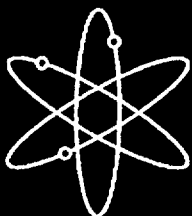


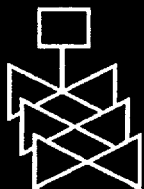
Evaluation of Terminated Licenses Parts 30, 40, and 70: The Terminated License Tracking System



Oak Ridge National Laboratory



**U.S. Nuclear Regulatory Commission
Office of Nuclear Material Safety and Safeguards
Washington, DC 20555-0001**



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Evaluation of Terminated Licenses Parts 30, 40, and 70: The Terminated License Tracking System

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ABSTRACT

The purpose of this report is to document the progress made on the NRC Terminated License Tracking System from October 1st, 1998 to December 31st, 1999. This system tracks the closure of licenses (Parts 30, 40, and 70) identified as sources of potential concern by the Oak Ridge National Laboratory (ORNL). Specifically, this report provides an overview of the license tracking system, a description of associated databases, and a guide to the supporting web site. This web site serves as the primary tool for viewing and editing license results as well as documenting progress and methodologies.

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EXECUTIVE SUMMARY

The NRC Terminated License Tracking System tracks closure of licenses for sites identified by the Oak Ridge National Laboratory (ORNL) as sources of potential concern. The tracking system is a combination web site/database design that accepts, manages, and summarizes information about each of the over 1200 licenses identified by ORNL in the previous phases of the project. The objectives of this web-based system are to:

- track each identified license as it is closed out by the region offices, maintaining the information in a relational database;
- create a user-friendly, efficient interface to the database;
- provide up-to-date, high quality information about identified terminated licenses; and
- serve as a communication and documentation tool providing information on both the licenses and the system.

In addition to interfacing with the tracking database, the system also provides connections to previously created databases, such as LEADIS, over the web. This tracking system provides an excellent foundation for a more permanent tracking system for future terminated licenses.

The Terminated License Tracking System provides a web-based interface to access three main NRC databases that contain information about terminated licenses. Through the web site, users may search for license actions by document number or license number or search for general license information (e.g., licensee name). An action indicates that there has been something performed on the license; this action may be anything from an initial inspection to a close-out statement. The web site also allows authorized users to register a new document, register a new license, or edit existing information. Additionally, the web site provides statistical information and a pictorial representation of the tracking system. Section 2 of this report provides detailed descriptions and instructions for the web site functions.

Section 3 presents the three NRC databases that link to the NRC Terminated License Tracking System. The Action database provides information obtained from various documents (memos, reports, etc.), such as status of closure, date of closure, etc. The actions are associated with specific license numbers. The Inventory database provides all the general information about a license number, such as licensee name and address, site location, etc. The Evaluations database provides the original ORNL scores for each license number.

The report concludes in section 4 with recommendations for future uses of the system.

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1. INTRODUCTION

The Nuclear Regulatory Commission (NRC) Terminated License Tracking System is a web-based system of databases used to track the status of terminated licenses (Parts 30, 40, and 70) identified as a potential concern by the Oak Ridge National Laboratory (ORNL). The primary goal of this system is to detail and track the status of terminated licenses as they are brought to closure. This was achieved by establishing and maintaining communication with regional NRC managers, acquiring documentation, creating a database to warehouse the progress of each closure, and developing a web site interface to add and retrieve information and to serve as a documentation and communication tool. Figure 1 provides a schematic of the NRC Terminated License Tracking System.

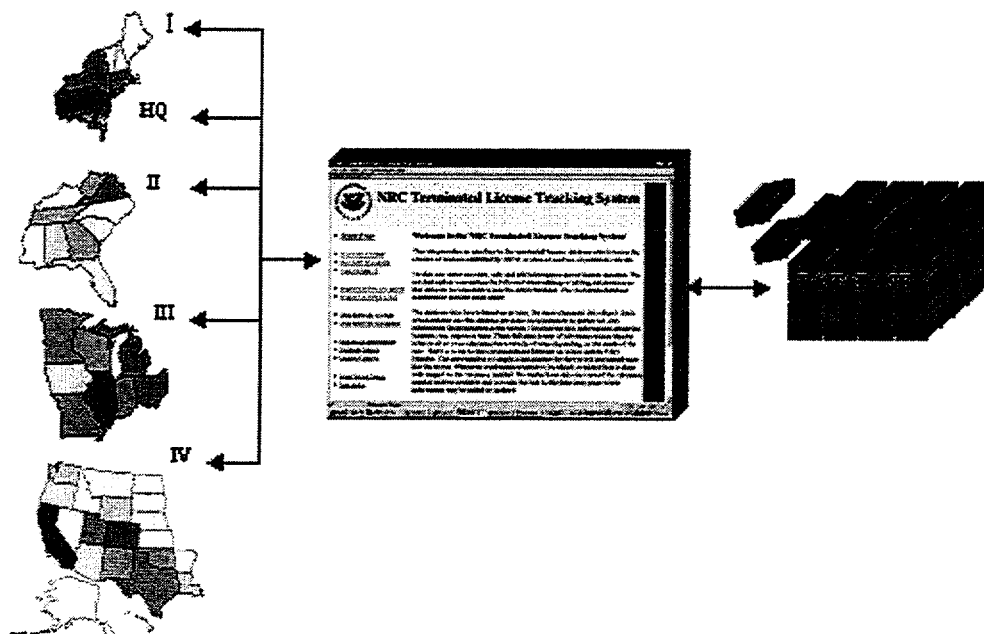


Figure 1. Schematic of the NRC Terminated License Tracking System

As the review process of terminated licenses was carried out, information about the status of the licenses, typically taken from an official NRC memo or letter, was input into the tracking system. After each license action was entered, this license was assigned an information quality level. These quality levels served as a self evaluation tool as well as a driver for optimizing information requests and inquiries to the regions.

Concurrently, a web-based interface was developed to facilitate data entry and information retrieval. The web site also summarizes license information quality, provides a communication tool between NRC and ORNL, and connects users to other previously constructed databases such as LEADIS. Various types of documentation about the web site, databases, and project plans can also be found there. The site has performed well since it was brought on line in early summer 1999 and is a beginning framework for tracking all terminated licenses in the future.

The web-based system is protected by a two-tier security system. A user ID/password combination and security level is assigned to each user approved by the NRC. The level of security determines what web site pages the user can access and documents what changes were made to the system and when.

This report documents the tracking database, the web site, and provides some general recommendations about the future of tracking license closures.

2. OVERVIEW OF THE NRC TERMINATED LICENSE TRACKING SYSTEM

The Nuclear Regulatory Commission (NRC) Terminated License Tracking System web site is currently on-line and can be accessed from <http://homer.hsr.ornl.gov/nrc/>. To view the web site, users must have an assigned ID/password with at least security Level 1. Level 1 security allows the user to perform any action that does not alter information in the database. Level 2 security permits users into areas where they may add, delete, or edit information. The user ID, password, and real name of the individual making a change is tracked with the change.

Pointing a web browser (such as Netscape) to the above defined web location will access the Terminated License Tracking System home page. Users will then be prompted to login.

From this system's home page, the following bullets are available (See Figure 2):

- Search By License
- Search By Document
- General Search
- Register A New Document
- Register A New License
- Data Entry By License
- Data Entry By Document
- Statistical Information
- Database Design
- Quality Control
- What We're Doing
- Talk To Us

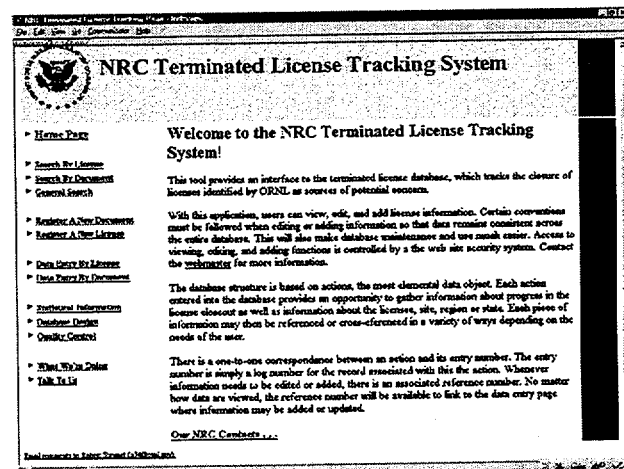


Figure 2. NRC Terminated License Tracking System Home Page

These bullets may be generally classified as Search Links, Data Entry Links, or Documentation Links. These classifications require Level 1, 2, and 1 security, respectively. The following sections will describe these functions by their classification.

2.1 Data Searches (Security Level 1)

The first three bullets on the web site involve searching the database. *Search By License* and *Search By Document* search the Actions Database while the *General Search* searches the Inventory Database or the Actions Database. Begin a search by clicking on one of these links.

2.1.1 Search the Actions Database

An action indicates that there has been something performed on the license; this action may be anything from an initial inspection to a close-out statement. Actions are defined for a particular license number on documents. These documents may be memos, progress reports, etc., and each document may contain more than one action and/or more than one license number.

2.1.1.1 Search By License

The *Search By License* link will allow the user to search the Actions Database for all the actions and documents associated with that particular license. The user begins by selecting a region to search from the drop-down list (see Figure 3). Next, the user selects a license number within that region from the drop-down list (see Figure 4).

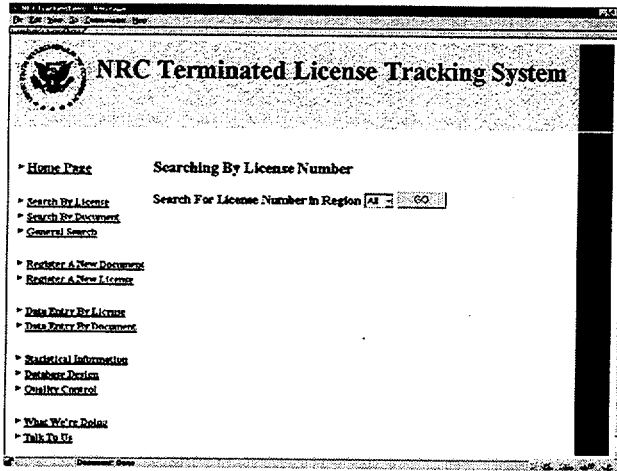


Figure 3. Select a Region

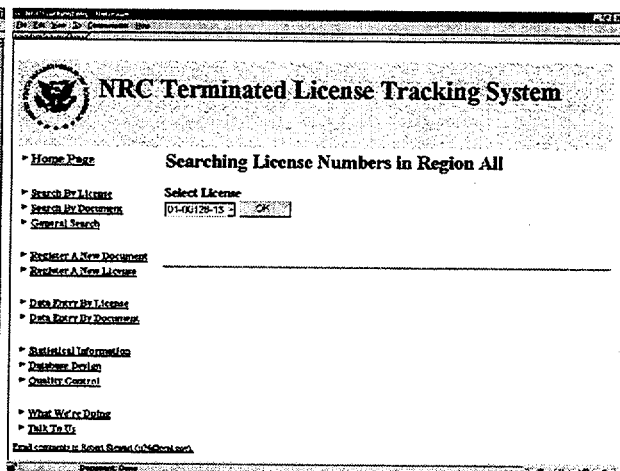


Figure 4. Select a License Number

After pressing the "Go" button, the following information will be returned:

- Site Name(s) and Address(es)
- General Data (e.g., region number, type of license, etc.)
- Action Records (documents)
- Licensee Address and Contact Information By Action
- Region Contact/Referral Information By Action
- State Contact/Referral Information By Action

2.1.1.2 Search By Document

The *Search By Document* link will allow the user to search the Actions Database for all the actions and license numbers associated with a particular document. This search begins by selecting a document number from the drop-down list seen in Figure 5. The search engine will then present the action records associated with that document number (see Figure 6). From this page, users may then select a particular license number or may select the pdf file for the document.

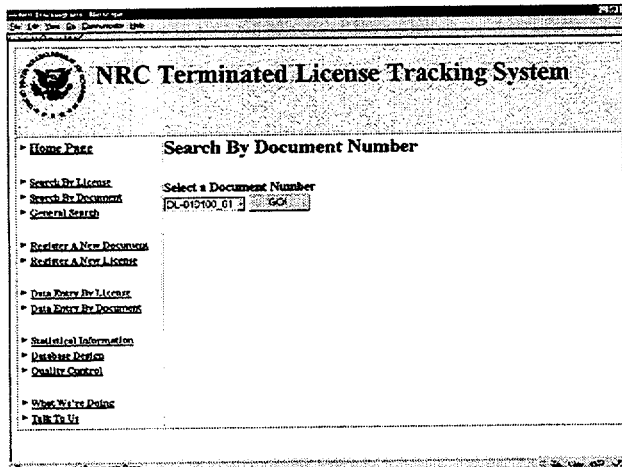


Figure 5. Select a Document Number

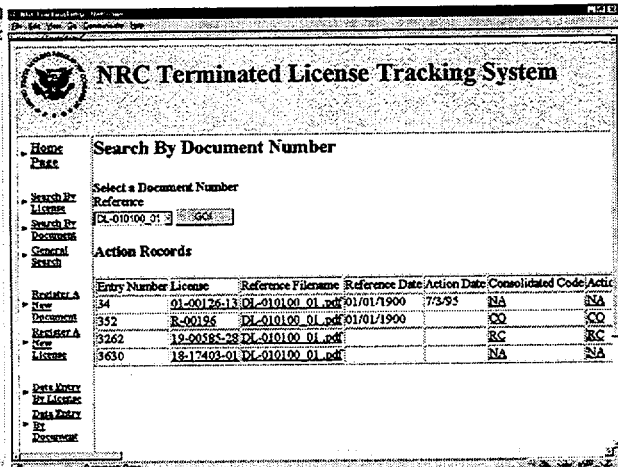


Figure 6. Action Records by Document Number

2.1.2 Perform a General Search

In addition to searching by document or license number, users may obtain general information about a particular license (licensee name, site location, etc.) by selecting the *General Search* link. This link will search the Master Inventory database or the Actions Database (also called the Tracking License Database). The user begins by selecting a database to search. The Master Inventory Database contains the following information:

- License Number
- Job
- Box
- Licensee
- Licensee Address
- Site and State of Operation

The Tracking License Database ("Actions Database") contains information about the close-out of site and sealed source licenses that were identified in the Oak Ridge National Laboratory (ORNL) review phases. Specifically, the following information may be searched:

- Reference Number, Date, and Pdf Filename
- Action Date and Code
- Consolidated Code
- Status Code
- Close Out Code
- Closed Out Date
- Date Entered
- Comments

Next, the user selects a field to search from the *Field Name* drop-down list. The available fields are automatically enabled depending on the selected database. The user must then type the phrase being searched in the *Search Phrases* box. If two phrases are entered for a field, the database assumes an OR relationship. In other words, the database will return records that match either phrase. The last item in the Field box is *Search Style*. If "All" is selected, the entire field must equal the entered phrase. If "Any Portion" is selected, records will be returned that contain the entered phrase anywhere within the selected field.

If two fields are being searched simultaneously, then the second Field box needs to be completed just like the first. The small drop-down box between the two Field boxes allows the user to select a relationship between the two searches. If "AND" is selected, only records that contain the entered phrases for BOTH fields will be returned. If "OR" is selected, records that match EITHER field search parameter will be returned. When only one field is being searched, this operator and the second Field box may be ignored.

When all pertinent information have been selected or entered, the user must press the "Go" button to perform the search. Results will be returned on the next screen. See Figure 7 for a screen capture of the General Search.

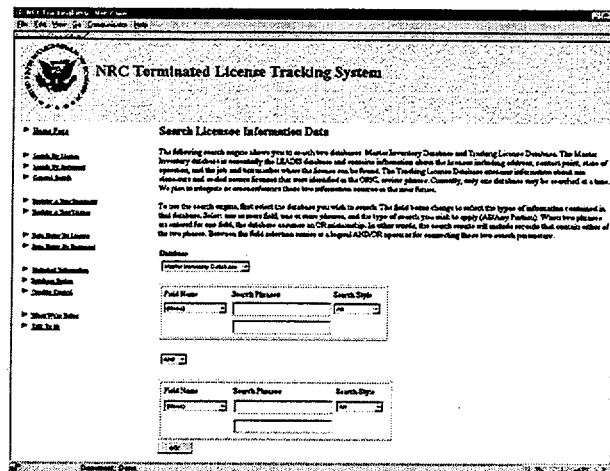


Figure 7. General Search

2.2 Data Entry (Security Level 2)

The next four bullets on the home page allow for changes and/or additions to be made to the databases. These pages may only be accessed by authorized individuals who have change/edit privileges (level 2 security). All other users will see a message stating that access is unauthorized.

The basic source for new information is typically a document. This document may be an official memorandum, fax, or email from a regional or headquarters office. Each new information piece is linked to its origin by the database; however, before any new information may be entered, its source must be registered and assigned a formal document number. This is achieved through the *Register a New Document* link.

Similarly, license information may only be entered after a license has been formally registered with the system. New licenses may be registered through the *Register a New License* link.

If both the license and document numbers have been entered into the system, source information may be entered through the *Data Entry By License* and *Data Entry By Document* links.

2.2.1 Register New Information

Before any new information can be entered into the system, the document and license number must previously be registered in the system. If they are not already registered, the following functions are available.

2.2.1.1 Register a New Document

This link is used when a new document is received (e.g., memo, monthly report, etc.) that contains information to be entered into the database. Users will first enter the date of the document in the *Date of*

Reference box (see Figure 8). The date is one of the main pieces of information used to track documents; therefore, it must be entered in a consistent format. For this web site, the required format is mm/dd/yy where mm is a two digit month code, dd is the two digit day, and yy are the last two numbers of the year. This system is Y2K compliant, so the system will understand how to search for the year 2000. Once the date has been entered, the database will assign the document a unique tracking number and provide instructions for creating a pdf file for the document. After the number has been assigned, the user writes or types the number on the document and prepares to convert it into an electronic format (if not already). The electronic copy of the document is added to the directory of documents to be viewed from the web site.

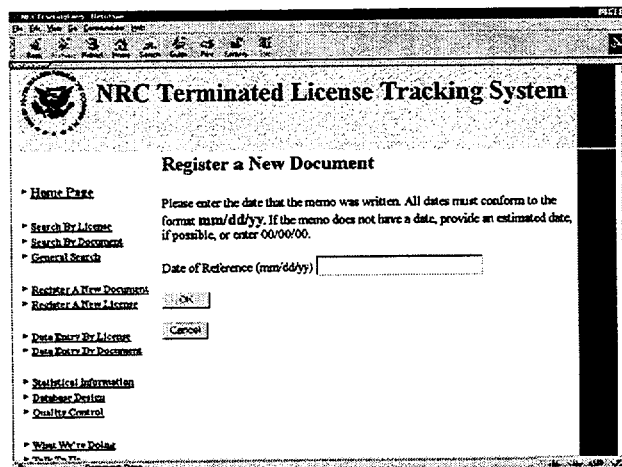


Figure 8. Register a New Document

2.2.1.2 Register a New License

This link is used when a document is received that contains a new license number. Users first enter information about the license as portrayed in Figure 9. Once this information has been entered, the database is now ready to track actions for this license.

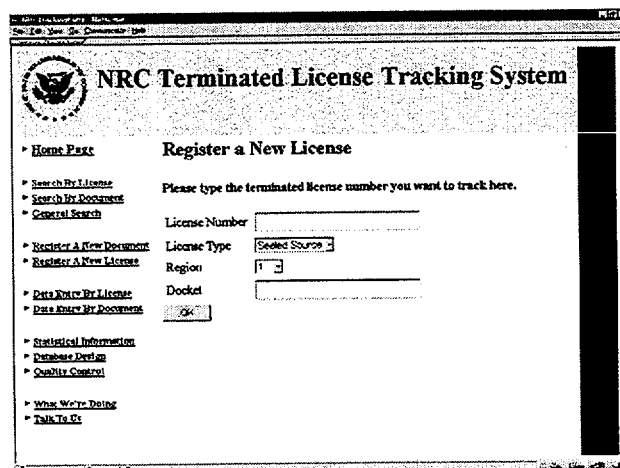


Figure 9. Register a New License

2.2.2 Edit or Add Existing Records

The *Data Entry By License* and *Data Entry By Document* links are used to add new information or modify existing records. The process of choosing these links is similar to the *Search By License* or *Search By Document*; however additional links are provided to edit or add new information.

Choosing *Data Entry By License* will prompt the user for a region of interest and then a license from that region. The user is presented with the current information about the license as in *Search By License*. Data entries are catalogued by a unique entry number. Under the *Data Entry* options, these entry numbers become hot links to the data entry page where corresponding action information may be edited or deleted. At the bottom of each table the *Add More Information* link is available. Click on this link to enter a new piece of information about this license number. The user is taken to a blank data entry page (See Figure 10), where a new entry number is automatically assigned. Once all the requested information has been entered, the data entry personnel clicks the "Update" button at the bottom of the page to enter the information into the system.

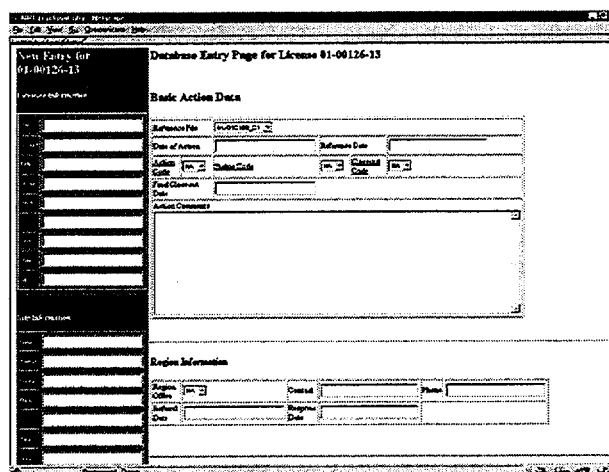


Figure 10. Edit Existing Records

Data entry through *Data Entry By Document* is similar. Entry numbers are hyper-linked to the same page layout as in *Data Entry by License*. Currently, new information about a license may not be entered through this link. This option will be available soon. In the meantime, users must enter new information through *Data Entry By License*.

After entering information about a license number, the user is required to reevaluate the quality status of information for that license. The link to these choices is found on the *Data Entry By License* page under "Information Rank" on the General Information Table. This links users to the *License Information Quality Categories* page (see Figure 11) where they can set the status of information as Excellent, Good, or Low. Previously, the definition of these categories were as follows:

- Excellent: Information is sufficient to classify the status of the site. Actions are in the correct order.
- Good: Information exists on the license but more is needed.
- Low: Insufficient information is available on the license.

As of the creation of this report, these definitions have changed slightly to the following:

- Excellent: Information is up to date.
- Good: The amount of information is useful in determining what has occurred but is not up to date.
- Low: Little or no information exists.

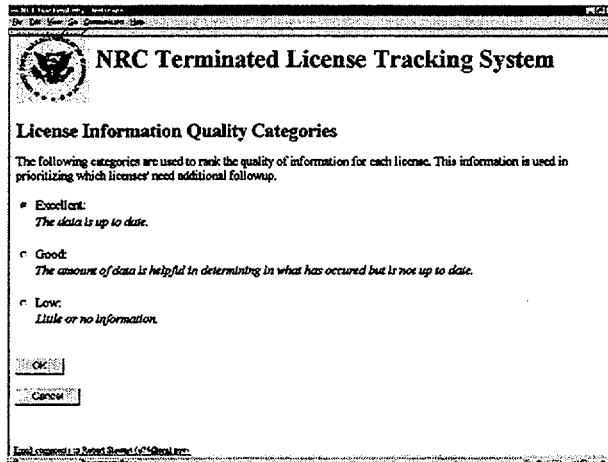


Figure 11. Edit Quality Categories

2.3 Documentation/Communication Features

Other important components of the web site are the documentation/communication and self-evaluation features. These components allow users to receive information about the contents of the database and understand how the system is designed.

Documentation about the system and the project itself can be found on the *Database Design* and *What We're Doing* pages. The self-evaluation component is viewed at the *Statistical Information* page. This page summarizes critical characteristics, such as the quality of information in the system and the number of closed out licenses.

Finally, direct links to the development team are available through the *Talk To Us* link as well as several other e-mail links on the bottom of each web page. These links allow emails to be written directly to the technical and managerial staff at ORNL.

The documentation/communication features are described in detail in the following sections.

2.3.1 Statistical Information

This page provides a statistical summary about the information contained in the databases. For example, the *General Statistics* table presents the total number of entries, the total number of licenses, and the total number of licenses that have been closed out. The *Information Quality Statistics* table presents the total number of licenses for each quality rank. There are three quality ranks assigned to entries: excellent, good, and low. The quality levels are assigned depending on the amount and completeness of acquired information. The table also shows the number of entries that have not been reviewed and ranked. Additional tables and statistics will be provided as necessary. See Figure 12 for a screen capture of the *Statistical Information* page.

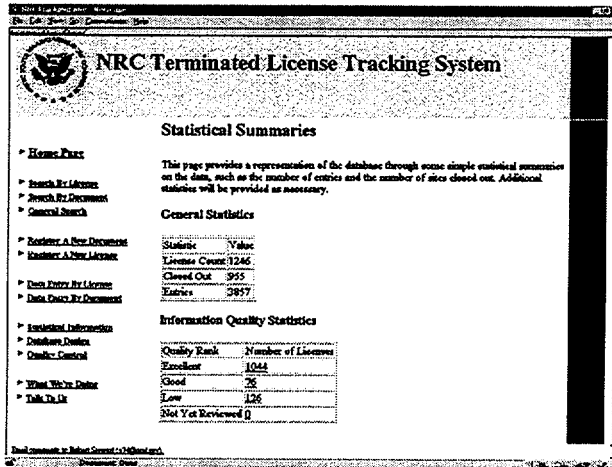


Figure 12. Statistical Information

2.3.2 Database Design

This page presents a pictorial representation of the web site. Specifically, it portrays the databases that are maintained and accessed by this web tracking system and shows their relationships with one another. These databases will be hot linked to provide specific information and descriptions by clicking on each. See Figure 13.s

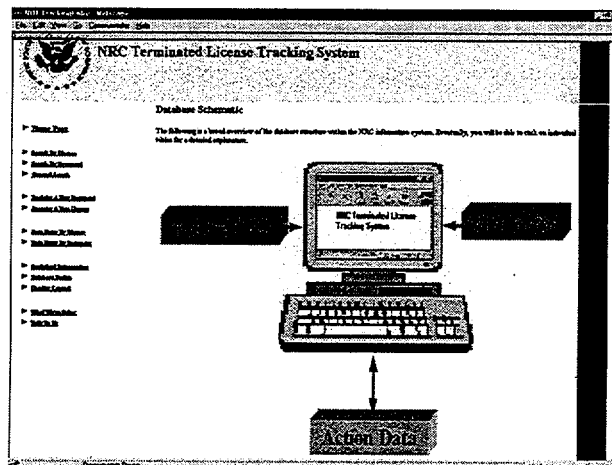


Figure 13. Database Design

2.3.3 What We're Doing

The web site also has a page titled *What We're Doing*. This page provides a synopsis of the current activities related to this web site or its contents as well as a bulleted list of completed activities. These activities are arranged by what is being completed now, what was completed since this project phase began, and what will be completed next. This provides an opportunity for NRC to view the progress of the development team and provide technical input for what should occur next. This web page is continually changing; therefore, this list will be updated as new activities are completed. See Figure 14 for a screen capture of this page.

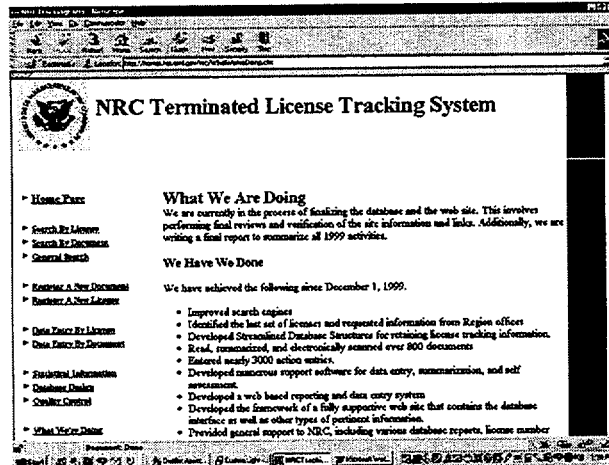


Figure 14. What We're Doing

2.4 Quality Control

The web site includes a *Quality Control* page that provides an overview of the quality assurance (QA) and quality control (QC) mechanisms for the site. These QA/QC mechanisms ensure that the information on the web site is accurate, complete, and up-to-date. Also, QA/QC ensures that the site is maintained under configuration control. Some of the QA/QC mechanisms are:

- Only authorized individuals have add/edit access. Access is controlled by a double password protection system. One level of individuals has access to view the information while another level has access to add/edit the information. All changes or additions to the system are tracked and maintained by the date and who made the changes.
- All licenses and documents must be formally registered on the system before any relevant information can be entered into the database. This prevents duplication and allows for all entries to be tracked. For document registration, once a unique document number is assigned, the database expects a corresponding electronic copy to be placed in the directory of source documents.
- Licenses are ranked after entry into the system. A relative ranking system quantifies the quality of information for each license and assigns a score of "excellent", "good", or "low" depending on the amount and completeness of information. Licenses may then be prioritized so that more time is spent retrieving information on "low" quality licenses. This relative ranking system helps ensure that the information presented on the tracking system is of the highest available quality.
- The web site is routinely reviewed and revised as necessary in order to maintain accuracy and the most up-to-date information. Additionally, routine back-ups are performed to protect the information content.

Figure 15 presents a screen capture from the *Quality Control* page on the NRC Terminated License Tracking System.

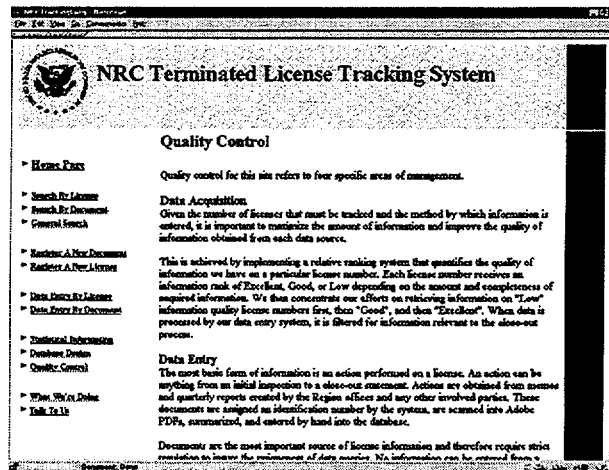


Figure 15. Quality Control

3. DATABASES

There are 3 NRC databases that link to the web site interface: Actions Database, Inventory Database, and Evaluations Database. The following sections will describe each database. The Actions Database is the main tracking database so more detail will be provided in its description.

3.1 Actions Database

The actions database logs the individual actions or information pieces occurring for each license. The primary objective is to provide a summary table of where each license exists in the closeout procedure. Auxiliary data can also be provided such as state contacts, regional contacts, address information, or site information. The actions database also contains several supporting tables existing only to provide web-driven codes and drop-down boxes. These tables are of no direct value to users and will therefore not be described in this section. Following are some of the main tables in this database:

- Action_Codes - This table contains descriptions of action codes used to quantify the status of a license. Some common action codes are:
 - CO = Close Out
 - NA = No Action / Not Available
 - OP = Open File
- Authorization - This table contains passwords, user IDs, and security levels.
- d_RegionReferral - This table contains information about a referral from a licensee to the region office. Some of the fields include region number, region office contact name and phone number, and dates of referral and response.
- d_SiteInformation - This table contains site and contact addresses obtained from correspondences regarding the site. These addresses may be used to update the Master Inventory Database address information in the future. The addresses are all associated with a specific license number in the table.

- **d_StateReferences** - This table contains information regarding references to a state office to transfer a license or request information. Some of the fields include state office, contact name and phone number, and dates of referral and response.
- **d_TrackingActions** - This table contains the actions performed on the licenses. Actions are the core source of information in the database.
- **LicenseNumbersBeingTracked** - This table contains license numbers that have been identified by the ORNL evaluation system as well as unidentified numbers contained in correspondence. Some of the fields include license number and region.
- **ORNLIdentifiedLicenseNumbers** - This table contains site and sealed source license numbers that have been identified by the ORNL evaluation system and therefore require tracking. Communications about these licenses is considered ongoing. Some of the fields in the table include license number and date identified.
- **MasterSealedTableforTrackingPhase** and **MasterSiteTableforTrackingPhase** - These tables contain all the ORNL identified license numbers and their scores. Some fields include license number, score, and date updated.
- **QualityReview** - This table contains the current level of information by license number. Some of the fields in the table include license number, quality code, and if the license is open or closed.
- **RegisteredSources** - This table contains all the documents registered into the database as official sources of information. Some of the fields include document ID#, pdf filename, and date registered.
- **UnidentifiedLicenseNumbersBeingTracked** - This table contains all licenses that have not been identified by the ORNL evaluation process but are contained in correspondence or an officially registered resource.

3.2 Inventory Database

The inventory database provides general information about each license. While several tables are available within the database, access is only allowed to the Licensee Information Table. Access to the others could be opened in the near future. The Licensee Information table provides users with such information as company addresses, site of operation addresses, and the location of the license files by job and box number. Access to this database is available through the *General Search* (see Data Searches) link. Currently there are over 37,000 licenses in this database.

3.3 Evaluations Database

The evaluations database contains the results of the evaluation phase of this project. Scores and supplemental information are warehoused, as well. This database provides the final scores for each license. Currently, the other information types are not available via the web, but development plans are to allow access to these as well.

4. ADAPTING THE SYSTEM FOR TRACKING ALL TERMINATIONS

The current infrastructure provides an excellent start for evolving the system into a more permanent means of tracking all licenses terminated by the NRC. The web site, database, and method of

communication with NRC personnel would need modification. The following modifications are recommended.

4.1 Database

For the database, all licenses not identified as sources of concern during the evaluation phase would be entered in a single transaction. Each license would receive the closed out status with a comment to the effect that they were not identified by the evaluation scheme as needing further review.

4.2 Web Site

The web site should be moved to a computer dedicated solely to serving this web site/database infrastructure. Currently, the web site is located on a machine providing several services and a number of other web sites. A dedicated machine would allow the system to be administered and configured according to the specific needs of this project.

Another recommendation is to modify and improve the web pages. These pages could be altered to allow regional personnel to add information to the database. Currently, only the ORNL team is performing these actions. Note that under these circumstances, an electronic copy of the source document would still need to be sent to ORNL.

A broader cross-referencing of information would improve the flow of data. Also adding many of the remaining database tables from the Master Evaluation and Master Inventory databases would provide useful information about the evaluation process of this phase of the project at little cost.

4.3 Data Flow

For the system as a whole to serve its purpose, it is imperative that communication from NRC to ORNL in the form of documenting sources be completely open. Specifically, ORNL should be carbon copied on any memo related to the closure of a terminated license. Whether NRC or ORNL enters the information into the system, the electronic copy or hardcopy file must be sent to the electronic repository at the web site. Electronic methods can be developed for placing the information in the repository by simple e-mail. These methods will require some more exploration as the project continues.

If a successful channel of information is not maintained, it could become unnecessarily expensive to track these licenses and to quantify the state of terminated licenses across the agency as a whole.

5. REFERENCES

NRC Terminated Licenses Tracking System, December 1999.

BIBLIOGRAPHIC DATA SHEET

(See instructions on the reverse)

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10. SUPPLEMENTARY NOTES

J. Buckley, NRC Project Manager

11. ABSTRACT *(200 words or less)*

The purpose of this report is to document the progress made on the NRC Terminated License Tracking System from October 1st, 1998 to December 31st, 1999. This system tracks the closure of license (Parts 30, 40, and 70) identified as sources of potential concern by the Oak Ridge National Laboratory (ORNL). Specifically, this report provides an overview of the license tracking system, a description of associated databases, and a guide to the supporting web site. This web site serves as the primary tool for viewing and editing license results as well as documenting progress and methodologies.

12. KEY WORDS/DESCRIPTORS *(List words or phrases that will assist researchers in locating the report.)*

Terminated License Tracking System
Terminated License Website
Terminated Licenses
Part 30 Licenses
Part 40 Licenses
Part 70 Licenses

Oak Ridge National Laboratory
Tracking Database
Actions Database
Inventory Database
Evaluations Database

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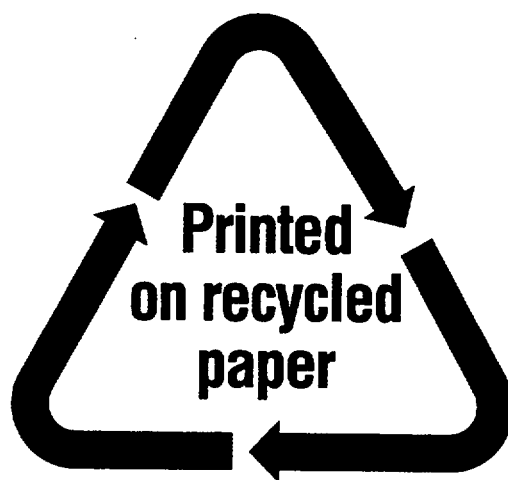
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