Element/Release: _____
Associated OSMINE contract number(s): _____
Date of Response: _____
NEP Contact Name/Phone/E-mail: _____
_____

Instructions: This form is to be –

1. **Completed by the NEP**, with the row of the applicable table (NMA or TEAMS) completed for each listed requirement where the "No or Not Determined" column is checked in the Tech Pub 77414 OSMINE Results Summary Sheet as completed by Telcordia (see Appendix A). As shown in the example below:

   - Indicate with an "x" under "Res. Plan" or "Waiver Request" the one that applies.
   - In the "Resolution or Waiver Request" column, briefly describe the plan/justification.
   - Delete rows for requirements where Telcordia has checked the "Yes" column in Appendix A.
   - Change row height and add additional pages as necessary.

Requirement	Res. Plan	Waiver Request	Resolution or Waiver Request Summary
NMA-R<requirement number> <Requirement Title>			"**Resolution Plan**" briefly summarizes the NEP plan/schedule to meet or provide verification for the requirement, with the verification documented as necessary in the OSMINE results (updated/revised/reissued as necessary) for this NE release. **"Waiver Request**" applies for planned resolution/verification in a later NE release or where no resolution is planned. Summary must include technical or other justification. *Note: Any claim that Qwest operational needs can be met with other TL-1 commands, or by Qwest provisioning of non-default TL-1 values, will NOT be considered a valid justification.*
EXAMPLE: **NMA-R4. NE/EMS Com Link Timeout**	X		**EXAMPLE:** Default NE TL-1 behavior will be reset so that com_link timeout default is "off". To be tested/verified and documented in final NMA Test Report for this release.

2. **Submitted by the NEP via e-mail** as a Microsoft Word or pdf attachment, to the following distribution list:

   Clinton.Cave@qwest.com, Allen.Black@qwest.com, Jo.Speake@qwest.com, Evelyn.LoVerdiCruz@qwest.com

*To receive form in Word format, send e-mail request to **Allen.Black@qwest.com**.*

NMA Requirements (check column that applies).

Requirement	Res. Plan	Waiver Request	Resolution or Waiver Request Summary
NMA-R1. Message Type			
NMA-R2. Service Affect Code (SRVEFF)			
NMA-R3. Message Format/Content			
NMA-R4. NE/EMS Com Link Timeout			
NMA-R5. Autonomous NE/EMS "Still Alive" Messages			
NMA-R6. Support of "RTRV-ALM-ALL" Command			
NMA-R7. Support of "RTRV-NETYPE" Command			
NMA-R8. Support of "RTRV-EQPT" Command			
NMA-R9. Support of Remote Password Provisioning			
NMA-R10. Fixed AID Format and Structure Between NE Releases			
NMA-R11. NE/EMS Response to "RTRV-HDR" Command			
NMA-R12. NE SID/TID Values			
NMA-R13. Com Link Configuration as Subtending NE			
NMA-R14. Dynamic or NE-Specific AIDs			
NMA-R16. Remote Environmental Alarm retrievals and provisioning			
NMA-R17. NMA Autogen Functionality			

TEAMS Requirements (check column that applies).

Requirement	Res. Plan	Waiver Request	Resolution or Waiver Request Summary
TEAMS-R1. OSMINE for OSS Functional Changes			
TEAMS-R2. OSMINE for NE Command Changes			
TEAMS-R3. NE Message Provisioning			
TEAMS-R4. Autonomous Provisioning			
TEAMS-R5. Autonomous Configuration-Dependent Provisioning			
TEAMS-R6. Complete NE Restoration			