

Draft

Revision 3

Software Requirements Specification

for the

Yucca Mountain Project

Environmental Impact Statement

Comment Response Database System

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Process Overview

This section provides a high-level overview of the process that will be used to receive, store, and respond to public comment on the Yucca Mountain Project (YMP) Environmental Impact Statement (EIS). The overview is not intended to provide complete details or to be a definitive description of the process. Rather, the intent is to characterize the environment in which the EIS Comment Response Database (CRD) system will function.

Requirements for CRD system components and functions that are mentioned in this section are defined in greater detail in the sections following the process overview.

Public Comment Period

The public will have an opportunity to submit comments during a fixed period of time following the publication of the EIS. It is currently anticipated that this period will begin on August 1, 1999 and will have a duration of at least 90 days.

Comment Acquisition and Routing

Comments will be accepted in a variety of forms, including email, fax, letter, mail, public hearings, and correspondence with government officials. There will be no facility other than e-mail for submitting comments via the Internet. Each separate submission is considered a comment document and will be converted to paper form (transcribed, printed, etc) if necessary and routed to the organization responsible for receiving comments and performing initial processing.

The first processing step is the assignment of a unique, permanent document number to each comment document. The document number is affixed to each page of the document, to any attachments, and to the envelope in which a mailed comment is received.

The receiving organization makes the initial comment document record entry in the CRD system, entering a minimal amount of identifying information. Two copies (one working copy and a backup) of each document are then made and the original comment document is provided to

the EIS AR Coordinator for submittal to the YMP Records Processing System.

Comment Identification and Entry

The two document copies are delivered to the organization responsible for processing comments. They update the comment document record in the CRD system, adding various information related to the commentor and the document status.

Each comment document may contain multiple comments. Subject matter experts analyze the comment documents and identify individual comments. This process is referred to as comment identification or bracketing. All comment identification will be performed locally (in Las Vegas) by a small number of analysts.

After the bracketing is completed, the document is scanned and the resulting image stored as part of the CRD comment document record.

Each comment is assigned an identifier and entered into the CRD system as a separate record. The comment text is entered along with additional related information, including the assigned subject category and the names of individuals that will be involved in responding to the comment.

Information linking the comment back to its source comment document is always maintained for traceability.

Optical Character Recognition

Although the current assumption is that a manual data entry process will be used, the possibility of using Optical Character Recognition (OCR) to capture comment text during the scanning process has been discussed.

The comment text is eventually entered into the CRD system, but the actual capture of text from the comment document is external to the CRD system. Since no custom development or electronic linkage to the CRD system is required to support OCR, it is expected that the introduction of OCR into the process would have little or no impact on design or implementation of the CRD system.

Electronic Comment Bracketing

The possibility of acquiring software to support electronic bracketing of comments has been discussed as an alternative to manually marking individual comments on comment documents. It is believed that this would reduce the amount of work involved in both the initial and subsequent changes to comment identification.

A search for products which provide this functionality is still being conducted, but no viable candidates have yet been identified. The current assumption is that comments will be bracketed manually rather than electronically.

Since the comment bracketing process itself is external to the CRD system, it is expected that the introduction of electronic bracketing into the process would have little or no impact on design or implementation of the CRD system.

Response Development, Review, and Approval

A response is developed for each identified comment. The response is then reviewed by one or more designated individuals. The response writer incorporates any modifications arising from the review process and submits the response for re-review and approval. If approval is granted, the response is considered final and can no longer be modified by the response author. Otherwise an additional iteration(s) of the response and review process is performed. The response and review text from each iteration is saved as documentation of the process used to arrive at the final response.

Comment Response Document Generation

After the public comment period ends and approved responses have been written for all comments, a final document in ASCII text format containing all comments and responses is produced by the CRD system. Several cross-reference indices into the comments and responses are also generated.

The comment and response document described above will undergo further formatting external to the CRD system to produce the final EIS Comment

Response Document. It will be published and a copy provided to the EIS AR Coordinator for submittal to the YMP Records Processing System.

Comment Document Data Records

This section defines CRD system requirements for the data elements and functions associated with the entry, storage, and retrieval of comment document data.

Comment Document Record Creation

The system must allow users with the appropriate privilege to create and update data records representing submitted comment documents.

The comment document record creation function consists of two parts. The first part is done by the organization responsible for receiving and initial processing of comment documents. This organization must have the ability to create a comment document record by entering the Comment Document Identifier, Comment Document Type, the Date Received, and the Commentor Name.

The remainder of the comment document data entry is performed at a later date by the organization responsible for performing the comment response development process. This organization must have the ability to retrieve comment document records by their Comment Document Identifier and add additional information to complete the record. The set of data fields that comprise a complete comment document record and associated legal values and constraints are described below.

The system must perform a validity check on all values entered during the record creation and update processes and prompt the user to correct any errors prior to creating or updating the record.

Comment Document Identifier

The unique identifiers for comment documents are not generated by the CRD system. Rather, they are generated and permanently affixed to comment documents as they are received and initially processed. The identifiers are alphanumeric and consist of or contain a sequential, numeric element that can be used to sort comment documents.

The CRD system must require the input of the identifying number that is affixed to the comment document at the time a record is created for the comment document. A null value for this data element is not allowed.

Comment Document Type

The system must require the user to select the comment document type from a list of valid values. A null value for this data element is not allowed. The valid comment document types and their corresponding codes are:

- LT Letter
- PC Postcard
- FX Fax
- EM Email
- HT Public hearing transcript
- PT Petition
- OT Other

Date Received

The system must require the input of the date the comment document was received. A null value for this data element is not allowed.

Date/Time Entered

The system must automatically store the date and time the comment document record was created as a field in the record. A null value for this data element is not allowed. The value in this field may not be edited after the record has been created.

Entered By

The system must automatically record the name of the user creating the record as a data element in the comment document record. A null value for this data element is not allowed. The value in this field may not be edited after the record has been created.

Date/Time Updated

The system must automatically store the date and time the comment document record was updated (data entry completed) as a field in the record. A null value for this data element is not allowed. The value in this field may not be edited after the record has been created.

Updated By

The system must automatically record the name of the user updating the record (completing the data entry) as a data element in the comment document record. A null value for this data element is not allowed. The value in this field may not be edited after the record has been created.

Comment Document Image

The system must support the entry, storage, and retrieval of an image of the comment document with comments bracketed. A null value for this data element is allowed initially because comments are not yet bracketed at the time the comment document record is created. However, the corresponding individual comment data records may not be created until this image has been entered into the system

Unique/Duplicate/Similar To Indicator

The system must provide a data element that specifies the relationship of the comment document to other comment documents. It must contain one and only one of the following values:

- Unique
- Duplicate of another document
- Similar to another document

The default value is Unique. The field may not be null. If the entered value is not Unique, the data element must also identify the comment document that this comment duplicates or is similar to.

Site Recommendation Comments Indicator

The system must provide a data element that indicates whether the comment document contains any comments that may be relevant to the YMP Site Recommendation document. Users must have the ability to set the indicator

based on the contents of the comment document. This field may not be null. The default value will be that the document does not contain any comments.

License Application Comments Indicator

The system must provide a data element that indicates whether the comment document contains any comments that may be relevant to the YMP License Application document. Users must have the ability to set the indicator based on the contents of the comment document. This field may not be null. The default value will be that the document does not contain any comments.

Illegible Comments Indicator

The system must provide a data element that indicates whether the comment document contains any illegible comments. Users must have the ability to set the indicator based on the contents of the comment document. The field may not be null. The default value will be that the document does not contain any illegible comments.

Commentor Identification

The following commentor identification information is entered with each comment document:

- Last Name
- First Name
- Middle Initial
- Title
- Street Address
- City
- State
- Zip Code
- Phone number
- Fax Number
- E-mail address
- Organization (e.g. NWTRB)
- Affiliation

All of the elements listed above will be stored as ASCII text values except Affiliation, which will be selected from the following set of values:

- Federal Government
- State Government
- Local Government
- Native American Organization
- Citizens Group
- Special Interest Group
- Elected Official
- Business

Null values are not allowed for Last Name. "Anonymous" will be entered if no name is provided. Null values are allowed for the other commentor identification data elements.

Miscellaneous Notes Text

The system must provide a data element that allows users to enter miscellaneous information regarding the comment document. This field is intended to be used to document any anomalies, discrepancies, or unusual conditions or circumstances related to the document. A null value is allowed for this field. The maximum size of this field must be as large as possible and constrained only by limitations imposed by operating system and database software.

Comment Data Records

This section defines CRD system requirements for the data elements and functions associated with the entry, storage, and retrieval of comments identified during the comment bracketing process.

Comment Record Creation

The system must provide a function that allows users with the appropriate privilege to create a data record representing a bracketed comment on a comment document. The required data fields, legal values, and constraints are described below. The system must perform a validity check on all entered values and prompt the user to correct any errors prior to creating the comment record.

Date/Time Entered

The system must automatically store the date and time the comment record was created as a field in the record. A null value for this data element is not allowed. This field must not be editable after the record has been created.

Entered By

The system must automatically record the name of the user creating the record as a data element in the comment record. A null value for this data element is not allowed. The value in this field may not be edited after the record has been created.

Comment Identifier

The comment identifier must uniquely distinguish a comment from every other comment in the CRD system. It shall consist of two parts: a comment document identifier and a unique sequence number. As the user enters a new comment data record, the system must prompt for the identifier of the source comment document. The system must then generate an identifier that distinguishes the comment from all other comments that have been extracted from that comment document. This identifier shall be numeric and sequential, with the sequence starting at one (1) for each comment document. Both parts of the comment identifier must be stored with the

comment data record. A null value for either part of this data element is not allowed.

Comment Text

The system must support the entry of the full comment text. A null value for this data element is not allowed as text will be entered regardless of whether the comment is being summarized (see Comment Summaries section below). The maximum size of this field must be as large as possible and constrained only by limitations imposed by operating system and database software.

Comment Bln and Rebinning

The comment bin identifies the general topic addressed by the comment. A null value for this data element is not allowed. Its value is to be selected from the following set of valid subject index values:

- Purpose and Need
- Proposed Action
- Affected Environments
- Analysis Results
- Repository Performance
- Transportation
- No-Action Alternative
- Cumulative Impacts
- Mitigation
- Irreversible and Irretrievable Commitment of Resources
- Environmental Requirements
- Inventory
- Repository Design
- Retrieval
- Receipt Before 2010
- Consultations
- Policy Issues
- NEPA Compliance
- DOE Credibility
- Not Applicable to YM EIS
- Other

Users with system administrator privilege must have the ability to change the bin value assigned to a comment at any time following the initial creation of the comment data record. This procedure is referred to as rebinning the comment.

Response Writer

The system must provide a data element for the name of the person assigned to develop the response. The default value for this element will be the name of the designated response writer for the subject index bin to which the comment is assigned. The default value may be manually overridden at the time the record is created or at a later date by selection of a response writer from the list of authorized response writers (those individuals with the corresponding system privilege).

A null value is allowed for this data element and indicates that the response writer is 'Unassigned'. This situation occurs when there is no response writer associated with the bin to which the comment is assigned and no response writer is entered manually.

Response Due Date

The system must provide a data element for the date on which the response is due. Null values are allowed for this data element.

Response Reviewer(s)

The system provide a data element for the names of individuals assigned to review the response. These names must be selected from a list of authorized reviewers (i.e. those individuals with reviewer privilege). At least one reviewer must be specified. The maximum number of reviewers that may be specified is limited only by the number of authorized reviewers on the list. Null values are not allowed for this data element.

Response Approver(s)

The system must provide a data element for the names of the individuals responsible for approving the response. The approvers must be selected from the list of authorized approvers (i.e. those individuals with approval privilege). At least one approver must be specified. The maximum number

of approvers that may be specified is limited only by the number of authorized approvers on the list. Null values are not allowed for this data element.

Potential EIS Change Indicator

The system must provide a data element that indicates whether the comment potentially will cause a change to the EIS. The user must have the ability to set the indicator when the comment data record is created and at any time during the response writing/review approval process. The field may not be null. The default value will be that the comment does not indicate a potential change to the EIS.

Comment Summaries

Comment summaries are comments and associated responses that are developed internally rather than received from the public. They are intended to be used in cases where a determination is made that a large volume of very similar comments warrants summarization rather than individual responses.

The system must provide support for the entry, storage, and retrieval of comment summaries. The system must allow the user to associate a comment with a comment summary at any time. This may occur at the time the comment record is initially created. In this case the actual comment text is still entered, even though it is known that a comment summary will be used. The system must also support the association of comments that are already in the system with comment summaries.

The current intent is to respond to each comment individually rather than using comment summaries. Because this is subject to change, the CRD system must still support the comment summary capability. However, this capability may be assigned a relatively low development priority.

Comment Rebracketing

Modifications to the identification of comments in a comment document may be required. This is known as comment rebracketing. The comments identified in the rebracketing of a comment document replace the comments from the previous bracketing.

The CRD system must provide a function that allows users with the appropriate privilege to rebracket comment documents. The user must be prompted for the appropriate comment document identifier. After verification, all comment data records associated with the comment document are deleted from the system. The document image is also deleted from the comment document record. From that point on, entry of a new document image and new comment data records will be performed as described above. An entry must be written to the system activity log documenting that the rebracketing operation was performed.

Response Writing, Review, and Approval

This section defines CRD system requirements for the data elements and functions associated with the development, review, and approval of comment responses.

Response Status

The system must track the current status of each response. The valid values are:

- Open
- Incomplete
- Complete
- Reviewed
- Approved

The initial value is "Open" if no response writer has been assigned. It is updated to "Incomplete" when a one is assigned. A null value for this data element is not allowed.

Response Writing

The system must support the development of a response to each comment that has been entered into the system. The individual identified by the response writer data element of a comment record is the only one that is allowed to create and edit the response to that comment. The response writer must be able to change the response status to "Complete" after entering the response. This will lock the response (making it non-editable by the response writer) and initiate the review of the response.

Response Text

The system must provide a data element supporting entry, storage, and retrieval of initial and modified versions of the response text. A null value for the initial response is not allowed unless the response is a reference to a pre-approved response. The modified version may be null. The maximum size of this field must be as large as possible and constrained only by limitations imposed by operating system and database software.

Date/Time Response Created

The system must automatically store the date and time the response was created. A null value for this data element is not allowed. The value in this field may not be edited after the record has been created.

Response Review

The system must support the entry, storage, and retrieval of a response review for each of the reviewers identified in a comment data record.

The system must allow the reviews of a response to be entered into the system concurrently. Each reviewer will be able to view the text that has been entered and saved for all other reviews.

Each review will initially be marked "Incomplete". Each reviewer must be able to mark their review "Complete" when they are finished with it. When all reviews are marked "Complete", the response writer may optionally enter a modified version of the response. It is considered a new revision of the response and is subject to another round of comments. The modified response and review texts must not overwrite the previous versions, which are saved to document the response development process and must be viewable with the rest of the data associated with the comment. When all comments have been resolved and the response text is ready to be submitted for approval, the response writer then marks the response status as "Reviewed".

Response Approval

When the response status is marked "Reviewed" it is examined by the designated approver(s). The approver must be able to change the status to either "Approved" or "Incomplete" depending on the outcome of the approval process. If the response is disapproved, another iteration of the response/review cycle is initiated.

The response remains locked when the status is "Approved". Only a system administrator will have the ability to change the status once it is in the "Approved" state. This action will be taken only in cases where an approved response needs to be reopened for revision. This case will be handled as

another iteration of the response/review cycle. That is, the response status is set to "Incomplete" and a new revision of the response is developed.

Multiple Response/Review Cycles

The system must support multiple iterations of the response review cycle. All the data elements associated with an iteration (the initial and modified responses, the associated reviews, and status information) must be saved and be viewable with the rest of the information pertaining to the comment and response.

Date Response Approved

The system must automatically store the date and time the comment response is approved. A null value for this data element is allowed and indicates that the response has not been approved. The value in this field may not be edited after the record has been created except in the case where an approved response is reopened for modification.

Pre-approved Responses

The system must support the entry, storage, and retrieval of pre-approved responses that have been developed to address anticipated comments.

All pre-approved responses in the system must be available for reference by response writers as they develop comment responses. The system must allow the response writer to view the responses, select all or part of any pre-approved response text, and add the text to the response they are developing. No recording or tracking of the fact that the text was taken from a pre-approved response is required.

The review and approval process for a response containing pre-approved response text does not differ from the normal process.

System Output Requirements

This section defines the requirements for outputs that the CRD system must produce.

Comment Response Document

The system must produce a document containing all comments and responses in ASCII text format which will be used to produce the final Comment Response Document. This document will contain no scanned document images.

Comment Response Document Indices

The system must also produce cross reference indices of the Comment Response Document in the following formats:

- Alphabetically by commentor
- Comment document number
- Response - Comment Contributor Correlation

Preformatted Reports

The system must have the capability to produce preformatted reports on comments organized by:

- Commentor Last Name
- Comment Document Identifier
- Comment Identifier
- Organization
- City
- State
- Zip Code
- Area Code
- Date received
- Bin
- Response writer

Ad hoc Reports

The system must have an ad hoc report generation capability. The user must be able to customize reports by specifying:

- Inclusion or exclusion of specific data elements
- Selection of data matching a pattern applied to system data elements
- Sort order

Status Report

The system must have the capability to produce a report containing information on the current status of the response process. The reports shall contain the current number of responses pending and completed. The user shall have the ability to specify that the report be categorized and sorted by:

- Response writer
- Reviewer
- Subject index

All reports must display on the user's computer monitor. An optional local print capability must be provided.

Comment Document Posting on YMP Internet Web Site

The requirement to post Comment Document images on the YMP Internet Web Site as the documents are received and entered into the CRD system has been dropped.

User Interface Requirements

All comment data in the CRD system must be traceable back to the original comment document. Every user screen containing a comment, response to a comment, or a response review must provide a mechanism by which the user may display an image of the bracketed comment document that contains the associated comment. The initial view must display the page on which the comment starts. The user must be able to scroll the document image vertically in both directions from that initial point and to close the view when viewing has been completed.

Additional specifics of the user interface layout will be further defined during the interface prototyping process.

System Privileges and User Authentication

System Access

All access to the system will be via username/password authentication. That is, all users must have an established system account and enter their password each time they access the system.

Response, Review, and Approval Privileges

Privileges for access to system functions will be granted to users based on need. The system must ensure that the user has the required privilege before allowing access to any system function. An individual user may have one or more of these privileges at a given time. Access to the comment response writing, review, and approval functions will be controlled in this manner.

System Administrators

A system administrator user class must also be provided. Administrators will also authenticate via username/password and have access to all system functions described above.

Administrators will be the only users with the ability to perform privileged system functions and modify certain system data elements. Administrator privilege will be required to:

- Rebin comments
- Rebracket a comment document
- Modify the subject index
- Administer user accounts and privileges

Additional administrator functions will be added to the list as they are identified.

User Training and Documentation

User Training

Classroom-style training with written classroom materials must be provided. The training must support two classes of users: system administrators and users involved in response development and review. The training must cover basic system functions available to all users as well as the specific privileged functions available to the class of users being trained

User Manual

A user manual is not required.

Online Help

Online help is not required.

System Documentation

System design and implementation information must be well documented since it is anticipated that the software will be reused by other organizations to support the comment and response process for the Site Recommendation and License Application documents.

Miscellaneous Requirements

Capacities

The system must have the capacity to store at least 15000 comment document records. The system must have the capacity to store a cumulative total of at least 25000 individual comments/responses, comment summary records, and pre-approved responses

The system must be capable of supporting 15 concurrent users.

Network Access

The CRD system will be hosted on the YMP Intranet. Most users will have access to the system via their permanent connection to the YMP internal network. Remote system access options for users without such a connection include:

- Internet access using SecuRemote software on the client computer
- Dial-up connection

It has been noted that the bandwidth limitations of dialup connections may degrade the usability of system functions involving data transfers of significant size.

Searching

The system must support searching for text that matches strings entered by the user. The user must be able to select one or more of the following areas in which to perform the search:

- Comments
- Responses
- Response reviews
- Pre-approved responses
- Comment summaries

Global text replacement is not required. Full-text search capability is not required.

The specific formats for the interface components to support search text entry and results presentation will be further defined through the interface prototyping process.

System Activity Logging

A system activity log file shall be generated by the CRD system. Only essential event information will be captured:

- User logins including username, date/time, and client IP address
- Comment Document Rebracketing
- System errors

Work Pending Notifications

The possibility of providing users with a capability by which they could determine work pending has been discussed. This function would either notify users via email when they were assigned work in the system or provide a convenient way to periodically check for new assignments.

It is expected that regular users would receive an excessively large volume of messages if the email approach were adopted. It would probably be necessary to allow users to specify whether they wanted to receive no messages, a subset of generated messages, or all messages.

No determination has been made that work pending notifications are necessary, so there is no current requirement to implement this function.

Implementation Priorities

Most of the required system functionality will be implemented in Phase I of the development cycle. However, the system functions which generate the final Comment Response Document and associated indices have a lower implementation priority because they will not be used during the period in which comments are being accepted and processed. They will be developed in Phase II, which will run concurrent with the initial use of the system during the comment submission period.

Any additional functionality that can be identified as not being required during the initial period will also be given a lower priority and developed during Phase II.