1 – EXECUTIVE SUMMARY

The RGQ/REQ Electronic Delivery Mechanism (RXQEDM) establishes standards for the assembly and packaging of electronic transactions used in NAESB retail energy markets. The RXQEDM does not define specific transaction standards, but rather the standards for how transactions are formatted to send to trading partners.

RXQEDM standards focus on the contents of packages sent using Internet ET, rather than on how to send them.

This document is a high-level guide to implementing various technologies necessary to communicate transactions and other electronic data using standard protocols. As such, this guide is not intended to be a comprehensive, in-depth manual.

About NAESB. The North American Energy Standards Board (NAESB) Retail Electric Quadrant (REQ) and Retail Gas Quadrant (RGQ) have developed standards for electronic commerce over the Internet. NAESB electronic commerce standards establish a foundation for the rapid, reliable, and safe transportation of electronic information between NAESB trading partners.

REASONS FOR USING RXQEDM

RXQEDM provides an important set of standards for the exchange of information and data that defines conventions and standards for use in EDI, Flat-files, XML, Web Electronic Bulletin Boards (EBB), and Web services. RXQEDM DOES NOT overlap with Internet ET standards, rather complements them. RXQEDM provides:

Standardized Processes. RXQEDM standardizes how electronic transaction packages are assembled, regardless of the business process, the trading partner, or the energy quadrant. ??insert e.g. here

Audit Trails. Where possible, RXQEDM facilitates better audit trails, enabling better controls and less errors. For example, the use of acknowledgements is critical to successful operations. The RXQEDM details use of X12 acknowledgement standards for EDI transactions to assure reliable operations.

KEY ASSUMPTIONS

This document makes the following assumptions:

- **Platform Independence.** An RXQEDM implementation can communicate with all trading partners in the energy industry, regardless what hardware, operating system and programming languages trading partners use.
- **Open Standards.** RXQEDM uses open standard technologies to provide flexibility and scalability.
- **Importance of the Technical Exchange Worksheet (TEW)**. NAESB business processes rely on the exchange of technical information between trading partners to establish and maintain reliable RXQEDM production. The information in the RXQEDM TEW complements the information contained in the Internet ET TEW. A sample TEW is

included in Appendix C??. The TEW may be a part of a Trading Partner Agreement (TPA).

- **Testing With RXQEDM Trading Partners.** Since the RXQEDM is not platform-specific, testing with other trading partners on a variety of platforms is very important in ensuring that each RXQEDM application is compatible with a range of platforms used by various trading partners.
- **Use of Internet ET For Transport.** The RXQEDM does not overlap with the Internet ET standards. Internet ET focuses on the physical movement of transactions from one entity to another. RXQEDM focuses on how the transactions are formatted, and ??.
- **No Transaction Standards.** The RXQEDM does not define transaction standards. For example, the 810 Invoice transaction is found in the corresponding quadrant standard book, not the RXQEDM. The exception to this are transactions used for acknowledgments, such as the X12 997 FA transaction.

2 – VERSION HISTORY

1.0b1 1/23/2004

[beta DRAFT: This is the first draft version of the initial release of the Retail Gas/Electric Quadrant-Specific Electronic Delivery Mechanism standard (RXQEDM)]

3 – INTRODUCTION

The North American Energy Standards Board (NAESB) is a voluntary non-profit organization comprised of members from all aspects of the greater gas and electric industries. The NAESB mission is to take the lead in developing and implementing standards across the industry to simplify and expand electronic communication, and to streamline business practices. The vision of NAESB is a seamless North American marketplace for energy, as recognized by its customers, the business community, industry participants and regulatory bodies.

NAESB RXQ Electronic Delivery Mechanism (RXQEDM) standards are used by the Retail Electric Quadrant (REQ) and the Retail Gas Quadrant (RGQ) for the security, reliability, and standardization of electronic delivery of transactions and other information between trading partners. These standards are designed to work in concert with the NAESB Internet ET standards, and with each standards book developed by NAESB REQ and RGQ business subcommittees.

Scope of NAESB Standards

NAESB Standard	Scope	
Internet Electronic Transport (10.y.z)	TCP/IP, HTTP, HTTP POST SSL Encryption OpenPGP/PGP Encryption/Decryption MIME	
REQ/RGQ Quadrant-specific Electronic Delivery Mechanism (RXQEDM) (11.y.z)	X12 EDI Conventions Batch Flat-files Interactive Flat-files Electronic Bulletin Board	Informational Postings Web/HTML Web Services XML
Business Process Standards (e.g. Billing, Nominations, etc) (x.3.z)	Data Dictionaries Code Values X12 Transactions Sets (e.g. 810, 820, etc) XML Schemas	

NAESB recognizes that as the energy industry evolves and uses NAESB standards, additional and amended NAESB standards will be necessary. Any industry participant seeking additional or amended standards (including principles, definitions, standards, data elements, process descriptions, technical implementation instructions) should submit a request detailing the change to the NAESB office so that the appropriate process may take place to amend the standards.

TAB 1 Version Notes

Contains notes about this version, and, if appropriate, a brief summary of changes from the immediately preceding version.

TAB 2 Introduction

Provides a background statement about NAESB's Mission and the underlying concepts behind the design and use of this guide.

TAB 3 Executive Summary

Provides a brief outline of the industry business situation which is the basis for development of this guide.

TAB 4 Business Process & Practices

Provides a brief overview of the business process and the NAESB-approved principles, definitions and standards related to the business process covered by this guide.

TAB 5 Related Standards

Provides a reference to any related standards.

TAB 6 Technical Implementations

EDI/EDM – Provides an overview of the business process for EDI/EDM.

FF/EDM – Provides an overview of the business process for FF/EDM.

Batch FF/EDM – Provides an overview of the business process for batch FF/EDM.

Interactive FF/EDM – Provides an overview of the business process for Interactive FF/EDM.

XML/EDM – Provides an overview of the business process for XML.

TAB 7 Testing Guidelines

Provides guidelines for testing RXQEDM standards.

TAB 8 Appendices

??Appendix A – Reference Guide

Appendix B – RXQEDM FAQ

Appendix C – Sample RXQEDM Technical Exchange Worksheet (QTEW)

4 – BUSINESS PROCESS AND PRACTICES

A. OVERVIEW

Role of RXQEDM in NAESB REQ and RGQ Quadrants

Many business processes defined by the retail NAESB Quadrants (RGQ, REQ) require the exchange of transactions and transaction data. The RXQEDM, in concert with the Internet ET, enables NAESB parties to securely and reliably exchange transactions over the Internet.

The RXQEDM details standards that fill the gaps between the transaction standards defined in the business process books, and the physical transport standards defined in the Internet ET standards. The contents of RXQEDM electronic packages are created using the standards defined in this document.

??more here about protocols and conventions

Version 1.0 of the RXQEDM standard incorporates many of the EDM standards found in the NAESB WGQ EDM v1.7.

The NAESB Internet ET standards do not care what is inside the electronic package being sent. The RXQEDM is designed to extend those standards by defining standards to be used in the assembly of the package contents.

For example, RXQEDM standards detail envelope information required for X12 EDI transactions. This ISA/GS envelope information assures that the contents of the EDI transactions are delivered to the proper program and/or business entity, while also providing valuable audit trail information. This level of information is NOT required by Internet ET, nor is detailed in standards defined by the business subcommittees. RXQEDM X12 EDI standards apply to ALL EDI transactions used by the retail quadrants.

Roles in RXQEDM

In most RXQ business process life-cycles, one party sends transactions, and the other party receives the transactions. The party sending the package is referred to as the Sender or Client, and the party receiving the package is referred to as the Receiver or Server.

NAESB business processes often require that parties act in both the Sender and Receiver roles. For example, once the Receiver of a payload file of Bill-ready Usage has successfully processed the payload, they switch to the Sender role to send Invoices back to the original Sender. RXQEDM implementations generally need to implement both Sender and Receiver capabilities.

The standards adopted for RXQEDM should be adhered to by the trading parties as minimum standards. A trading party may offer additional functions or features as options but should not require their use. Such additional features or functions are termed ‘mutually agreed to’. If both trading partners agree on the inclusion, the additional feature requirements will be met. If either trading party does not agree to the inclusion of additional features, then the partners must allow for transmission and receipt of data using the minimum standards.

To establish an RXQEDM trading partnership with another company, a company needs to

exchange technical information about their RXQEDM implementation. This may include:

- Contact information
- Common Code Identifiers (e.g. DUNS number)
- ISA/GS Data for X12 EDI

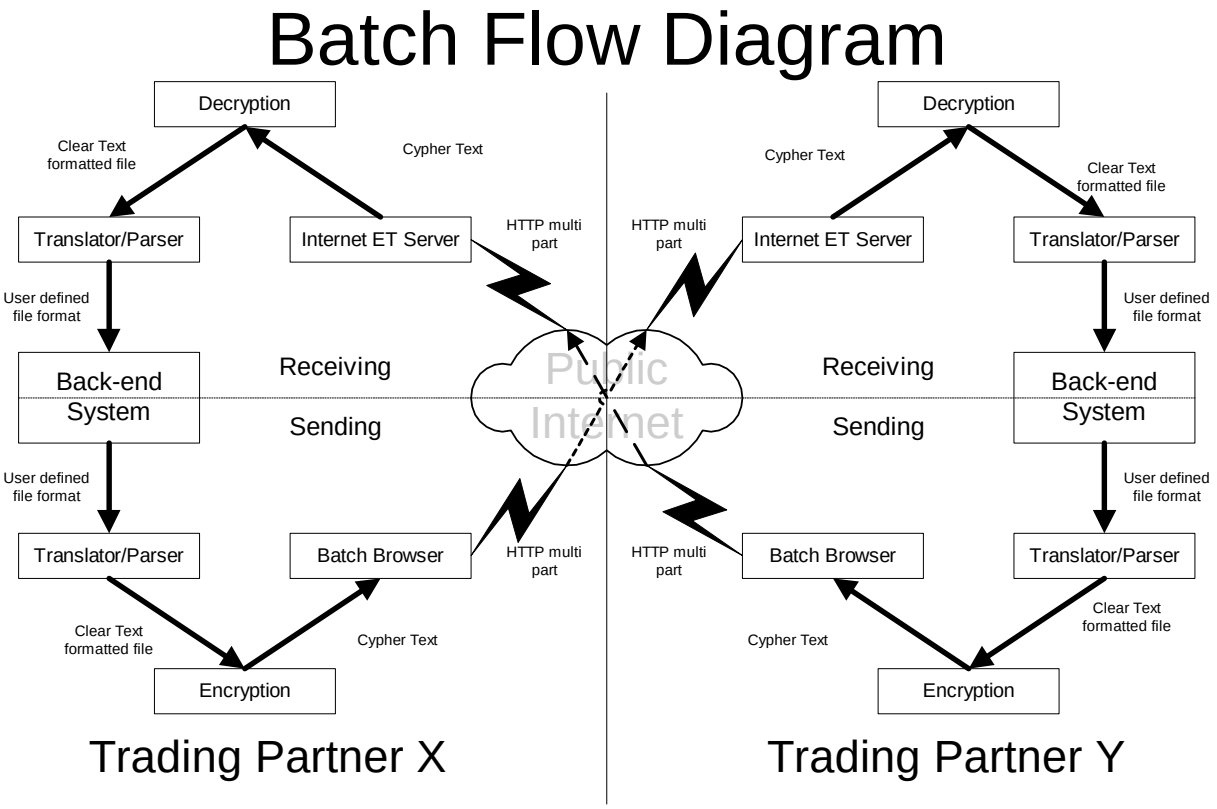
This may be exchanged using a Technical Exchange Worksheet (TEW). A sample TEW for RXQEDM information is in Appendix C??. In some cases, this information may be exchanged with a Trading Partner Agreement.

Internet ET Communications

The default electronic transport communications protocol for exchanging electronic information is the NAESB Internet ET.

Automated Batch Flow Diagram

Business processes can be designed with both manual and automated process flows. The flow of data to and from trading partners in an automated environment is diagrammed below.



B. GENERAL STANDARDS

There are no general standards defined by RXQEDM. Related general standards are found in the 'Related Standards' tab.

C. RXQEDM STANDARDS

Principles:

[11].1.1 NAESB standards do not pick winners, but rather create an environment where the marketplace can dictate a winner(s) (4.1.2).

[11].1.2 RXQEDM solutions should be cost effective, simple and economical (4.1.3).

[11].1.3 RXQEDM solutions should provide for a seamless marketplace for energy (4.1.4).

[11].1.5 Electronic communications between parties to the transaction should be done on a non-discriminatory basis, whether through an agent or directly with any party to the transaction (4.1.7).

[11].1.6 Protocols and tools used by parties should be 'Internet-compatible' (4.1.12x).

[11].1.7 Markets should use standard policies and guidelines for testing (4.1.14).

[11].1.10 Trading Partners should mutually select and use a version of the NAESB RXQEDM standards under which to operate, unless specified otherwise by government agencies. Trading Partners should also mutually agree to upgrade or adopt later versions of RXQEDM standards as needed, unless specified otherwise by government agencies (4.1.39).

??[11].1.xx Market participants should post clear and precise business processing rules at a designated site, or in writing upon request (4.1.9).

[11].1.xx There should be at least one standard automated computer-to-computer exchange of transactional data for each defined transaction data exchange format (4.1.10).

[11].1.xx Transaction content and usage should reasonably correspond to defined data dictionaries regardless of mechanism, e.g. FF/EDM, EDI/EDM, etc. (4.1.34x).

[11].1.xx Automated business processes should use Internet ET regardless of format chosen, e.g. FF/EDM, EDI/EDM, etc. (4.1.35).

Definitions

[11].2.xx 'RXQEDM' is the Electric Delivery Mechanism standards for the NAESB RGQ and REQ quadrants that govern package payload file contents, including X12 EDI, Flat-file and other formats.

[11].2.xx 'Trading Partner' is a party that enters into an agreement with another party to transact business electronically using NAESB standards (4.2.22x).

[11].2.xx 'Originating party' is any party originating/creating an RXQEDM package. This could be a third-party (4.2.23x).

[11].2.xx 'Third-Party' is any organization that a trading party uses to provide services to comply with the required elements of the RXQEDM (4.2.24x).

[11].2.xx 'Receiving Party' is the party that receives transactions from a trading partner (4.2.25x).

[11].2.xx 'Trading Partner Agreement', or 'TPA' is a legal agreement between trading parties. The TPA often dictates service level agreements and problem remediation processes. The TPA may include technical exchange information such as URLs, etc. (4.2.26x).

[11].2.xx "EDI/EDM" is the term used to describe ANSI ASC X12 computer-to-computer electronic data interchange of information in files as mapped from the x.4.z RXQ standards in the NAESB RXQ Implementation Guides and communicated between trading partners over the Internet using the NAESB Internet ET (4.2.11x).

[11].2.xx "Translator" is a program or set of programs that process the contents of EDI/EDM payloads, applying ANSI X12 and other standards, and transforming the information to other formats (4.2.6x).

FF/EDM Definitions:

[11].2.xx 'Flat-file'. An RXQEDM Flat-file is an ASCII comma-separated-value (CSV) file with the characteristics as defined in the RXQEDM standards.

[11].2.xx 'FF/EDM' is the term used to describe a standardized flat-file electronic data interchange of information in files as mapped from the x.4.z RXQ standards (4.2.12x).

[11].2.xx 'Batch Flat-file' is the term used within the FF/EDM to describe the automated computer-to-computer transfer of Flat-files (4.2.18x).

[11].2.xx 'Interactive Flat-file' is the term used within the FF/EDM to describe the transfer of Flat-files using an interactive browser (4.2.19x).

Testing Definitions:

[11].2.xx 'Business Rule Change'. Any change in: A) the presence and/or the acceptable content of a data element sent by the changing party, B) a new business response to an accepted data element received by the changing party; C) a new business response to the acceptable content of a data element received by the changing party; D) a new intended business result. (WGQ EDM cross-reference 4.3.87)

[11].2.xx Testing between trading partners includes testing of: (A) intended business results, (B) proposed electronic transport, including security, enveloping, cryptography; and (C) electronic delivery mechanisms (xxx/EDM), including data validity, standards compliance, etc. (4.2.20).

Related Definitions from Internet ET:

[10].2.12 'Electronic Package'. A data stream from one party to another using the NAESB Internet ET protocols that includes payload files of transactions or status information.

[10].2.19 'Internet EDM'. The GISB and NAESB WGQ standards up to and including Version 1.7. 'Internet ET' and 'RXQEDM' standards are derived from these EDM standards.

[10].2.23 'Exchange Failure'. An exchange failure is when a sending party's NAESB RXQEDM server has had continual protocol failures over a thirty-minute period. Each party is required to try at least 3 times over the thirty-minute minimum/two-hour maximum period before flagging an exchange failure.

[10].2.24 'QEDM'. Quadrant-specific Electronic Delivery Mechanism; the set of standards for each NAESB quadrant that define the EDM standards for EDI, Flat-files, electronic bulletin boards, and other technologies. The QEDM excludes electronic transport practices and standards. The QEDMs were derived from the GISB and NAESB WGQ Internet EDM standards.

[10].2.25 '??Receipt'. The HTTP Response sent from the Receiver to the Sender that includes

the 'gisb-acknowledge-receipt' section with a timestamp and OK/error status.??Should this be 'ET Receipt' to differentiate from other receipts?

[10].2.29 'Technical Exchange Worksheet' or 'TEW'. A document or worksheet used to communicate important information related to the technical implementation of RXQEDM; includes information such as ??ISA/GS, etc

Other Terms Used in this document:

'Payload Files'. Files packaged according to RXQEDM standards. These files are the 'payload' of an Internet ET package transfer.

'IETF'. Internet Engineering Task Force; a body of technical experts that set standards, known as Requests for Comments (RFC), for the Internet.

'Receiver'. The party that receives an RXQEDM Electronic Package.

'Sender'. The party that sends an RXQEDM Electronic Package.

Standards:

[11].3.xx RXQEDM relies on the NAESB Internet ET to enforce the privacy, authentication, integrity, and non-repudation (PAIN) security principles. 16

[11].3.xx All RXQEDM payloads should travel across unsecured networks (Internet) encrypted with a minimum 128-bit key. This encryption is built into transportation using the NAESB Internet ET. Where other transport options are used, a 128-bit Secure Sockets Layer (SSL) encryption should be used (4.3.83). 16

[11].3.xx Trading partners should retain audit trail data for at least 24 months. This data retention requirement does not otherwise modify statutory, regulatory, or contractual record retention requirements (4.3.4). 16

[11].3.xx Timestamps that indicate the time transactions were received by a party should be the 'time-c' timestamp from the Internet ET Response (4.3.8). 16

[11].3.xx RGQ and REQ require the use of the Internet ET Response 'time-c-qualifier' data element to identify the time-zone of the Receiver's timestamp (4.3.9). 16

[11].3.xx Timestamps used within RXQEDM transactions should be generated using clocks that are synchronized with the National Institute of Standards and Technology (NIST) time to mitigate discrepancies between the clocks of the Sender and Receiver. Computer clocks should be synchronized as often as necessary to ensure at +/- 5 second variance with an atomic clock. Specific business processes may have tighter synchronization requirements (4.3.10x). 16

[11].3.xx ??[reword or strike]On time stamping, data leaves control of the originator by the same time (deadline), regardless of mechanism (3rd party service provider time stamp is acceptable) and 15 minutes of communication time should be available to allow accumulation of all transactions to the pipeline. A standard network protocol (TCP/IP) should be in service for direct connect to the pipeline designated site (4.3.2). 17

[11].3.xx RXQEDM 'date' data elements should be formatted as YYYYMMDD (4.2.80). 17

[11].3.xx RXQEDM 'time' data elements should be specified in a 24 hour format, formatted as HH:MM or HH:MM:SS (4.2.80). 17

[11].3.xx RXQEDM 'date/time' data elements that have date and time expressed in one data

D. INTERPRETATIONS

NAESB has no interpretations of standards that relate to RXQEDM.

5 – RELATED STANDARDS

INTERNET ELECTRONIC TRANSPORT (ET)

In NAESB business processes, the RXQEDM standards are used in conjunction with the Internet ET standards.

[10].3.xx The Internet ET timestamp in the "gisb-acknowledgement-receipt" designates the time a file is received at the Receiver's designated site. The timestamp consists of the "time-c" data element, and in some cases the "time-c-qualifier" data element (4.3.5).

[11].3.xx When Internet ET is used, the Internet ET Receipt timestamp supercedes any EDM timestamps with respect to official time the document was received by the Receiver.

When Internet ET is used, Internet ET timestamps take precedence over EDM timestamps such as those found in the EDI 997.

ENTITY COMMON CODE

REQ and RGQ use the DUNS® or DUNS+4 number as the common company identifier for the HTTP Request and Response data dictionary 'to' and 'from' HTTP header elements. The DUNS® number is a 9-digit number assigned to companies by the Dun & Bradstreet Corporation (D&B). The DUNS+4® number is a 10- to 13-digit number, where characters 10 through 13 are arbitrarily assigned by the owner of the DUNS® number.

For RXQEDM Common Code purposes, an entity will use one and only one DUNS® number. Entity common codes should be 'legal entities,' that is, Ultimate Location, Headquarters Location, and/or Single Location (in D&B terms). However, in the following situations, a Branch Location (in D&B terms) can also be an entity common code:

1. When the contracting party provides a DUNS® number at the Branch Location level.
2. To accommodate accounting for an entity that is identified at the Branch Location level.

Since D&B offers customers the option of carrying more than one DUNS® number per entity, please refer to NAESB's Web Page for directions on determining the one and only one DUNS® number constituting the NAESB Entity Common Code.

0.1.1 An entity is a person or organization with sufficient legal standing to enter into a contract or arrangement with another such person or organization (as such legal standing may be determined by those parties) for the purpose of conducting and/or coordinating energy transactions.

0.1.2 There should be a unique entity common code for each entity name and there should be a unique entity name for each entity common code.

0.3.1 Entity common codes should be 'legal entities', that is, Ultimate Location, Headquarters Location, and/or Single Location in Dun & Bradstreet Corporation (D&B) terms. However, in the following situations, a Branch Location, in D&B terms, can also be an entity common code:

1. when contracting party provides a DUNS® number at the Branch Location level;

OR

2. to accommodate accounting for an entity that is identified at the Branch Location level.

OTHER COMMON CODES

??In the datasets, an asterisk by a data element means that it is a "common code," so the field will reflect the industry-supported common code for location or company.

EDI TRADING PARTNER AGREEMENT

??The NAESB WGQ TPA defines the relationship of the sender and receiver of NAESB WGQ Standard ASC X12 documents. This agreement represents a complete set of balanced terms which a company should accept whether it is sender or receiver of electronic documents. It has established all the data items necessary to exchange electronic documents in a step-by-step, fill-in-the-blank model form.

The use of the TPA minimizes preparation, negotiation and review time.

Copies of this agreement may be obtained from the NAESB office or may be downloaded from the NAESB home page at www.naesb.org.

TPA Party Roles

In all of the transaction sets, there are multiple parties that may be involved in the transaction. There are the Transportation Service Provider (a.k.a. Pipeline or Transporter), the Service Requester (a.k.a. Shipper), Service Requester Agent (a.k.a. Shipper's Agent) and Third Party Service Provider (a.k.a. Third Party Agent). It is important to distinguish between the role of the Service Requester Agent and the Third Party Service Provider.

The Service Requester Agent is the party contractually authorized by the Service Requester to submit business transactions to the Transportation Service Provider on behalf of the Service Requester for a service requester contract. Once the Service Requester Agent is contractually authorized, the agent becomes the Service Requester for subsequent business transactions unless and until the agency relationship is terminated.

The Third Party Service Provider is the communications agent that the Service Requester or Service Requester Agent may subscribe to in order to send and receive transactions with the Transportation Service Provider.

It is possible that a single entity may, at times, provide the role of a Service Requester Agent for one party while providing the role of Third Party Service Provider for another party. Likewise, a single entity could be both Service Requester Agent and Third Party Service Provider for a single party.

In EDI implementation, the party that is authorized to send and receive transactions will be the party identified in the transmission envelope (ISA Header Segment). If the sending party is a Service Requester, Service Requester Agent or Third Party Service Provider, their appropriate identifiers will appear here. In all cases, the Transportation Service Provider, Service Requester

and Service Requester Agent (if applicable) will be identified in the body of the transaction (N1 Name Segment).

HTTP POST WITH MULT-PART FORMS (RFC 1867)

SECURE SOCKETS LAYER (SSL) – HTTPS

6 – TECHNICAL IMPLEMENTATION

A. GENERAL ELECTRONIC DELIVERY MECHANISM

Privacy/Authentication/Integrity/Non-repudiation

[11].3.xx RXQEDM relies on the NAESB Internet ET to enforce the privacy, authentication, integrity, and non-repudation (PAIN) security principles.

[11].3.xx All RXQEDM payloads should travel across unsecured networks (Internet) encrypted with a minimum 128-bit key. This encryption is built into transportation using the NAESB Internet ET. Where other transport options are used, a 128-bit Secure Sockets Layer (SSL) encryption should be used (4.3.83).

Audit Trails

[11].3.xx Trading partners should retain audit trail data for at least 24 months. This data retention requirement does not otherwise modify statutory, regulatory, or contractual record retention requirements (4.3.4).

Receipt Timestamps

Similar to certified postal mail, many Senders are interested in knowing that their document was received, and at what time the document was received. One aspect of 'non-repudiation' says that the Receiver cannot deny receiving the document.

The use of an electronic receipt provides the Sender with a level of non-repudiation.

The primary timestamp in NAESB standards is the 'time-c' data element found in the 'gisb-acknowledgement-receipt' in Internet ET Responses. When Internet ET is used, this timestamp should serve as the primary timestamp for non-repudiation purposes.

When Internet ET is not used, refer to each EDM for the receipt convention:

- EDI/EDM uses the date and time stamps in the ISA segment?? Or is it GS?
- FF/EDM??
- Interactive FF/EDM?? Web page response confirmation??

[11].3.xx Timestamps that indicate the time transactions were received by a party should be the 'time-c' timestamp from the Internet ET Response (4.3.8).

[11].3.xx RGQ and REQ require the use of the Internet ET Response 'time-c-qualifier' data element to identify the time-zone of the Receiver's timestamp (4.3.9).

[11].3.xx Timestamps used within RXQEDM transactions should be generated using clocks that are synchronized with the National Institute of Standards and Technology (NIST) time to mitigate discrepancies between the clocks of the Sender and Receiver. Computer clocks should be synchronized as often as necessary to ensure at +/- 5 second variance with an atomic clock. Specific business processes may have tighter synchronization requirements (4.3.10x).

[11].3.xx ??[reword or strike]On time stamping, data leaves control of the originator by the same time (deadline), regardless of mechanism (3rd party service provider time stamp is acceptable) and 15 minutes of communication time should be available to allow accumulation of all transactions to the pipeline. A standard network protocol (TCP/IP) should be in service for direct connect to the pipeline designated site (4.3.2).

ISO Date and Time Data Elements

RXQEDM data elements should use the following date and time standards:

[11].3.xx RXQEDM 'date' data elements should be formatted as YYYYMMDD (4.2.80).

[11].3.xx RXQEDM 'time' data elements should be specified in a 24 hour format, formatted as HH:MM or HH:MM:SS (4.2.80).

[11].3.xx RXQEDM 'date/time' data elements that have date and time expressed in one data element should be formatted as YYYYMMDD HH:MM or YYYYMMDD HH:MM:SS, with exactly one space between the day (DD) and the hour (HH) (4.2.80).

Other

[11].3.xx Where they exist for the same business function, Flat-files, EDI and other EDMs should use the same nomenclature for data set names, data element names, code values and/or code value descriptions, abbreviations and message text. (4.3.47)

[11].3.xx Trading partners should use common codes for legal entities for RXQEDM envelope data elements (4.3.56x, 4.3.21??).

[11].3.xx Requests for standardization of additional services and/or data elements should be submitted to the appropriate NAESB quadrant Executive Committee (4.3.67).

[11].3.86 To the extent that multiple EDMs are used (e.g. EDI or Flat-files), the same business result should occur (4.3.86).

B. X12 ELECTRONIC DATA INTERCHANGE (EDI/EDM)

ANSI ASC X12 Standards

RXQ standards reflect industry use of the American National Standards Institute (ANSI) ASC X12 standards maintained by the Data Interchange Standards Association, Inc. (DISA).

Parties using RXQ X12 EDI standards should have a copy of the ANSI ASC X12 Standards Reference document for a full understanding of the X12 requirements. NAESB members may purchase an ANSI reference document through NAESB by contacting the NAESB office. Non-NAESB industry participants may purchase the reference document by contacting the Manager of Publications at DISA (www.disa.org, 703.548.7005)

RXQ EDI technical implementation documents are subsets of ANSI ASC X12 standards.

[11].3.xx NAESB is a member of ANSI and will strive to remain fully-compliant with ANSI ASC X12 standards.

[11].3.xx RXQ EDI standards are X12 compliant.

[11].3.xx Where the X12 standard does not fully meet a need, NAESB will add interim usages and code values when required. When used, NAESB will submit interim usage/code values to ANSI and the appropriate ANSI organizations for acceptance of the interim solution. ANSI's final solution may provide a usage or code value different than the interim solution. NAESB standards will be updated to reflect the final solution.

ASC X12 architecture is designed for fully-automated and auditable end-to-end communications.

[11].3.xx EDI Translators generate the ASC X12 file, including control numbers and counts that will appear within the ISA/IEA outer envelope segments, and within the GS/GE inner envelope segments.

These numbers and counts are part of the inner and outer envelopes that allow the translator to ensure that all of the segments and all of the data elements have been received and that the transmission was complete.

ISA Outer Envelope

The ISA segment marks the beginning of an X12 document. It can be equated to an envelope that a paper document would come in via the mail. The envelope may contain one or more 'inner envelope' functional groups (defined by the GS segment) and one or more transaction sets.

[11].3.xx The ISA is the interchange control segment to be used on all NAESB X12 standards.

The ISA segment identifies the sender and receiver of the document. The Interchange Sender ID/Interchange Receiver ID is published by both the sender and receiver for other parties to use as the sender/receiver ID to route data to them. The sender must always code the sender's ID

in the sender element and the designated receiver's ID in the receiver ID.

This sender and receiver information is specified in the Technical Exchange Worksheet or the Electronic Data Interchange Trading Partner Agreement.

??Trading partners utilizing a password for their documents will use the Security Information element. The receiver of the document identifies a password for the sender to include in this element.

There are additional elements in the ISA segment. These elements are traditionally assigned by the sending party's translator. These elements inform the receiver of the date/time that the envelope was generated, the X12 version number being utilized, whether the transmission is for test or production purposes, and what characters were used to designate the end of a sub element, element or segment.

The ISA also defines characters for the sub element, element and segment delimiters. These delimiting characters must never appear in the data. The ISA is the only fixed-length X12 segment as it uses specific positions in the segment to identify the delimiter characters.

An outer envelope always begins with an ISA segment and ends with a IEA segment.

GS/GE 'Functional Group Header/Trailer' Inner Envelopes

The GS segment indicates the beginning of a functional group and provides control information for the data that follows it. A functional group can be defined as a group of transactions related to one business application. An inner envelope always begins with a GS segment and ends with a GE segment.

An outer envelope may have multiple inner envelopes. For example, within an ISA outer envelope, there may be a GS inner envelope of enrollments and a second GS inner envelope of drops. Each of these inner envelopes is sent within its own GS 'Functional Group Header' and a GE 'Functional Group Trailer'.

The Sender provides the Application Sender's Code that the Receiver will reflect back on acknowledging documents. The Receiver provides the Application Receiver's Code that the Sender will include in the transmission for the Receiver to use in routing to internal applications. Group Control Numbers are originated and maintained by the Sender of the document.

Information about control segments (including the GS and GE) can be found in the Overview/Introduction and Control Standards sections of the NAESB standard reference document.

997 'Functional Acknowledgment'

The 997 'Functional Acknowledgment (FA)' transaction set is used to indicate the results of the syntactical analysis of contents of an X12 file, including the ISA/IEA outer envelope, the GS/GE functional groups, and the transaction sets (ST/SE).

The 997 FA standard covers all of the X12 and NAESB standard criteria that the receiver of the document has incorporated into the receiver's translator. The translator may be set to accept all information into the receiver's application processing, it may be set to accept only ANSI ASC

X12 compliant information into the receiver's application processing, or it may be set to accept only ANSI ASC X12 and NAESB compliant information into the receiver's application processing. Compliance checking in a translator may be set to any of several levels. NAESB recommends that compliance checking be set to the element level in the Functional Acknowledgement.

The 997 informs the originator of the transaction whether the translator accepted the file, accepted it with errors, or rejected it. When errors occur, the 997 identifies the location and type of error that was encountered. Once a transaction passes the translator, the 997 is sent to the originator of the transaction and the data (if accepted) is passed on to the receiver's business application for processing.

[11].3.xx The Receiver must send a 997 FA each X12 file received.

[11].3.xx The 997 should be sent within ??hh:mm of receipt of the X12 file.

The 997 includes a timestamp of when the file was translated.

[11].3.xx Without Internet ET, the 997 timestamp is the official receipt timestamp. When Internet ET is used, the Internet ET receipt timestamp is the official receipt timestamp.

C. FLAT-FILE (FF/EDM)

The FF/EDM provides a common set of guidelines for the exchange of transactions formatted as a Flat-files.

'Flat-file' is a commonly-used description of files that have records of a single record structure. While Flat-files are almost always text files, text files are not always Flat-files. While comma-separated-value (CSV) files are often Flat-files, they can also be of different record structures.

The NAESB FF/EDM standards attempt to make it easy to create Flat-files using a spreadsheet without significant programming.

Flat-files can be transported either in batches using Internet ET or interactively using the Web.??do we need EBB?

FF/EDM Standards:

[11].3.xx FF/EDM records are separated by a carriage return/line feed (CRLF or \r\n or ASCII 10 and 13) (4.2.80).

[11].3.xx The first record of an FF/EDM Flat-file should be the standard abbreviations for RXQ data elements in the order the corresponding data appears in subsequent rows. The data element order is at the option of the sender (4.3.81)

[11].3.xx If an FF/EDM Flat-file data element abbreviation is not recognized, the entire Flat-file should be rejected(4.2.80).

[11].3.xx Each transaction (e.g. Enrollment) should be contained in a single FF/EDM Flat-file record (4.2.82).

[11].3.xx FF/EDM data elements are separated by commas (4.2.80).

[11].3.xx FF/EDM data elements that may contain a comma should be enclosed by double-quotes (4.2.80).

[11].3.xx FF/EDM data elements should not contain double-quotes (4.2.80).

[11].3.xx FF/EDM data elements that contain negative numbers should have the minus sign precede the number (4.2.80).

[11].3.xx FF/EDM data elements that contain decimal precision should include the decimal point within the data element (4.2.80).

[11].3.xx FF/EDM data elements that contain numeric data with one or more significant leading zeros should preserve these zeros within the data element (4.2.80).

[11].3.xx FF/EDM 'date', 'time', and 'date/time' data elements should conform to RXQEDM and ISO standards: date=YYYYMMDD, time=HH:MM:SS, date/time=YYYYMMDD HH:MM:SS (4.2.80).

[11].3.xx FF/EDM data elements should be no longer than 256 characters (4.2.80).

[11].3.xx FF/EDM data elements that are empty or NULL should result in two delimiters next to each other, with no blank spaces between the delimiters (4.2.80).

[11].3.xx FF/EDM Flat-files should not contain mixed record formats in a single file (e.g. a single file with both Enrollments and Invoices).

[11].3.xx FF/EDM payloads should be encrypted prior to Internet transport.

[11].3.xx Transactions sent using FF/EDM should produce the same business result as other EDMs (e.g. EDI/EDM).

D. INTERACTIVE FLAT-FILE (FF/EDM)

No RXQEDM business processes currently use interactive Flat-files.

E. ELECTRONIC BULLETIN BOARD (EBB/EDM)

No RXQEDM business processes currently use electronic bulletin boards.

F. WEB (WEB/EDM)

No RXQEDM business processes currently use web pages.

G. XML (XML/EDM)

No RXQEDM business processes currently use XML.

??what is implication of ANSI certified with respect to XML? CICA? X12.7, ebXML

H. WEB SERVICES (WS/EDM)

No RXQEDM business processes currently use web services.

7 – TESTING AND DEPLOYMENT

[??testing section needs complete overhaul]

Testing and deployment is necessary any time a party introduces and updates their systems. Each party determines the level of testing required for a given implementation.

In some cases Governing Documents dictate testing requirements.

[11].3.xx When a party changes the business rule(s) it will apply to documents, it should notify its trading partners at least two weeks in advance of the change(s). The notification should include identification of the data element(s) that are changing, the intended business result of such change(s) in the business rule(s), and the scheduled effective date of such change(s) (4.3.87).

[11].3.xx Trading partners implementing Business Rule Changes should provide testing of change(s) during at least a two-week time period prior to the effective date of the change(s) (4.3.87).

[11].3.xx Trading partners are permitted to cancel or postpone scheduled changes. Notice of cancellation or postponement should be provided to trading partners at least one business day prior to the scheduled effective date (4.3.87).

8 – APPENDICES

[??appendices needs complete overhaul]

APPENDIX A - Reference Guide

NAESB

NAESB Web Site: (www.naesb.org) Primary reference for energy industry standards.

Time Synchronization

Time synchronization is required to assure that all trading partners' transaction times are accurate. Testing has shown that the clocks on all computer systems drift. Time accuracy is dependent on how much a system's clock drifts, how frequently it is resynchronized and the accuracy of the source used for synchronization.

Each NAESB business process may have unique time-synchronization requirements. Refer to the QEDM for time-synchronization standards for target markets. Servers need to be time-synchronized according to the standards needed for the most-restrictive target market, that is the one with the smallest drift allowance.

Authoritative time synchronization is now being provided by governmental agencies around the world based on a synchronized network of atomic clocks. In the United States this includes the U. S. Naval Observatory and the National Institute of Standards and Technology.

An easy way to obtain the current time is from the U. S. Naval Observatory's Web site at tycho.usno.navy.mil/cgi-bin/timer.pl. The output from this page can easily be edited and reformatted to set a local system's time. Commercial, shareware and public domain packages are also available to synchronize system times, including IETF NTP, Internet daytime, nisttime / usnotime.

Further information on time synchronization may be found at the following Web sites:

- http://tycho.usno.navy.mil/ntp.html
- www.ccd.bnl.gov/xntp

APPENDIX B – FREQUENTLY ASKED QUESTIONS

[??FAQ needs complete overhaul]

Q1: How many times do I attempt to send an Internet ET package unsuccessfully before I notify my partner?

A: The Internet ET 'exchange failure' standard requires that you attempt to send a package at least three times over a 30- to 120-minute period. At minimum, this means 30 minutes has elapsed between your first failed attempt and your third failed attempt. At maximum, 120 minutes has elapsed between your first failed attempt and your third failed attempt. You should not wait longer than 120 minutes between your first failed attempt and your last failed attempt to notify your trading partner.

For example, if you make your first attempt at time 00:00:00, and your third attempt at time 00:30:00, your second attempt can occur any time between the first and third. If the third attempt fails, you have an 'exchange failure' and should notify your trading partner.

Q2: Do I send my 'gisb-acknowledgement-receipt' before or after I decrypt the Internet ET package?

A: Either. If you decrypt packages after you have sent the 'gisb-acknowledgement-receipt', errors found must be communicated to your trading partners using the Error Notification transaction. You should indicate in your TEW when you will decrypt packages.

Regardless of when you decrypt, the 'time-c' timestamp does not change. It is always the time the last byte was received by the Server from the Sender.

Q3: Use of 'time-c-qualifier' across quadrants. We understand that the retail quadrants require the 'time-c-qualifier' for 'gisb-acknowledgement-receipt', while the WGQ does not require this data element. If we participate in multiple quadrants, which standard do we use?

A: You are required to follow the standards dictated by the quadrant that governs the transaction or business process. For example, if you are executing a WGQ nomination, then you should adhere to WGQ standards, which do not require the 'time-c-qualifier'. If you are executing an REQ enrollment, you need to adhere to the REQ standards, which require 'time-c-qualifier'. Of course, all parties can mutually-agree to use the 'time-c-

qualifier' or not.

APPENDIX C – SAMPLE TECHNICAL EXCHANGE WORKSHEET (TEW)

??assume appended to Internet ET TEW

EDM Specifications	Test	Production
DUNS/DUNS+4 Number		
EDI/EDM Segment Terminator (character 4 in ISA)		
EDI/EDM Data Element Terminator (character 128?? in ISA)		
EDI/EDM ISA08/GS08		
Using 'time-c-qualifier' in Receipt? (Y/N)	Y (required by RXQ)	Y (required by RXQ)

APPENDIX ?? – EDM CROSS-REFERENCE