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NOISE AND SONIC BOOM IMPACT TECHNOLOGY

Initial Development of an Assessment System for Aircraft Noise (ASAN): Technical Description

Volume III of IV Volumes

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This is the third volume of a volume report summarizing the development and current contents of a preliminary prototype version of an Assessment System for Aircraft Noise (ASAN). ASAN is a computer-based system intended to assist members of the United States Air Force (USAF) environmental planning community in addressing noise-related issues in developing environmental impact analysis documents, in compliance with USAF and other regulations, especially the National Environmental Policy Act (NEPA) of 1969.

This volume contains the specifications for the preliminary prototype ASAN software.

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Table of Contents

List of Figures

List of Tables

Appendix A
DOCUMENTATION FOR USER INTERFACE

A.1 Overview

U is a set of tools for building and using a "screen-oriented" interactive interface to user-written application code. U runs under several versions of the Unix operating system and its look-alikes (e.g., Xenix), and on MS-DOS 3.0 and later.

An individual user interface is defined by a text file called a Screen Description File (SDF). At run time, the interface controls all interaction with the application according to the directives in the SDF.

An SDF must be composed to use the interface. A parser analyzes the SDF, and generates several files which must be compiled and linked with application code to form a complete executable program. The interface is terminal-independent: it will run on any terminal known to the operating system.

A.2 SDF Building Blocks (Summary)

The interface manages the actual terminal screen. Application code must ***never*** write to the terminal screen directly.

"Building blocks" are the pieces which constitute the display, such as "windows" and "buttons."

A "screen" is a stored representation of how the actual terminal screen look. One screen is always displayed. Screens are made out of "windows."

A "window" is a portion (all or part) of a screen. Windows are made out of "datums," "text lines," "text blocks," "buttons," "drawn lines," and "drawn boxes."

A "datum" is a description of a single variable, with the information necessary to display and manipulate it.

A "variable" is an external variable in application code. A "text line" is a single line of text.

A "text block" is any amount of text in a file.

A "button," when pushed, causes something to happen.

A.3 SDF Building Blocks (Details)

General:

- "Components" are the pieces which make up building blocks.
- Optional components have reasonable defaults.

Variables:

- Each variable used ***must*** be declared exactly ***once***.
- Array elements are treated as separate variables, and must have separate declarations.
- Interactively changing the value of a variable instantly changes that value everywhere it is displayed and used, both in the interface and in your application code.
- If your application code changes the value of a variable declared to the interface, your application code must tell the interface. Otherwise, the interface will not know about the new value for a while.
- Every variable ***must*** be given a data type. The choices are shown in Table A-1.

Table A-1: Variable Data Types.

Variable Data Types				
in an SDF	*in C*	*in F77*	*# bytes*	*possible format descriptors*
INTEGER	int, short	integer*2	2	d, o, u, x
LONG	long	integer*4	4	ld, lo, lu, lx
FLOAT	float	real*4	4	e, f, g
DOUBLE	double	doubleprecision	8	le, lf, lg
CHAR	char	character*1	1	c, d, o, u, x
STRING	char foo[n]	character*n	n	s

- Variables must be "public" (not local, static or temporary) in your application code, so as to be available to the interface. See "PROGRAMMING NOTES" for details and application coding examples.
- Every variable ***must*** be given a format descriptor (how it looks when displayed). Formats are in standard C syntax, and so must always begin with a percent-sign (%).
- A variable can be used in any number of datums.
- Components which can appear in a variable declaration are shown in Table A-2 (mandatory components are flagged with *).

Table A-2: Variable Declaration Components.

Variable Declaration Components		
default	234	default value.
format	%6d	* format descriptor, in C language form (must begin with %).
lowlimit	100	lower limit (minimum value).
type	INTEGER	* data type declaration.
uplimit	999	upper limit (maximum value).

Datums:

- A datum must use ***exactly one*** variable.
- A datum can be used in any number of windows.
- Components which can appear in a datum declaration are shown in Table A-3 (mandatory components are flagged with *).

Table A-3: Datum Declaration Components.

Datum Declaration Components		
border	YES	if a border box is to be drawn around the datum (default is NO). A border takes up 2 rows and 2 columns.
helpfile	help/dat1.hlp	help file name.
label	"temp," 1, 1	a label string, its row #, col # (from top left corner of datum).
leader	"circa"	a string to precede the displayed value (on same line, separated by one space).
num_rows	3	* # rows occupied on display.
num_columns	62	* # columns occupied on display.
pickable	NO	if the displayed value is not to be picked & changed (default is YES).
trailer	"degrees"	a string to follow the displayed value (on same line, separated by one space).
variable	var1, 1, 24	* display the value of this variable, positioning its leftmost character at the given row # & column # (from top left corner of datum).

Text Lines:

- A text line consists of ***exactly one*** string.
- The string may ***not*** contain any tabs, carriage returns, linefeeds, formfeeds, or control characters.

A text line can be used in any number of buttons and/or windows.

- Components which can appear in a text line declaration are shown in Table A-4 (mandatory components are flagged with *).

Table A-4: Text Line Declaration Components.

Text Line Declaration Components	
"This is a line of text"	* text of text line.

Text Blocks:

- Compose a separate text file for each separate text block.
- Text block files can be in any directory.
- Text blocks files may ***not*** contain tabs, formfeeds or control characters.
- Text block files can be dynamically created and/or modified by your application code.
- When a text block is declared, you specify the size of the area it occupies when displayed, in rows (lines) and columns. If the text is wider than this area, characters beyond the right margin will be lost. If the text contains more lines than this area, the user can "scroll" it up and down.
- A text block can be used in any number of windows.
- Components which can appear in a text block declaration are shown in Table A-5 (mandatory components are flagged with *).

Table A-5: Text Block Declaration Components.

Text Block Declaration Components		
border	YES	if a border box is to be drawn around the text block (default is NO). A border takes up 2 rows and 2 columns.
filename	txt/txt1.txt	* displayed file name.
num_rows	3	* # rows occupied on display.
num_columns	62	* # columns occupied on display.

Buttons:

- Buttons are drawn with a "pick spot" character at the top left corner, and none or more text lines. The pick spot appears on the screen as a diamond.
- The cursor always "picks" the top left corner.
- If the button declaration includes "pick_spot NO," no pick spot is drawn.
- Text lines are used for text (legends, etc.) in buttons. A button can contain any number of text lines.
- Text lines in a button can overlap (the "last" text line used is "on top").
- A button can be used in any number of windows.
- Components which can appear in a button declaration are shown in Table A-6 (mandatory components are flagged with *).

Table A-6: Button Declaration Components.

Button Declaration Components		
border	YES	if a border box is to be drawn around the button (default is NO). A border takes up 2 rows and 2 columns.
helpfile	help/but1.hlp	help file name.
num_rows	3	* # rows occupied on display.
num_columns	62	* # columns occupied on display.
pick_spot	NO	don't draw pick spot (default is YES)
textline	tline1, 4, 1	display this text line, positioning its leftmost character at the given row # & column # (from the top left corner of the button). Any number of text lines can be used.

Windows:

- If a window declaration includes "pickable NO," nothing in that window will be pickable.
- A window ***must*** contain at least one datum, or text line, or title, text block, or button, or drawn line, or drawn box.
- A window can contain any number of datums and/or text lines and/or text blocks and/or buttons and/or drawn lines and/or drawn boxes.
- Items in a window can overlap (the "last" item used is "on top").
- A window can be used in any number of screens.
- Components which can appear in a window declaration are shown in Table A-7 (mandatory components are flagged with *).

Table A-7: Window Declaration Components.

Window Declaration Components		
border	YES	if a border box is to be drawn around the window (default is NO). A border takes up 2 rows and 2 columns.
box	5, 5, 15, 15	display a drawn box; the parameters given are: bottom left row#, bottom left column#, top right row#, top right column# (from the top left corner of the window). Any number of drawn boxes can be used.
button	but1,4,1, "NEXT_SCREEN scr3," "QUIT"	display this button, positioning its top left corner at the given row # & column # (from the top left corner of the window). An explicit action list is given (and is mandatory for buttons). Any number of buttons can be used.
datum	dat1, 2, 1	display this datum, positioning its top left corner at the given row # & column # (from the top left corner of the window). No action list is given (UPDATE happens by default). Any number of datums can be used.
datum	dat2, 4, 1, "CALL sub," "QUIT"	display this datum, positioning its top left corner at the given row # & column # (from the top left corner of the window). An explicit action list is given. Any number of datums can be used.
helpfile	help/but1.hlp	help file name.

Table A-7: continued.

Window Declaration Components		
line	3, 3, 3, 20	display a drawn line; the parameters given are: starting row#, starting column#, ending row#, ending column# (from the top left corner of the window). Any number of drawn lines can be used.
num_rows	3	* # rows occupied on display.
num_columns	62	* # columns occupied on display.
pickable	NO	if nothing in the window is to be pickable (default is YES).
textline	tline1, 6, 1	display this text line, positioning its leftmost character at the given row # & column # (from the top left corner of the window). Any number of text lines can be used.
textblock	tblock1, 7, 1	display this text block, positioning its top left corner at the given row # & column # (from the top left corner of the window). Any number of text blocks can be used.
title	"Window One"	title string, centered at the top of the window.

Screens:

- Exactly one screen declaration ***must*** include the line "mainscreen YES."
- Exactly one screen declaration ***can*** include the line "titlescreen YES."
- If a title screen is declared, it will be the first screen to be displayed when the application is started. The next screen to be displayed will be the main screen.
- If no title screen is declared, the first screen to be displayed will be the main screen.
- A screen ***must*** contain at least one window.
- A screen ***can*** contain any number of windows.
- Windows in a screen can overlap (the "last" window used is "on top").
- Components which can appear in a screen declaration are shown in Table A-8 (mandatory components are flagged with *).

Table A-8: Screen Declaration Components.

Screen Declaration Components		
border	YES	if a border box is to be drawn around the screen (default is NO). A border takes up 2 rows and 2 columns.
helpfile	help/scr1.hlp	help file name.
mainscreen	YES	* this screen (and no other) is the main screen.
title	"Screen One"	title string, centered at the top of the screen.
titlescreen	YES	this screen (and no other) is the title screen.
window	win1, 4, 18	* display this window, positioning its top left corner at the given row # & column # (from the top left corner of the screen).

A.4 Important Detail

The Terminal Screen:

- The Terminal Screen is assumed to be 24 rows by 80 columns.
- The bottom row is reserved for status messages.
- The "screen" size is therefore 23 rows by 80 columns.
- Row and column numbering starts with 0, not 1. So row numbers can be 0-22 and column numbers can be 0-79.

Screen Cursor Management ("Picking" and Activating"):

- The end user can move the screen cursor by pressing mouse buttons or keyboard keys.
- The cursor can ***only*** rest on buttons, datums and text blocks.
- When the cursor rests on an item, that item is "picked." Exactly one item is "picked" at all times.
- The status line always shows the mouse button / keyboard key assignments which are meaningful for the "picked" item.
- When a text block is "picked," the user can "scroll" it up and down.
- Datums are normally pickable. You can override this with a "pickable NO" component in the datum's declaration, or with a "pickable NO" component in the window containing the datum.
- Buttons are ***always*** pickable, unless in a window containing a "pickable NO" component.
- Pressing the assigned mouse button or keyboard key "activates" the "picked" item (datum or button -- text blocks don't "act").
- When a datum is "activated," it can be "updated" (its value changed by typing a new value) and its associated "actions" executed.
- When a button is "activated," its associated "actions" are executed.
- When the end user moves the cursor, the interface decides its next position. You can override this decision (see "Actions").

Actions and Action Lists:

- "Actions" are *things* that happen when a datum or button *is* "activated."
- Any number of actions can be specified for a item. Actions are executed sequentially, in the order of their appearance in the action list.
- "Update" (= "accept a new data value") is the default first action for datums. If "update" is all you want to happen to a datum, an explicit action list is unnecessary.
- "Update" need not be the ***first*** action for a datum. You can override the default update (first action), and then command an "update" later in the action list.
- That portion of a datum's action list past the point where "update" is invoked is ***not*** executed unless a new data value is actually entered and accepted, ***except*** when "FORCE" is the next action after the "update."
- Buttons must ***always*** have explicit action lists.
- The actions shown in Table A-9 are built into the interface.

Table A-9: Built-in Interface Actions.

Built-in Interface Actions	
ADD_WINDOW w_name r c	* Add (pop up) a window on the current screen, with the top left corner at row r, column c (of the screen). The added window will disappear when a new screen is displayed or when REMOVE_WINDOW is called, revealing whatever was previously underneath. Ignored if the named window does not exist.
CALL subr_name	Call a user-supplied C subroutine, with no passed arguments.
CALL subr_name arg1 arg2 ..	Call a user-supplied C subroutine, with passed arguments.
FCALL subr_name	Call a user-supplied F77 subroutine, with no passed arguments.
FCALL subr_name arg1 arg2 ..	Call a user-supplied F77 subroutine, with passed arguments.
FORCE	If just after a datum update, forces the rest of the action list to be executed even if no update occurred. Ignored if not just after a datum update.
MAIN_SCREEN	Make the "main screen" the current screen.
NEWVALS	Synchronize the interface's record of application data values with the actual values in application space. This action MUST be invoked if the application code changes data values displayed by the interface, else the interface will not be aware of the new values (for a while). If a data value is changed interactively, the interface synchronizes automatically.
NEW_SCREEN screen-name	Make the named screen the current screen. Ignored if the named screen does not exist.
NEXT_BUTTON button-name	Move the cursor to the "nearest" instance of the named button on the current screen. Ignored if there is no such button on the current screen.
NEXT_DATUM datum-name	Move the cursor to the "nearest" instance of the named datum on the current screen. Ignored if there is no such datum on the current screen.

Table A-9: continued.

Built-in Interface Actions	
NO_UPDATE	If first in a datum's action list, prevents the automatic update (the default first action for all datums). Ignored if not first in a datum's action list.
PREVIOUS_SCREEN	Make the previous screen the current screen.
QUIT	Return to the user's main program. This is the ***only*** "normal" way to exit the interface package.
REMOVE_WINDOW	Remove the window added by ADD_WINDOW from the current screen. Ignored if no window has been added.
SAVE_SCREEN filename	Save a printable image of the current screen in the named file. If the file exists, it is overwritten.
SLOUT string	Display a string on the status line. The string may ***not*** contain linefeeds, formfeeds, carriage returns, tabs, or control characters.
TITLE_SCREEN	Make the "title screen" the current screen. Ignored if no screen is declared to be the title screen.
UPDATE	Let the user update the currently picked datum. If no update occurs (aborted), the rest of the action list is ignored unless FORCEd. This is the default first action for all datums (unless the first action in a datum's action list is NO_UPDATE). Ignored for buttons.
UPDATE_DATUM datum_name	Move the cursor to the "nearest" instance of the named datum on the current screen, let the user update the named datum, then restore the cursor to its original location and resume processing the original action list. The named datum's action list is ignored (i.e. "nesting" does not occur, and recursion is prevented). Ignored if there is no such datum on the current screen, or if the named datum is the currently "picked" one.

Help:

- The end user can obtain help at any time, by pressing the assigned "help" keyboard key or mouse button.
- "Help" messages are similar to "pop-up windows": they appear when invoked, the user can "scroll" them up and down, and they disappear when the cursor is moved to another item or screen.
- "Help" messages are also similar to text blocks.
- A single help text file can be used for any number of situations.
- Help text files can be in any directory.
- Help text files may ***not*** contain tabs, formfeeds, or control characters.
- Help text files can be dynamically created and/or modified by your application code.

A.5 SDF Syntax

- Order:
  - The order in which building blocks appear is ***important***: they must be declared before they are referenced. A variable must be declared before being used in a datum, a datum must be declared before being used in a window, etc.
  - The order of component lines within building blocks is ***not important***.
- Case (upper/lower):
  - Building block type keywords ("DATUM," etc.) ***must*** be upper case.
  - Component keywords ("label," etc.) ***must*** be lower case.
  - Names of building blocks and variables are case sensitive.
  - On most systems, file names are case sensitive.
- Punctuation:
  - A building block declaration ***must*** be enclosed in curly braces { }.
  - Keyword arguments are usually separated by commas.
  - Text strings (e.g., label, leader) and actions ***must*** be enclosed in double quotes "".
  - In strings, "" --> " ????
  - A comment begins with a tilde (~), and can appear anywhere. The characters from the tilde through the end of the line are ignored. A tilde is okay in a text string.
  - Extra punctuation is ***not*** ignored, and may have strange effects.
  - Building block names can contain any printable characters ***except*** commas, curly braces, double quotes, square brackets, parens, and tildes.
- File Names:
  - File names given as helpfile names, or as textblock filenames, or with built-in actions taking filename arguments, can be full pathname specs. In these file names, forward slashes are ALWAYS used as pathname element separators, even on MS-DOS.

- In file names passed to CALLed subroutines as quoted strings, the inclusion of forward and backward slashes should be avoided.

- White Space:
  - White space (tabs, spaces, blank lines) ***must*** separate keywords from their arguments.
  - All other white space is ***ignored***; please feel free to make your SDF as readable as you can.
- Actions and Action Lists:
  - Action phrases (an action keyword and its arguments, if any) are enclosed in double quotes; action phrases in a list are separated by commas.
- Strings in action arguments:
  - If a passed argument to a CALLed or FCALLed user subroutine, or to SLOUT, is a string, it must be enclosed in single quotes (thus, string arguments may ***not*** contain single quotes).
  - When passed to a CALLed or FCALLed user subroutine, or to SLOUT, a building block name is a string and must be quoted.
  - In other built-in actions where a building block name is an argument, the building block name is ***not*** a string and is ***not*** quoted.
- Using datums in a window, with no action list:

keyword ("datum")	WHITESPACE
datum name	COMMA
row number (from top left corner of window)	COMMA
column number (from top left corner of window)	

- Using datums/buttons in a window, with an action list:

keyword ("datum" or "button")	WHITESPACE
datum or button name	COMMA
row number (from top left corner of window)	COMMA
column number (from top left corner of window)	COMMA
first action and arguments in double quotes	COMMA
second action and arguments in double quotes	COMMA
...	
last action and arguments in double quotes	

A.6 SDF Example

Table A-10 lists a sample screen description file.

Table A-10: Sample Screen Description File.

Sample Screen Description File (redundant declarations have been deleted)		
Keyword	*Argument*	*Comment*
VARIABLE var1 {		~ begin decl of variable named var1
type	INTEGER	~ data type
format	%6d	~ display format
default	234	~ default value
uplimit	999	~ upper limit (maximum value)
lowlimit	100	~ lower limit (minimum value)
}		~ end variable declaration
DATUM dat1 {		~ begin decl of datum named dat1
num_rows	3	~ # rows occupied on display
num_columns	64	~ # columns occupied on display
variable	var1, 1, 24	~ variable name, its row #, col #
pickable	NO	~ don't let it be picked & changed
label	"temp," 1, 1	~ label string, its row #, col #
leader	"circa"	~ string to precede displayed value
trailer	"degrees"	~ string to follow displayed value
border	YES	~ border is to be drawn around it
helpfile	help/dat1.hlp	~ help file name
}		~ end datum declaration
TEXTLINE tline1 {		~ begin decl of text line named tline1
"This is a line of text"		~ the text line

Table A-10: continued.

Sample Screen Description File (redundant declarations have been deleted)		
Keyword	*Argument*	*Comment*
}		~ end text line declaration
TEXTBLOCK tblock1 {		~ begin decl of text block named txt1
filename	txt/txt1.txt	~ file name
num_rows	3	~ # rows occupied on display
num_columns	12	~ # columns occupied on display
border	YES	~ border is to be drawn around it
}		~ end text block declaration
BUTTON but1 {		~ begin decl of button named but1
num_rows	3	~ # rows occupied on display
num_columns	12	~ # columns occupied on display
border	YES	~ border is to be drawn around it
pick_spot	NO	~ don't draw pick spot
textline	tline1, 4, 1	~ text line name, its row #, column #
helpfile	help/but1.hlp	~ help file name
}		~ end button declaration
WINDOW win1 {		~ begin decl of window named win1
num_rows	16	~ # rows occupied on display
num_columns	60	~ # columns occupied on display
title	"Window One"	~ title line, drawn at top center
border	YES	~ border is to be drawn around it

Table A-10: concluded.

Sample Screen Description File (redundant declarations have been deleted)		
Keyword	*Argument*	*Comment*
datum	dat1, 2, 1	~ datum name, its row #, column # with no action list
datum	dat2, 3, 1,	~ datum name, its row #, column #,
	"CALL sub," "NEXT_DATUM dat3,"	~ & action list
textline	tline1, 4, 1	~ text line name, its row #, column #
textblock	tblock1, 5, 1	~ text block name, its row #, column #
button	but1, 8, 35,	~ button name, its row #, column #
	"NEXT_SCREEN scr3"	~ & action list
line	3, 3, 3, 20	~ drawn line
box	5, 5, 15, 15	~ drawn box
helpfile	help/win1.hlp	~ help file name
}		~ end window declaration
SCREEN scr1 {		~ begin decl of screen named scr1
mainscreen	YES	~ this (and no other) is main screen
window	win1, 4, 10	~ window name, its row #, column #
title	"Screen One"	~ title line, drawn at top center
border	YES	~ border is to be drawn around it
helpfile	help/scr1.hlp	~ help file name
}		~ end screen declaration
	~ end of sample Screen Description File	

A.7 Reserved Words

These reserved words are keywords which have special meaning to the SDF parser, and must not be used as building block names or file names. They may appear in strings (enclosed in double quotes) without confusing the parser. ***Case is important.***

Table A-11: Reserved Words.

Reserved Words			
BLINK	BOLD	BUTTON	CHAR
DATUM	DOUBLE	DOUBLEHIGH	DOUBLEWIDE
FLOAT	INTEGER	LINE	NO
NORMAL	REVERSE	SCREEN	STRING
TEXT	UNDERLINE	VARIABLE	WINDOW
YES	act_vis	border	box
button	datum	default	filename
format	helpfile	label	leader
line	lowlimit	mainscreen	norm_vis
num_columns	num_rows	pick_spot	pick_vis
pickable	screen	textblock	textline
title	titlescreen	trailer	type
uplimit	variable	window	

In action phrases (enclosed in double quotes), the built-in action names have special meaning.

A.8 Programmer's Guide

- How to construct your application:

1. Design it:

   a. Obtain or make "screen layout forms" -- paper ruled in a grid of screen character cells (23 rows by 80 columns).

   b. Using the screen layout forms, design your screens.

   c. Decompose your screens into Windows, Datums, Buttons, etc.

   d. For each "pickable" item on each "screen," determine which tasks will be performed by the

interface and which by the application code. Note that most non-numeric tasks can be handled by the built-in interface actions.

2. Compose an SDF, using your favorite text editor.
3. Design and code your application code subroutines. During the initial development stages of an application, it is recommended that you write "dummy" application code, replacing it with "real" code after debugging your user interface screens and control flow. Application code can be written in C or F77 FORTRAN.
4. Parse your SDF. The parser outputs several source files.
5. Compile the parser output source files and your application code source files.
6. Link the parser output object files, the supplied interface object files and your application code object files to produce the completed application program.

Below is a sample makefile to automatically perform steps 4, 5 and 6:

```
# sample application makefile -- valid for
  Unix BSD4.2 ONLY

#

# The Screen Description File is   app.SDF .

# The user application code is in  app1.c
  and  app2.c  (in C).

# Output file will be named  app .

AFILES   =  app1.o  app2.o

SDFFILE  =  app.SDF

UFILES   =  udat.o  usubs.o  uglobs.o
            u1.o  u2.o  uterm.o  uval.o
            uact.o  ufile.o
            upopup.o  umisc.o

INCFILES =  uinclude.h  u.h  uterm.h
            uglobs.h  udat.h

CFLAGS   =  -DBSD42

app:        ${UFILES}  ${AFILES}
            cc  -o  app  ${UFILES}
            ${AFILES}  -lcurses  -ltermcap

app1.o:     app1.c

app2.o:     app2.c

udat.o:     ${INCFILES}  udat.c

usubs.o:    ${INCFILES}  usubs.c

udat.c:     ${SDFFILE}
            SDF ${SDFFILE}

usubs.c:    ${SDFFILE}
            SDF ${SDFFILE}

# end of sample makefile
```

- Using the parser:

  The parser is called "SDF" on most systems. Typing the parser's name with no arguments will elicit a "usage" message. The parser command line options currently available are shown in Table A-12.

Table A-12: Parser Command Line Options.

Parser Command Line Options	
-d	print all data structures (to stdout).
-n filename	print all building block names to named file.
-L	have lex print all tokens found (SYSTEM DEBUG ONLY).

- Errors in your SDF, reported by the parser:

  The parser thoroughly analyzes your SDF, and reports each error it finds with a single line (written to "standard output," stdout) giving the name of the SDF, the SDF line number at which the error was discovered, and a description of the error:

  ? sdfname [line 123]: description of error

All errors reported by the parser ***must*** be corrected before the parser output files are usable.

The most serious SDF error is a "syntax error." This means that there is some problem with the reported SDF line (or the previous line) such as: too many component keyword arguments, missing component keyword arguments, too much punctuation, missing punctuation. After a "syntax error," the parser is "lost" and all subsequent error messages should be ignored. You must correct the syntax error and reparse.

The parser checks that components and building blocks "fit" where they are used, e.g., a datum leader string must not overwrite the data value, a datum must fit within its window, etc. A "fit" problem is usually discovered when an item is ***used*** (e.g., in a window declaration) rather than when it is ***declared*** (e.g., in the datum declaration), so the error message will usually give a line number in the building block where the item is used. So if an error message seems confusing, check the declaration.

The parser does ***not*** check for "overlap": a datum used in a window can overlap another item in the window, a window can partially or totally cover another window, etc. The item used "last" will appear "on top." This is a FEATURE.

WARNING: overlapping text blocks will not behave correctly.

A.9 Programming Notes

The interface exists to facilitate user-written application code. This section contains information to help you in writing applications.

Disclaimer: "Unix" descriptions and examples were validated on BSD 4.2 Unix, with "standard" compilers and utilities, on a VAX 750. "Xenix" descriptions and examples were validated on IBM Xenix 1.0, with "standard" compilers and utilities (including all software updates through 12/31/85) and Microsoft FORTRAN 2.2, on an IBM PC/AT. Given Murphy's Law, these descriptions and examples are no doubt ***not valid*** for any other systems.

A.9.1 The Basics

The parser is written in lex, yacc and "Kernighan & Ritchie C." The interface itself is written in "Kernighan & Ritchie C." Your application code can be written in C or F77 FORTRAN.

The "main program" of the completed application is USER code. Your main program should perform any initialization tasks necessary for your application, then call the interface initialization:

in a C program	in a F77 program
`Uinit();`	`CALL UINIT`

The interface initialization does not return control to your main program unless the QUIT action is invoked. If the user "quits" the interface interactively, the interface exits to the operating system and control is ***never*** returned to your main program.

After initialization, all application activity takes place in subroutines called with the CALL or FCALL actions.

Application code must ***never*** write to the terminal screen directly.

A.9.2 Variables in C Application Code

Variables ***must*** be public (not static or temporary).

A variable can be a single array element, e.g., ivar[3] . Note the square brackets indicating a C array index: the index to the first element is 0.

A.9.3 Variables in F77 Application Code

Variables ***must*** be in named common blocks.

The F77 compiler internally converts common block names to lower case. So, the common block name in a SDF variable declaration ***must*** be LOWER CASE even if it's upper case in your F77 code.

If the common block consists of ***only*** the variable you want, declare the variable name to be the name of the common block (Unix: suffixed with an underscore; Xenix: no suffix.).

If the common block contains other variables in addition to the one you want, the interface can treat the common block as an array of variables of the ***same type***. Declare the variable name to be the common block name (Unix: suffixed with an underscore; Xenix: no suffix.), suffixed with a F77- style array index (in parens; the index to the first element is 1).

If a single common block contains variables of different types, DOUBLE PRECISION variables must come first, followed by REALs, followed by INTEGERs, followed by CHARACTERs. Otherwise, the byte counting necessary to locate the variable you want will be impossible.

As you can see, it is much simpler to put each variable and array in its own separate named common block.

Some examples follow. We are always referencing "ivar":

```
in the F77 code    in the SDF          in the SDF
                      (Unix)              (Xenix)
-----------------  ---------------  ---------------
common /com1/ivar  INTEGER com1_    INTEGER com1
common /com2/ivar  INTEGER com2_    INTEGER com2
common /com3/ix,   INTEGER com3_(2) INTEGER com3(2)
         ivar,iy
```

In this example, we are referencing iray(4):

```
common /kom4/iz, INTEGER kom4_(5) INTEGER kom4(5)
       iray(10)
```

A.9.4 Calling Interface Actions From Application Code (General)

All of the built-in interface actions, except those listed below, can be invoked by your application code as conventional subroutine calls. Arguments are passed as strings (if building block names) or as numerics:

```
interface action    in a C program          in a F77 program
----------------    --------------          ----------------
NEWVALS             NEWVALS();              CALL NEWVALS
NEW_SCREEN scr1     NEW_SCREEN("scr1");     CALL NEW_SCREEN
                                                ('scr1')
ADD_WINDOW w1,2,5 ADD_WINDOW("w1,"2,5); CALL ADD_WINDOW
                                            ('w1',2,5)
```

The following interface actions *cannot* be called from application code:

```
CALL subr_name
FCALL subr_name
FORCE
NO_UPDATE
QUIT
```

There are additional interface subroutines, not available as actions, which can be called from your application code:

```
WHEREAMI ( Ss , Ws , Ds , Bs )   Returns the
                                 cursor location
                                 as fourC-style
                                 (null terminated)
                                 character strings:
          Ss  = current screen name.
          Ws  = current window name.
          Ds  = current datum name, or NONE.
          Bs  = current button name, or NONE.
```

A.9.5 Calling Interface Actions (From Xenix F77 Application Code)

Note that the action (subroutine) name *must* be in *lower case*.

Example A -- the action gets no arguments:

```
interface to subroutine newvals [C]
end

program/subroutine/function ...
...
call newvals
...
end
```

The "interface" declaration block declares that U subroutine newvals is in C, and that newvals takes no arguments.

Example B -- the action gets a string literal:

```
interface to subroutine slout [C] ( str )
character str [reference]
end

program/subroutine/function ...
...
call slout ( 'text string' C )
...
end
```

Example C -- the action gets a string variable:

```
interface to subroutine slout [C] ( str )
character str [reference]
end

program/subroutine/function ...
character*20 strvar
strvar = 'text string' C
...
call slout ( strvar )
...
end
```

The "interface" declaration block declares that U subroutine slout is in C, and that slout takes one argument, a character string, to be passed by reference (C style).

The program/subroutine/function code calls the subroutine slout, passing it a string which is declared to be stored in C form. In Example B, the string is a literal; in Example C, a variable.

Example D -- the action gets a string variable and two integers:

```
interface to
subroutine add_window [C] ( str , i1 , i2 )
character str [reference]
integer i1, i2
end

program/subroutine/function ...
character*20 wname
integer row, column
wname = 'PictureWindow' C
row = 12
column = 34
...
call add_window ( wname , row , column )
...
end
```

The "interface" declaration block declares that U subroutine add_window is in C, and that add_window takes three arguments: a character string, to be passed by reference (C style), and two integers, which will automatically be passed by reference.

A.10 C-Style Output Format Descriptors ("Conversion Specifications")

Every variable declaration in a Screen Description File must include a "format descriptor," showing how to format the variable's value for display. This format descriptor is just a standard C language output conversion specification, and follows the rules found in Kernighan and Ritchie (1978, pp. 146-147), to wit:

- Each conversion specification is introduced by a percent-sign (%) and is ended by a conversion character. Between the % and the conversion character, there may be:
  - a minus sign, which specifies left adjustment of the converted argument in its field.
  - a digit string, specifying a minimum field width. The converted number will be printed in a field at least this wide, and wider if necessary. If the converted argument has fewer characters than the field width, it will be padded on the left (or right, if the left adjustment indicator has been given) to make up the field width. The padding character is blank (space) normally, and zero if the field width was specified with a leading zero (this zero does not imply an octal field width).

- a period, which separates the field width from the next digit string.
- a digit string (the precision), which specifies the maximum number of characters to be printed from a string, or the number of digits to be printed to the right of the decimal point of a float or double.
- a length modifier l (lower case L), which indicates that the data item is a long rather than an int.

- The conversion characters and their meanings are:
  - d The argument is converted to signed decimal notation; a minus is prefixed if the argument is negative, but a plus is never prefixed.
  - o The argument is converted to unsigned octal notation (without a leading zero).
  - x The argument is converted to unsigned hexadecimal notation (without a leading 0x).
  - u The argument is converted to unsigned decimal notation.
  - c The argument is taken to be a single character (byte).
  - s The argument is taken to be a string; characters from the string are printed until a null character is reached, or until the number of characters indicated by the precision specification has been printed.
  - e The argument is taken to be a float or double and converted to decimal notation of the form [-]m.nnnnnE[+-]xx where the length of the string of n's is specified by the precision. The default precision is 6.
  - f The argument is taken to be a float or double and converted to decimal notation of the form [-]mmm.nnnnn where the length of the string of n's is specified by the precision. The default precision is 6. Note that the precision does *not* determine the number of significant digits printed.
  - g Use %e or %f, whichever is shorter. Nonsignificant zeros are not printed.
- Examples of precision in printing strings:
  - The following table shows the effects of a variety of specifications in printing "hello, world" (12 characters). Colons surround each field to indicate its extent.

```
Spec       Result
----       ------
:%10s:          :hello, world:
:%-10s:         :hello, world:
:%20s:          :        hello, world:
:%-20s:         :hello, world        :
:%20.10s: :           hello, wor:
:%-20.10s:      :hello, wor          :
:%.10s:         :hello, wor:
```

There is no way to restrict the ***maximum*** field width of a printed value; only a ***minimum*** field width can be specified. A workable technique is to specify a minimum field width larger than will ever be filled.

Appendix B
HARDCOPY OF USER INTERFACE SCREENS

This Appendix contains hardcopy representations of the appearance of ASAN's console monitor at various times during ASAN use. Since most of these screens change in appearance as the user interacts with them, several views are presented of the more important screens.

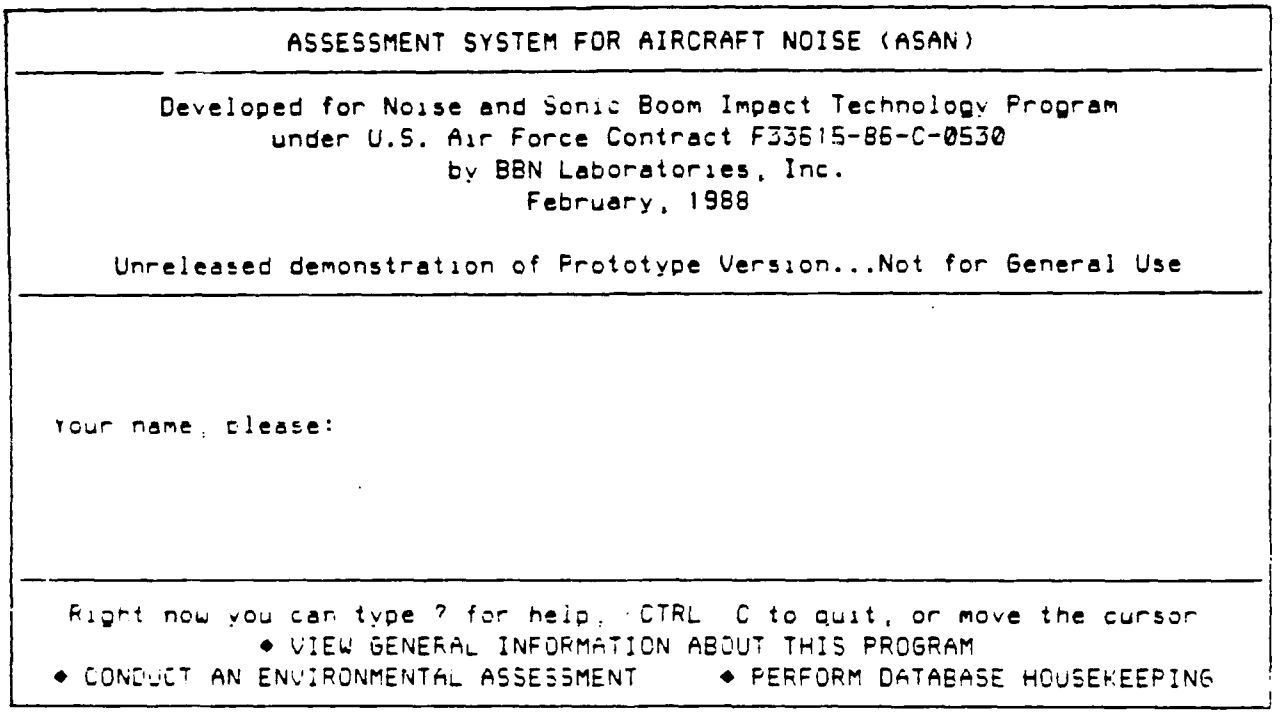


Figure B-1: Title Screen.

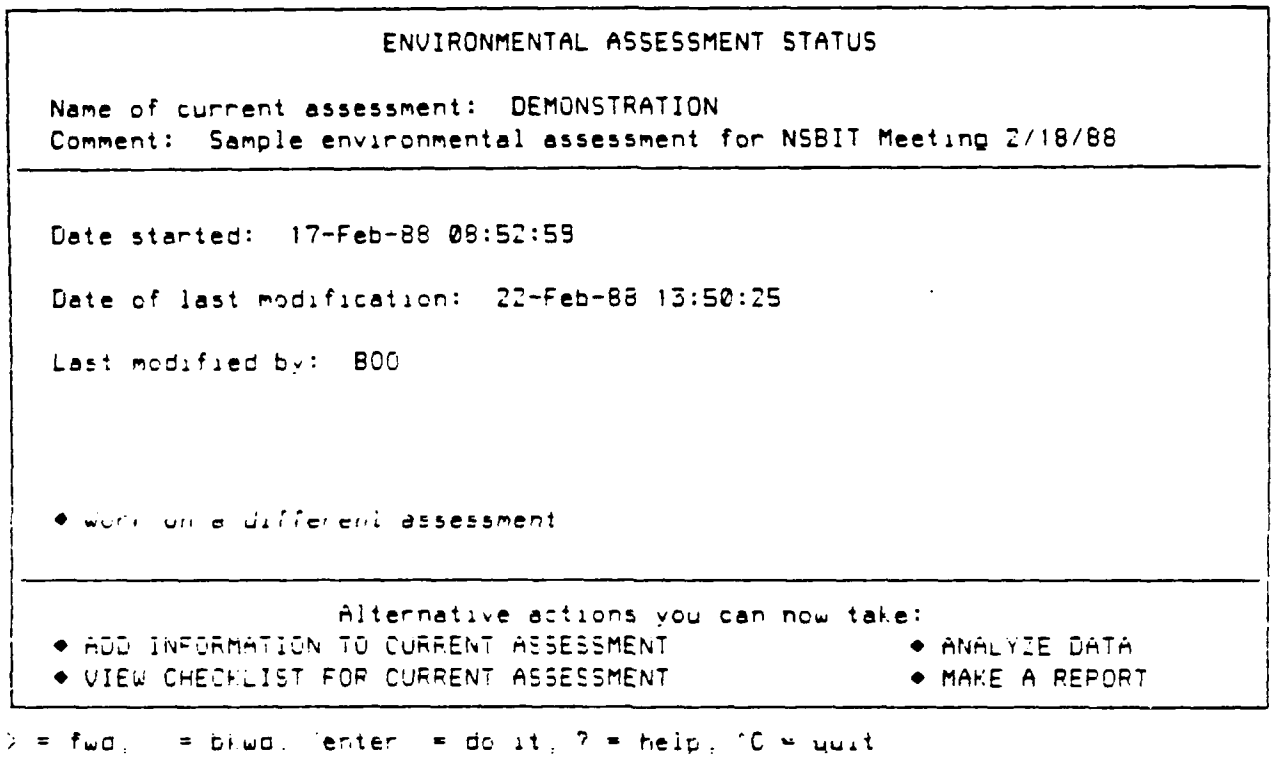


Figure B-2: Environmental Assessment Status Screen.

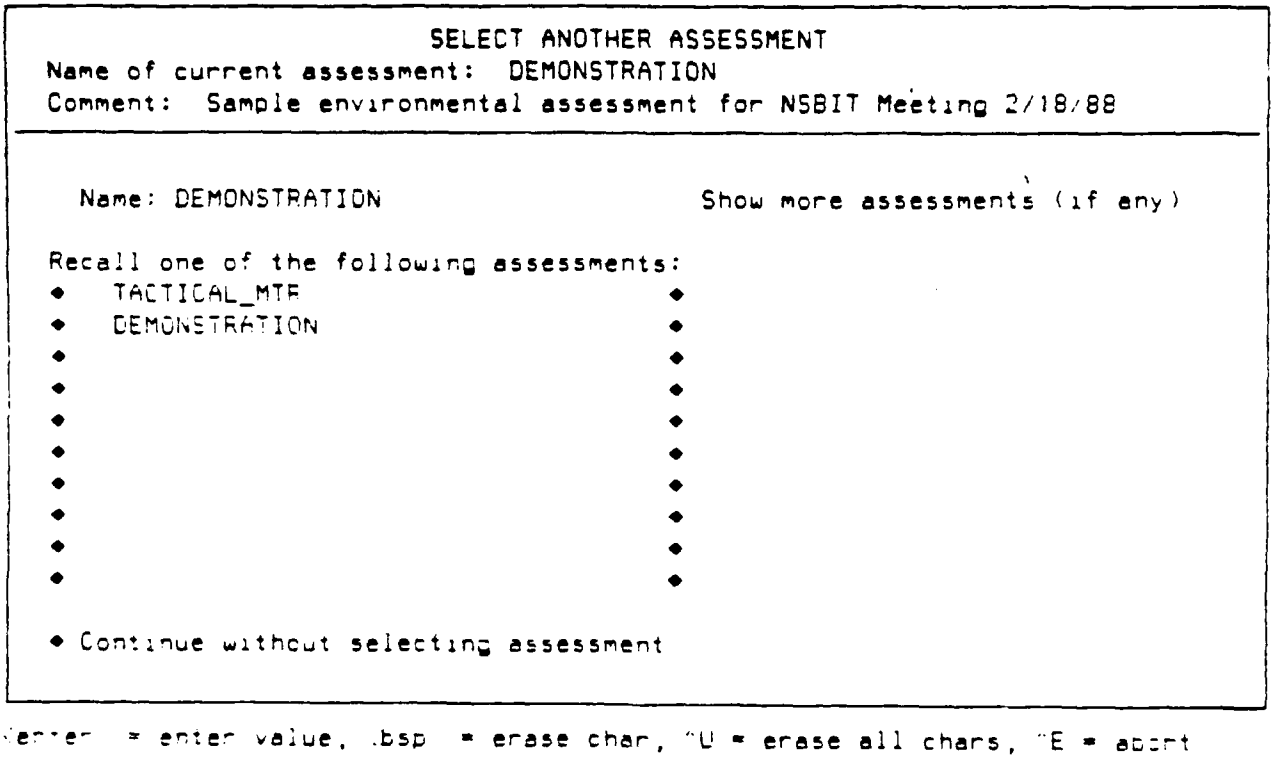


Figure B-3: Select Another Assessment Screen.

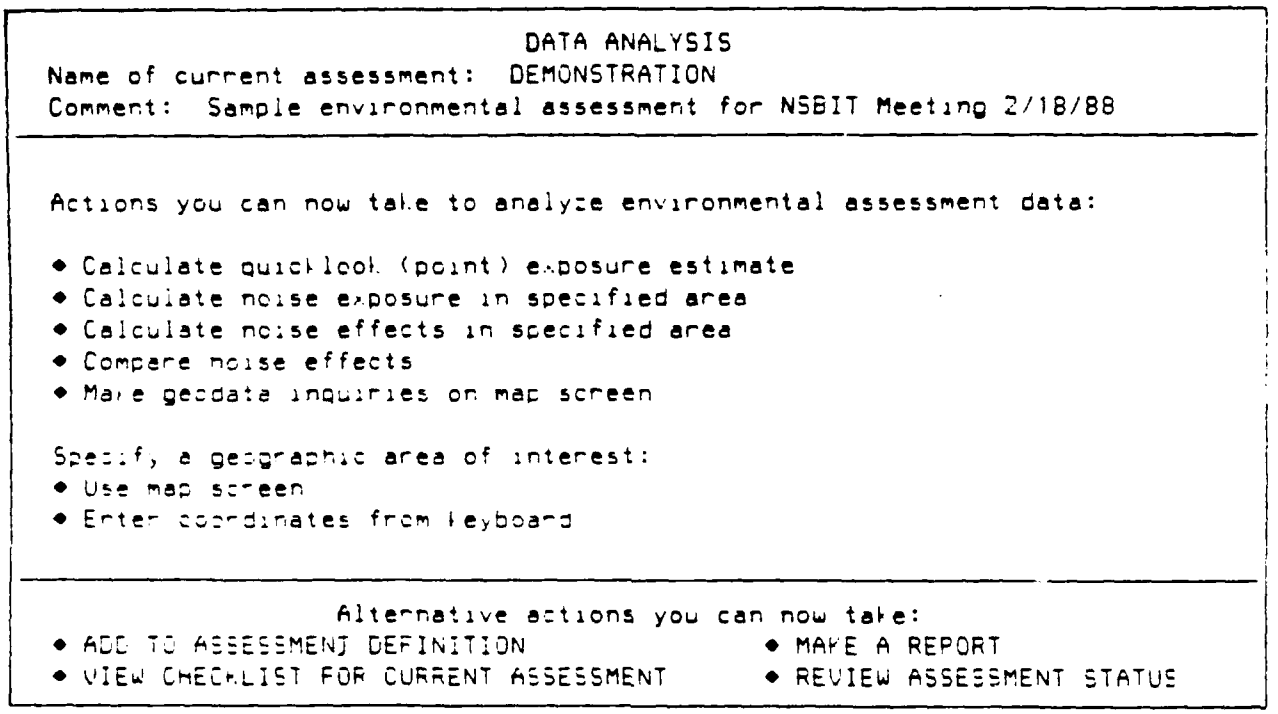


Figure B-4: Data Analysis Screen.

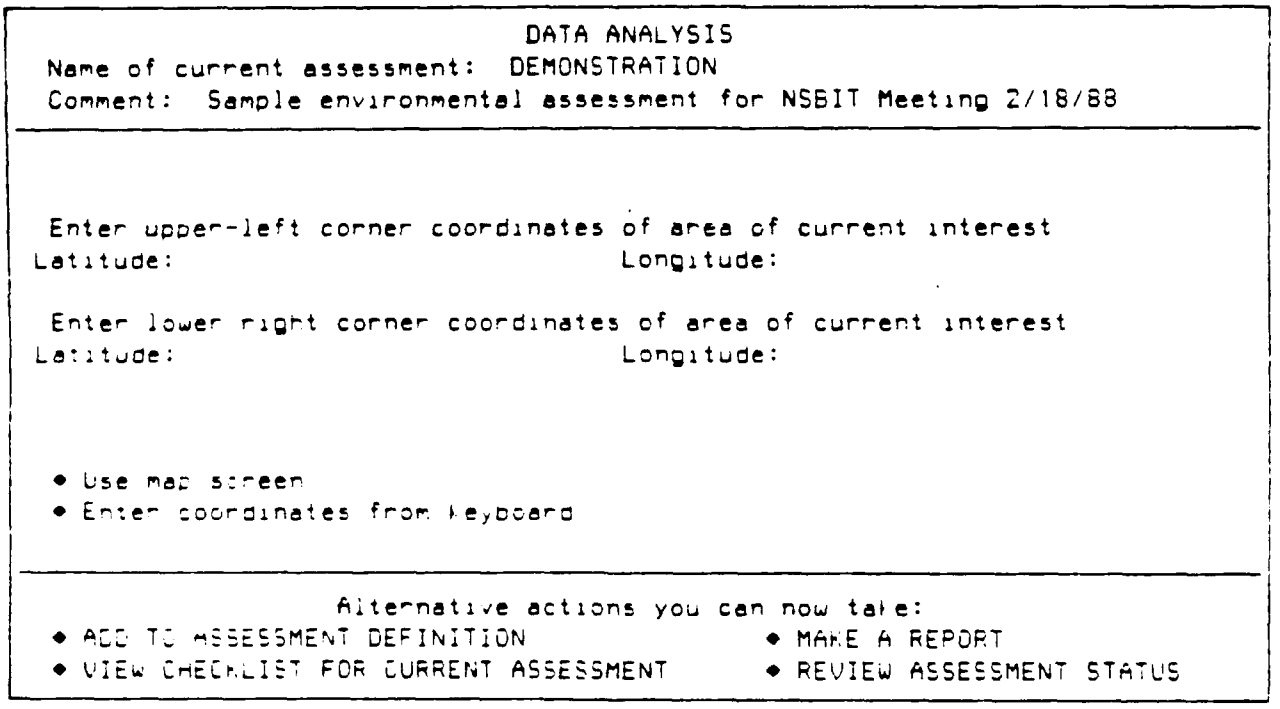


Figure B-5: Data Analysis Screen - Continued.

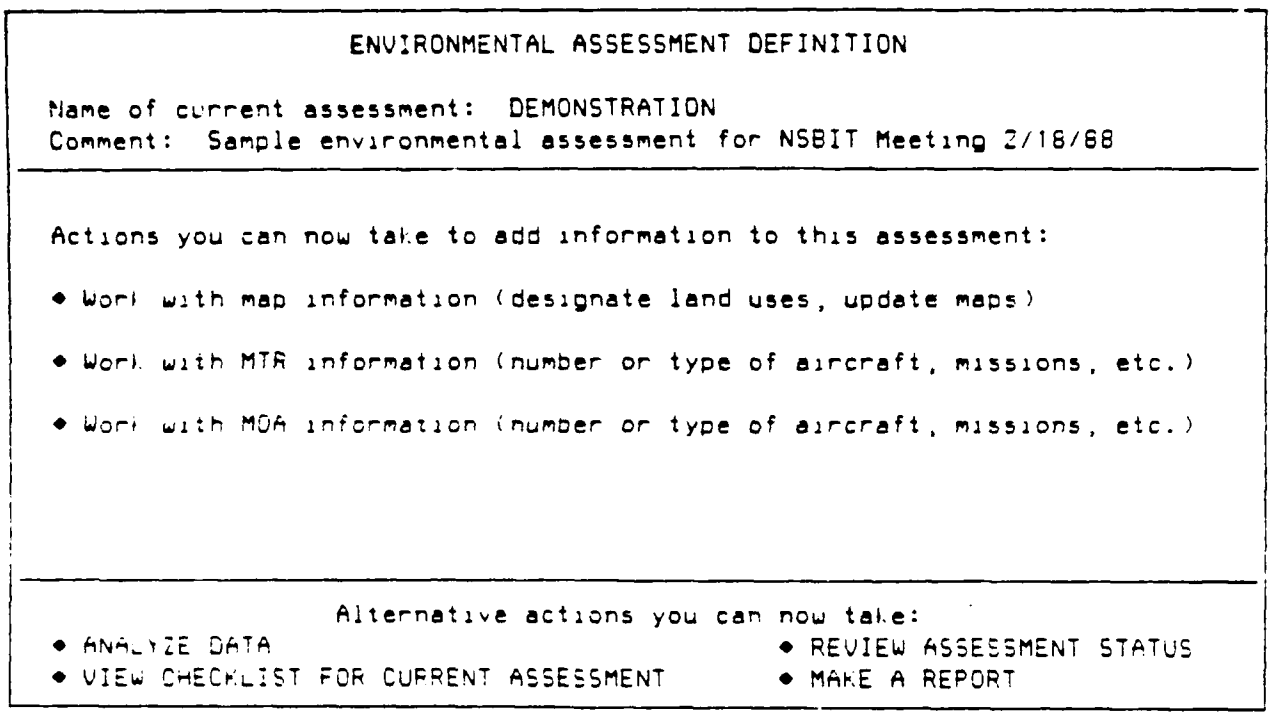


Figure B-6: Environmental Assessment Definition Screen.

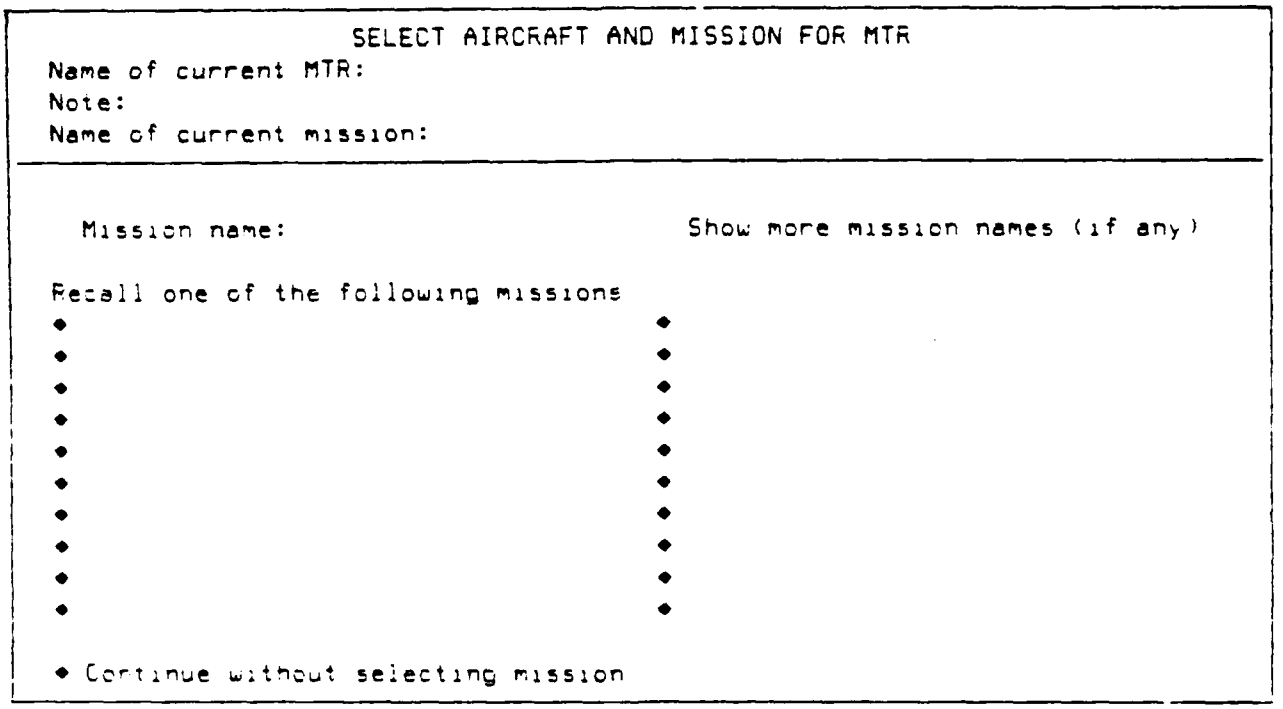


Figure B-7: Select Aircraft and Mission for an MTR Screen.

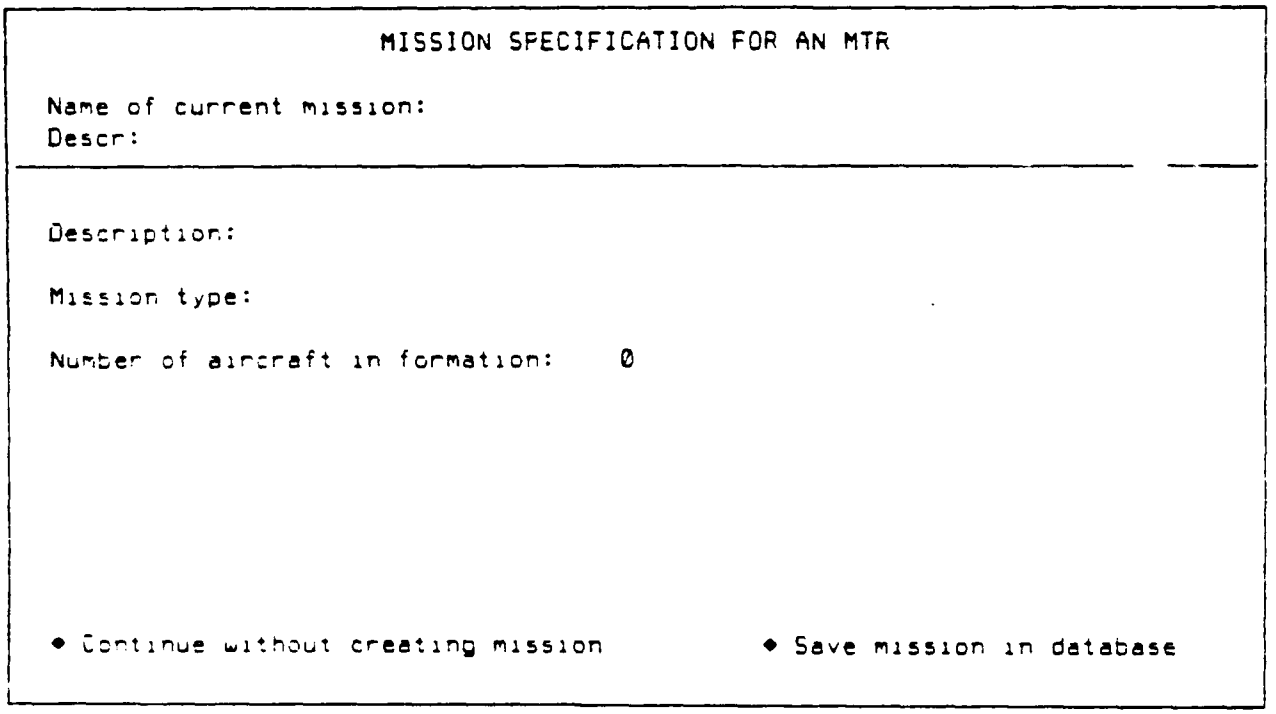


Figure B-8: Mission Specification for an MTR Screen.

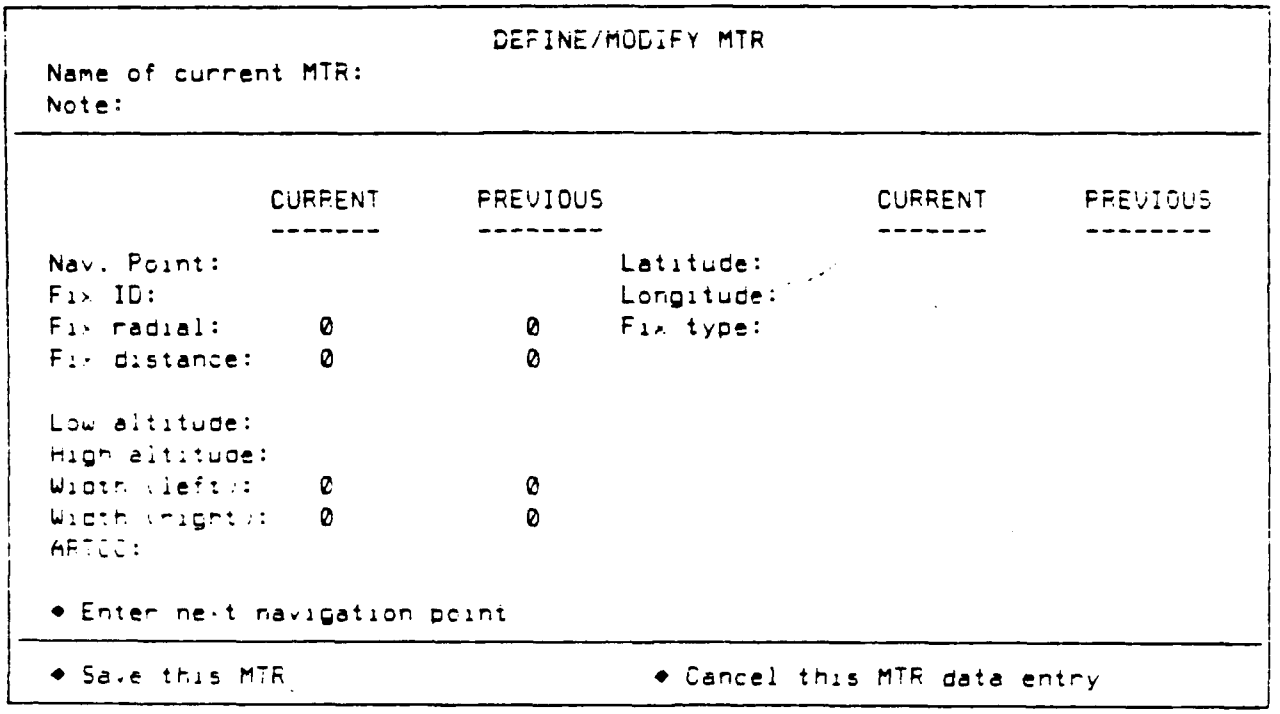


Figure B-9: Define/Modify MTR Screen.

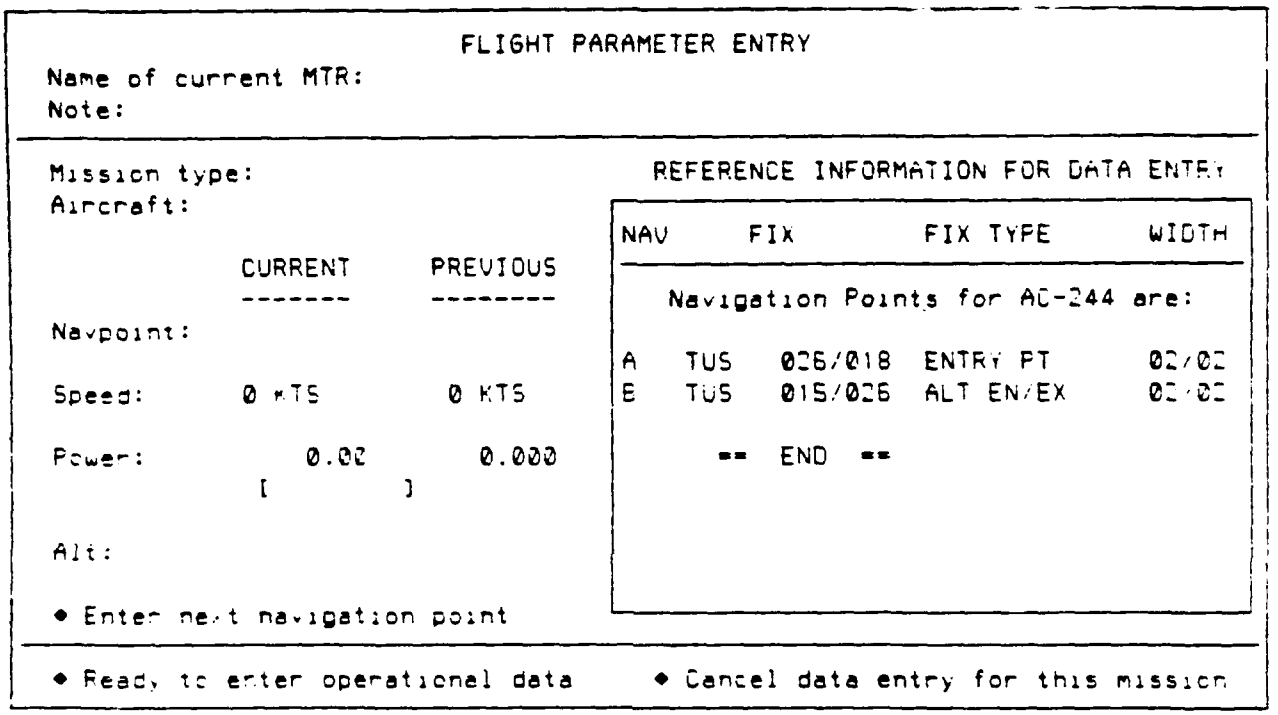


Figure B-10: Flight Parameter Entry Screen.

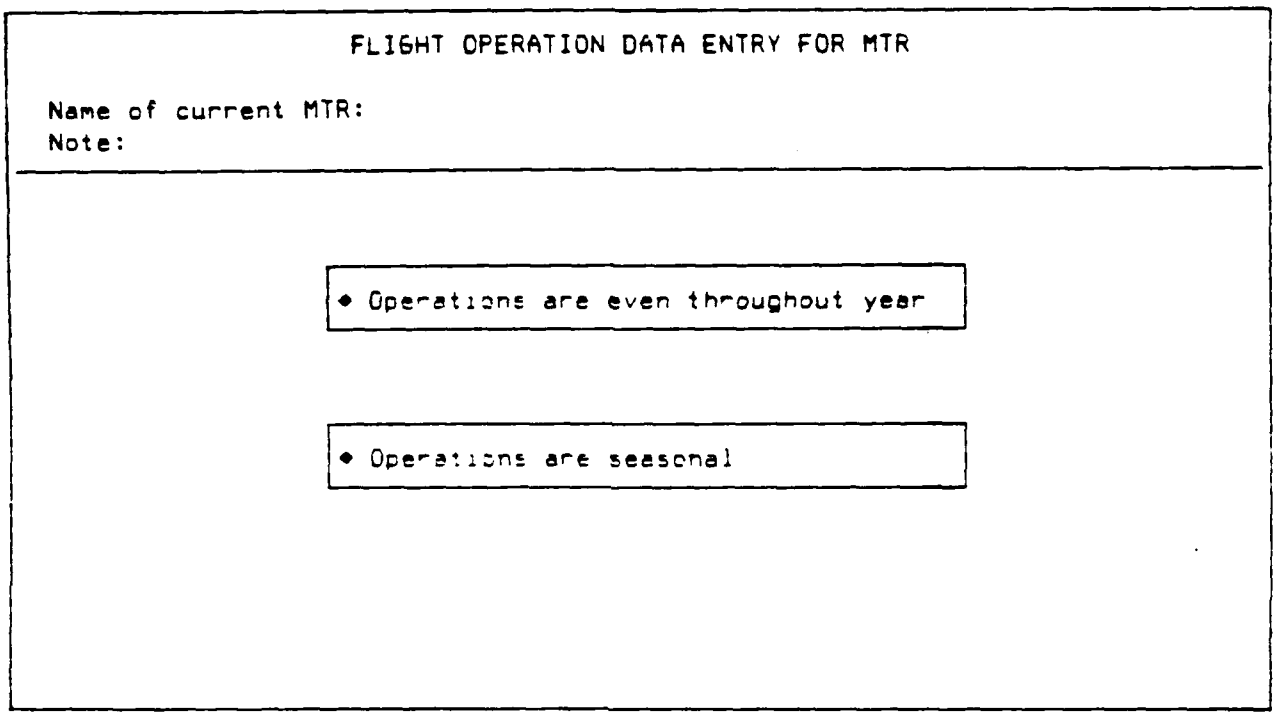


Figure B-11: Flight Operation Data Entry for MTR Screen.

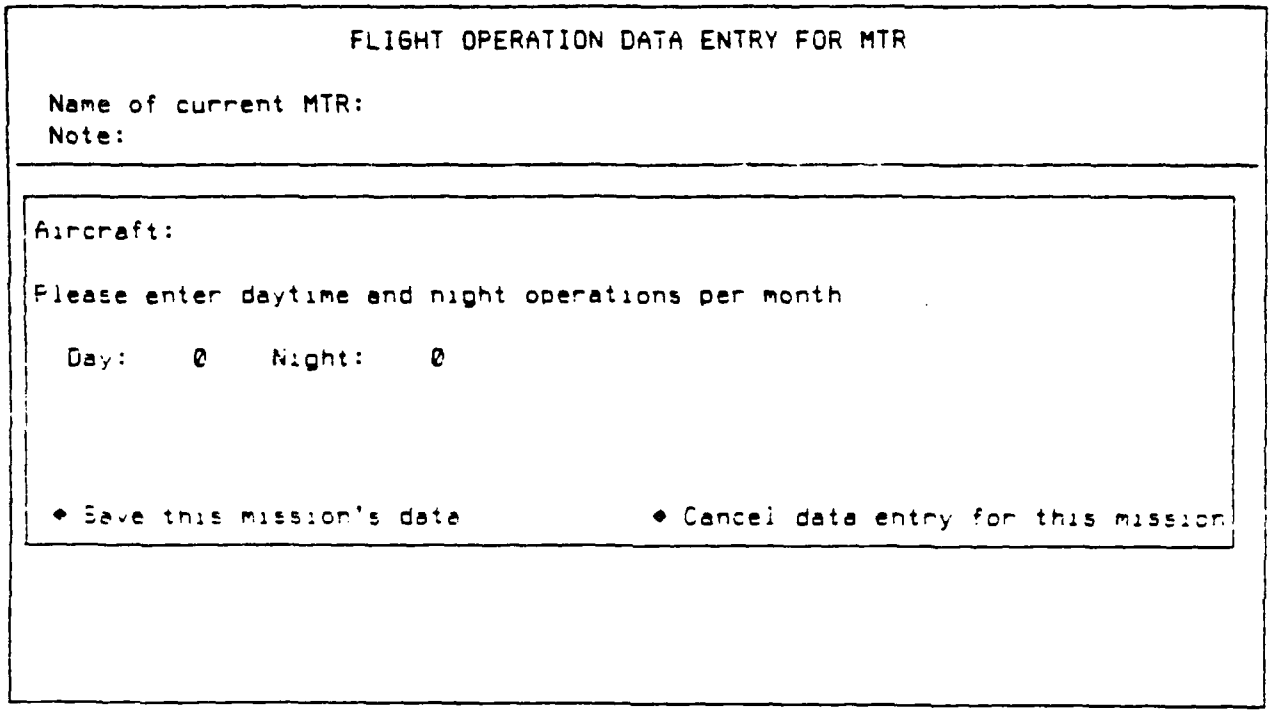
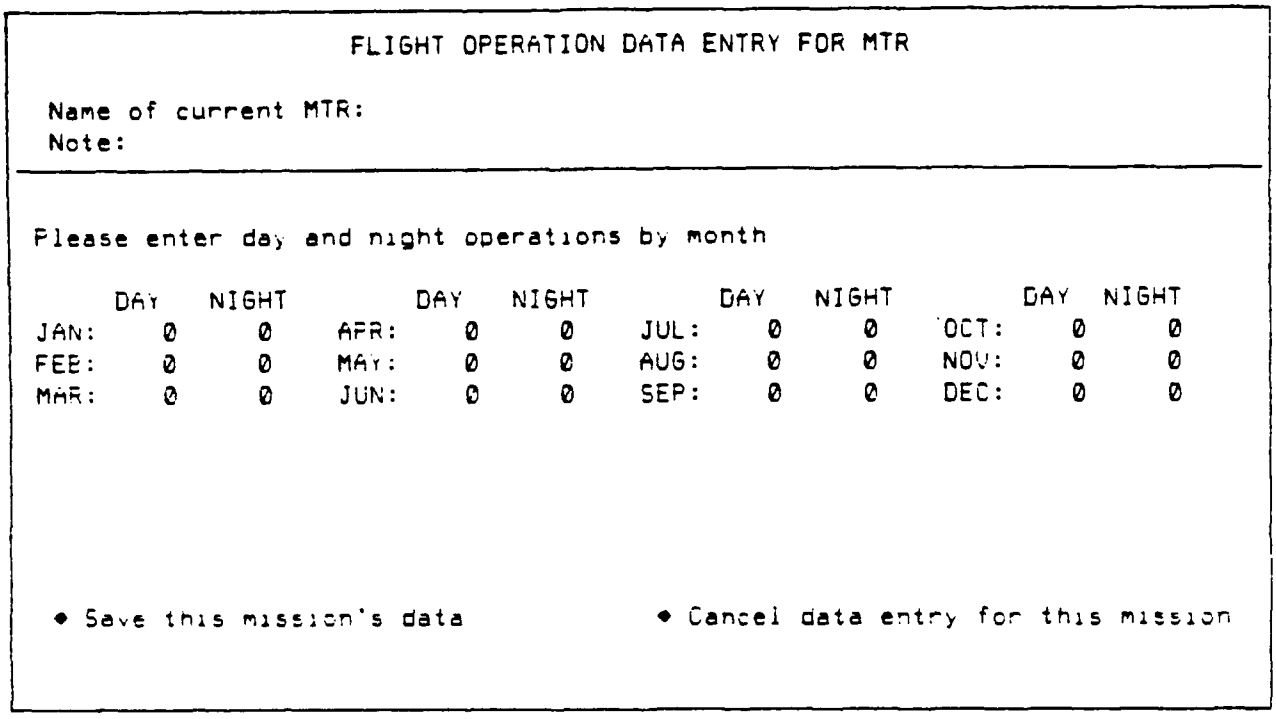


Figure B-12: Flight Operation Data Entry for MTR Screen - Continued.



` = fwd, = bkwd, 'enter = do it, ? = help, 'C = quit

Figure B-13: Flight Operation Data Entry for MTR Screen - Continued.

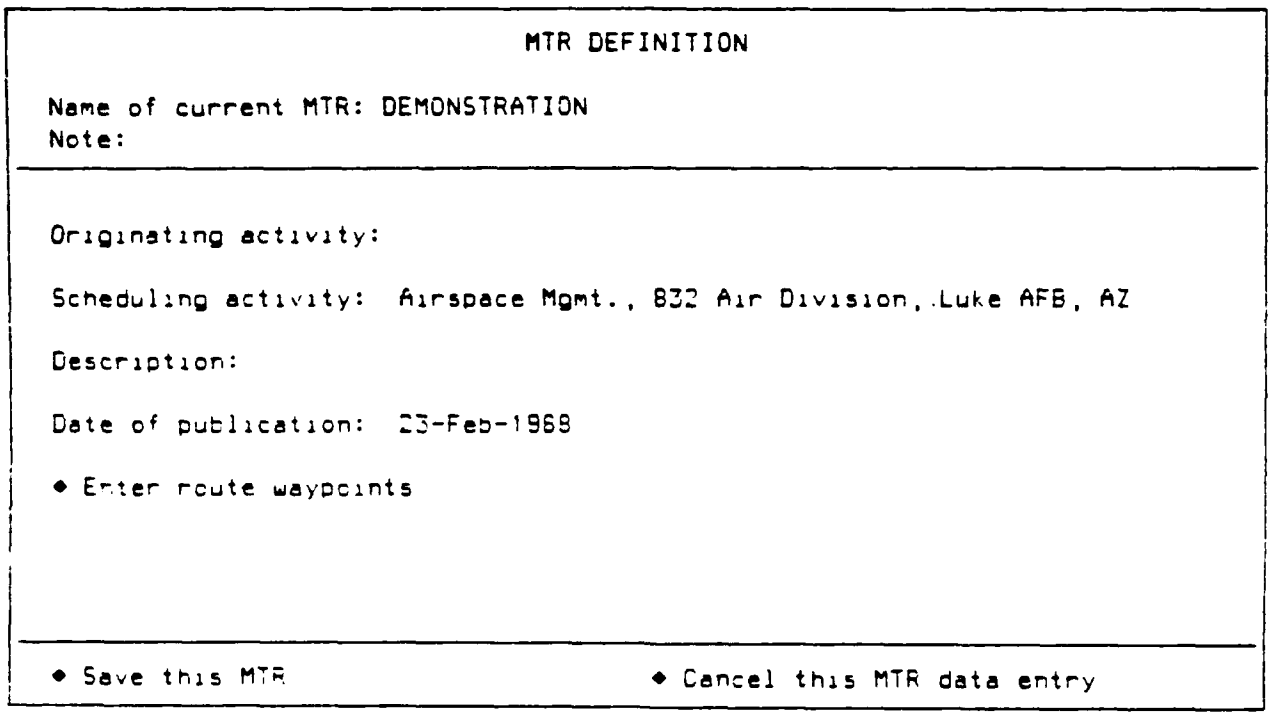


Figure B-14: MTR Definition Screen.

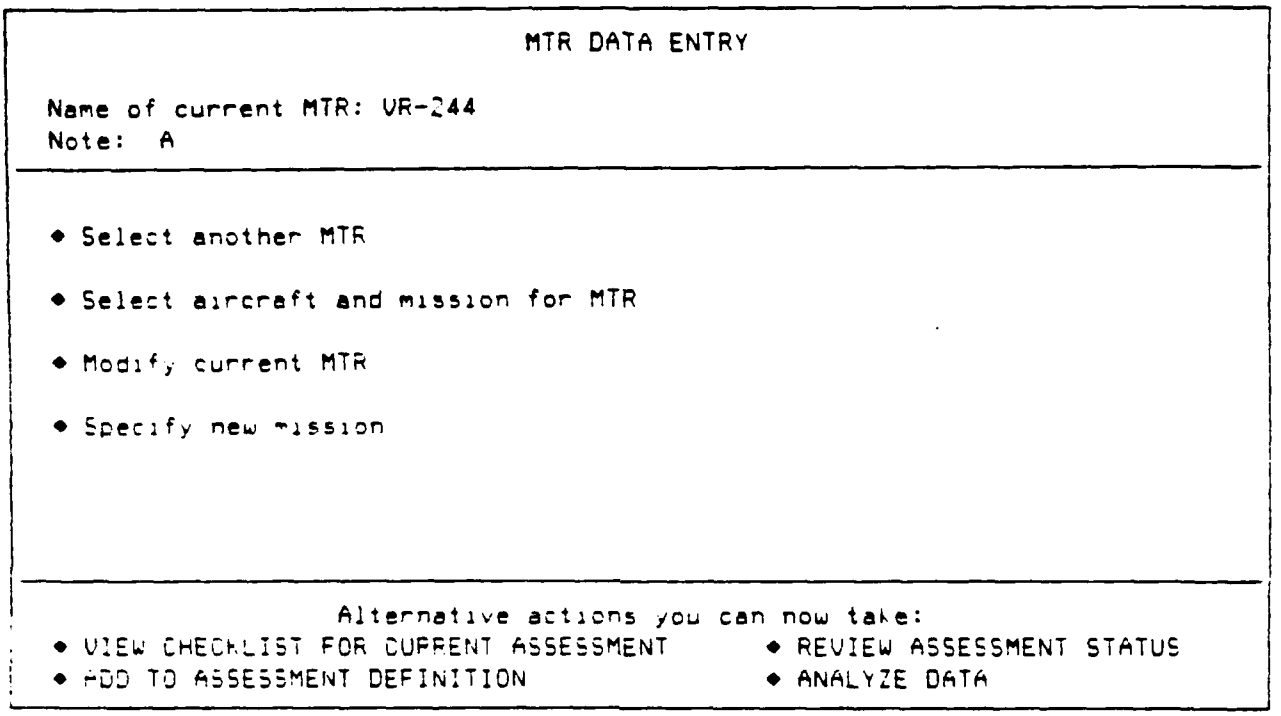


Figure B-15: MTR Data Entry Screen.

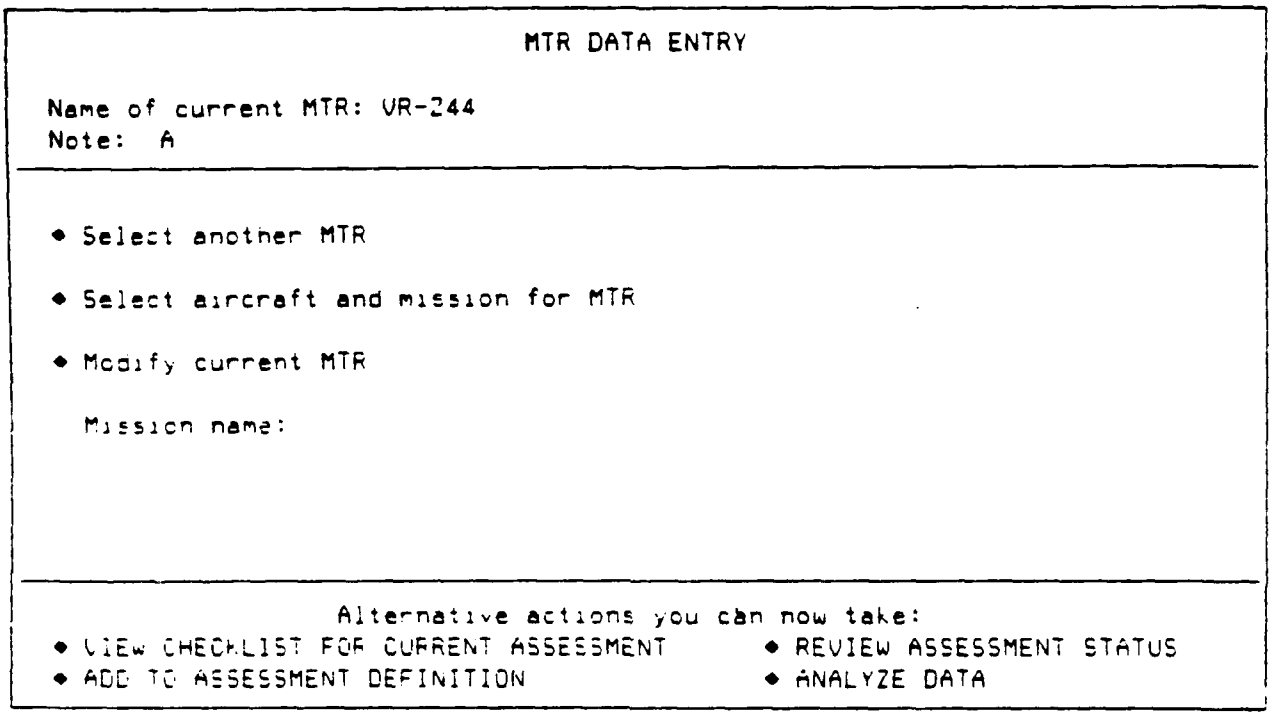
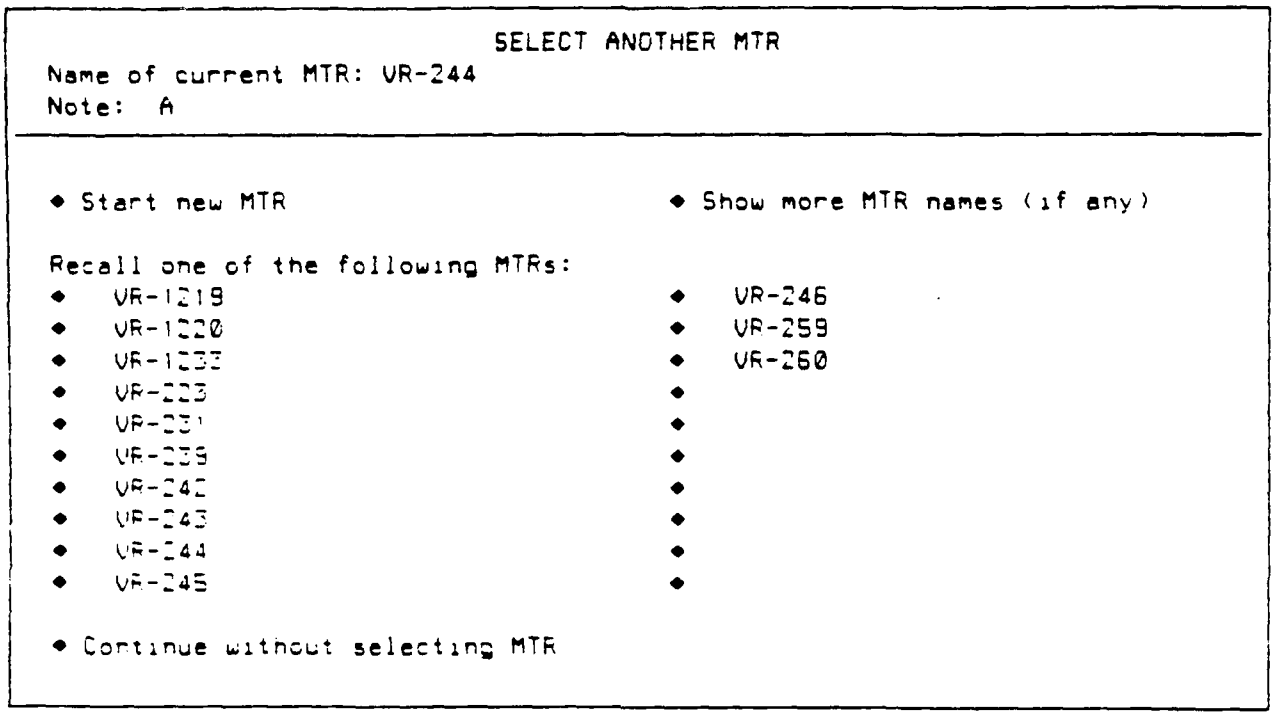


Figure B-16: MTR Data Entry Screen - Continued.



The last MTR in the list is on the screen. Hit any key.

Figure B-17: Select Another MTR Screen.

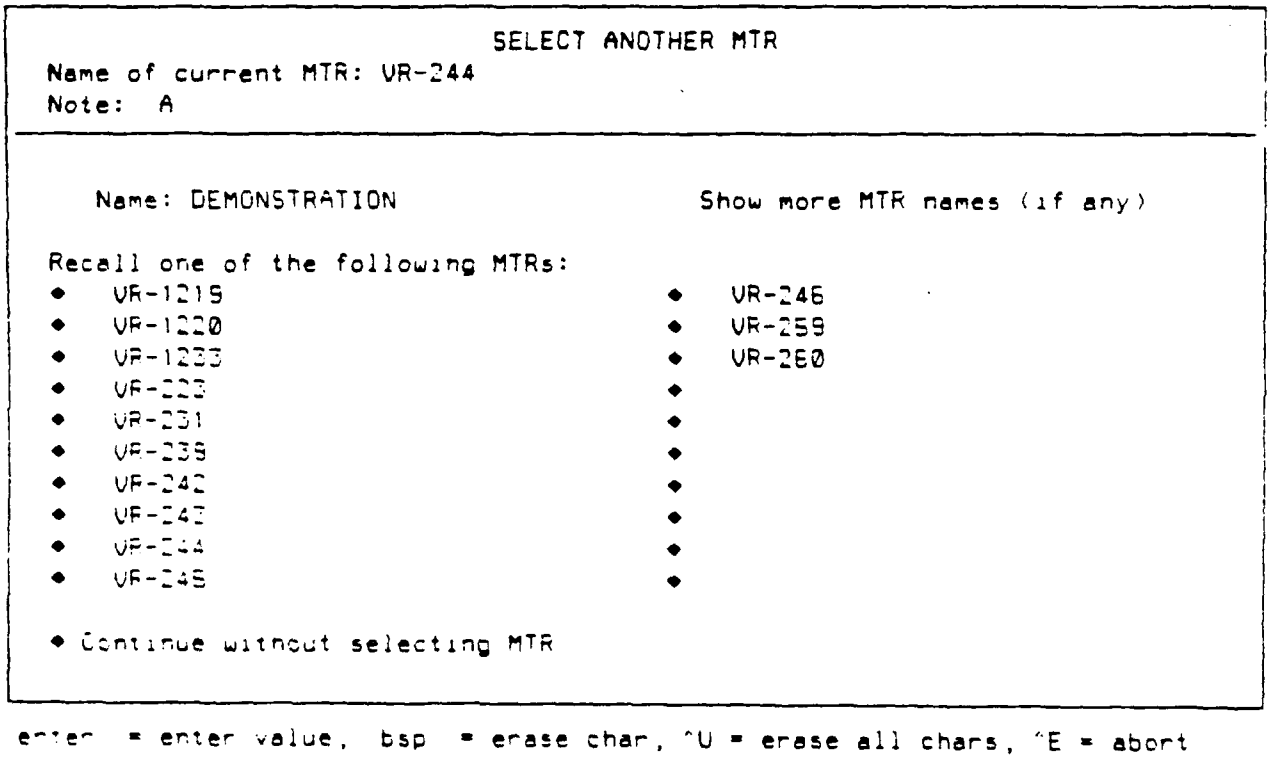


Figure B-18: Select Another MTR Screen - Continued.

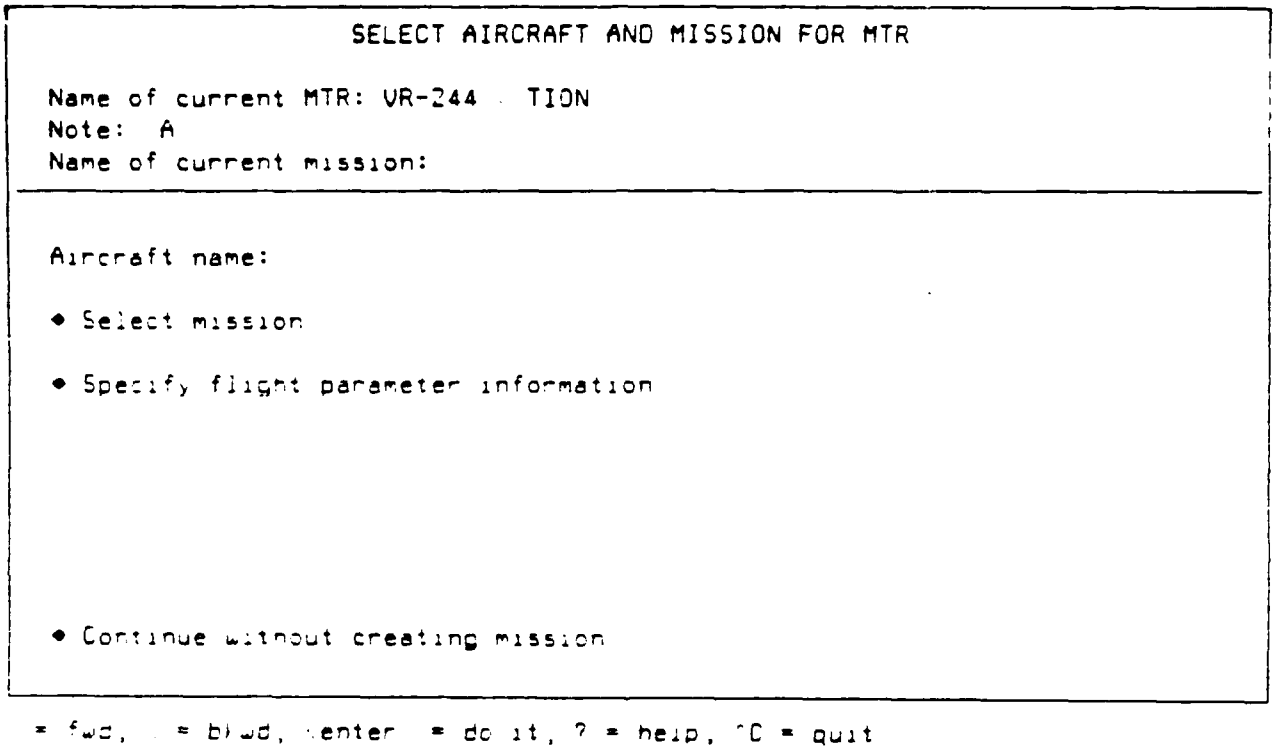


Figure B-19: Select Aircraft and Mission for MTR Screen.

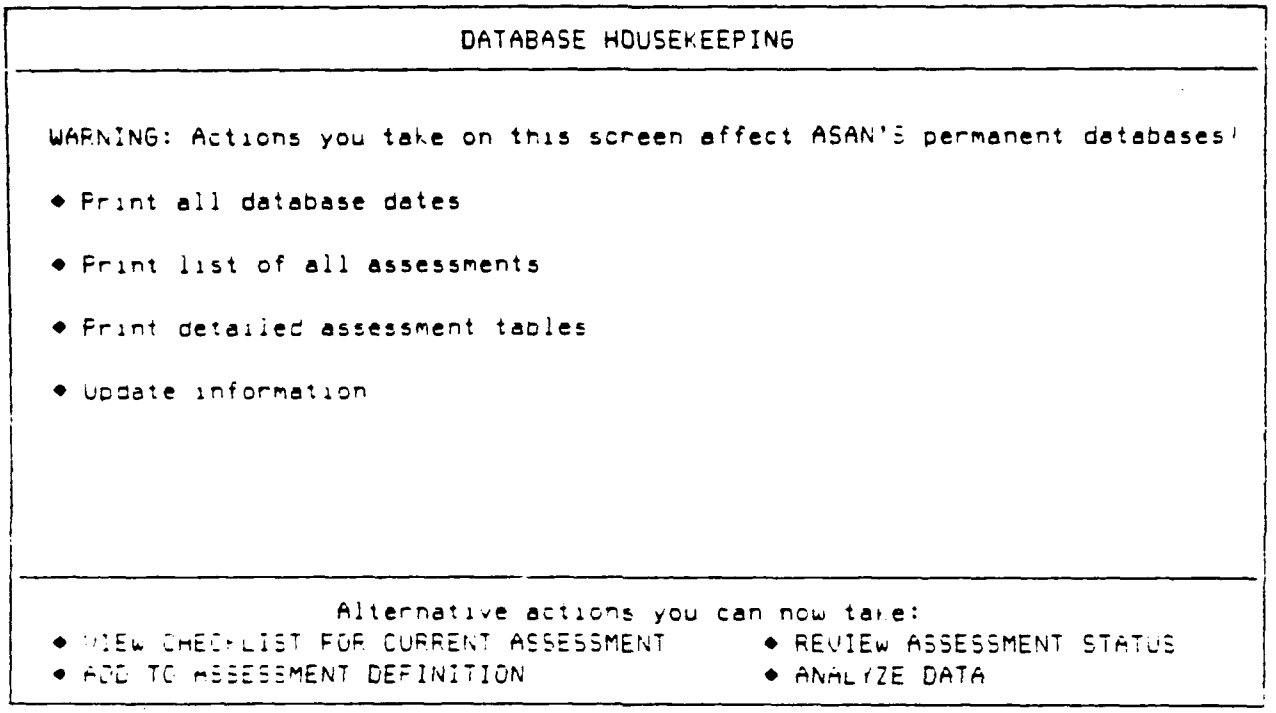


Figure B-20: Database Housekeeping Screen.

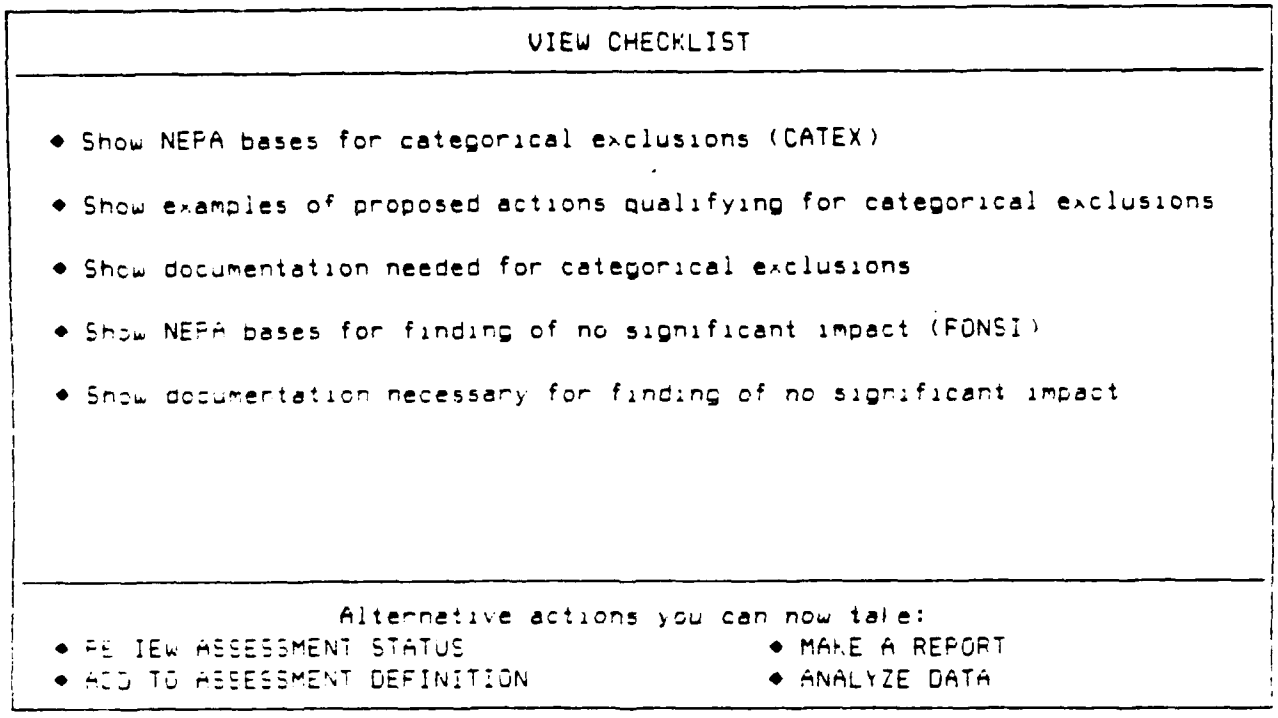


Figure B-21: View Checklist Screen.

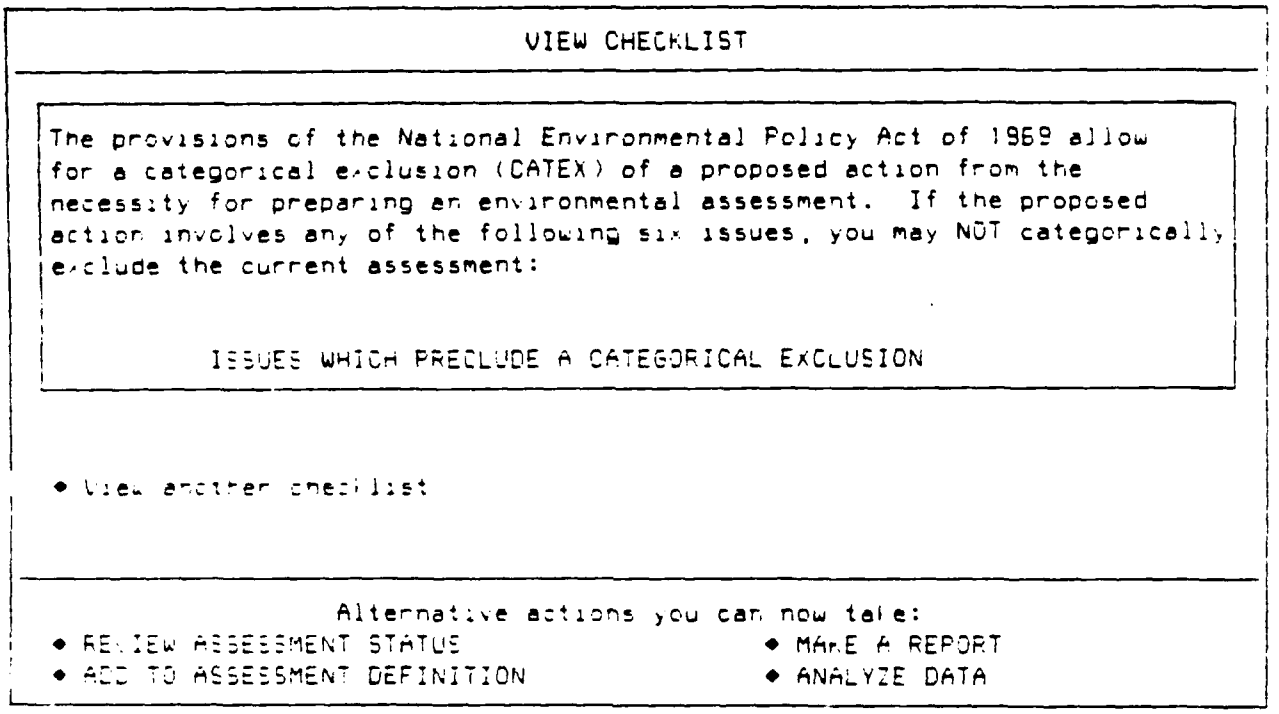


Figure B-22: View Checklist Screen - Continued.

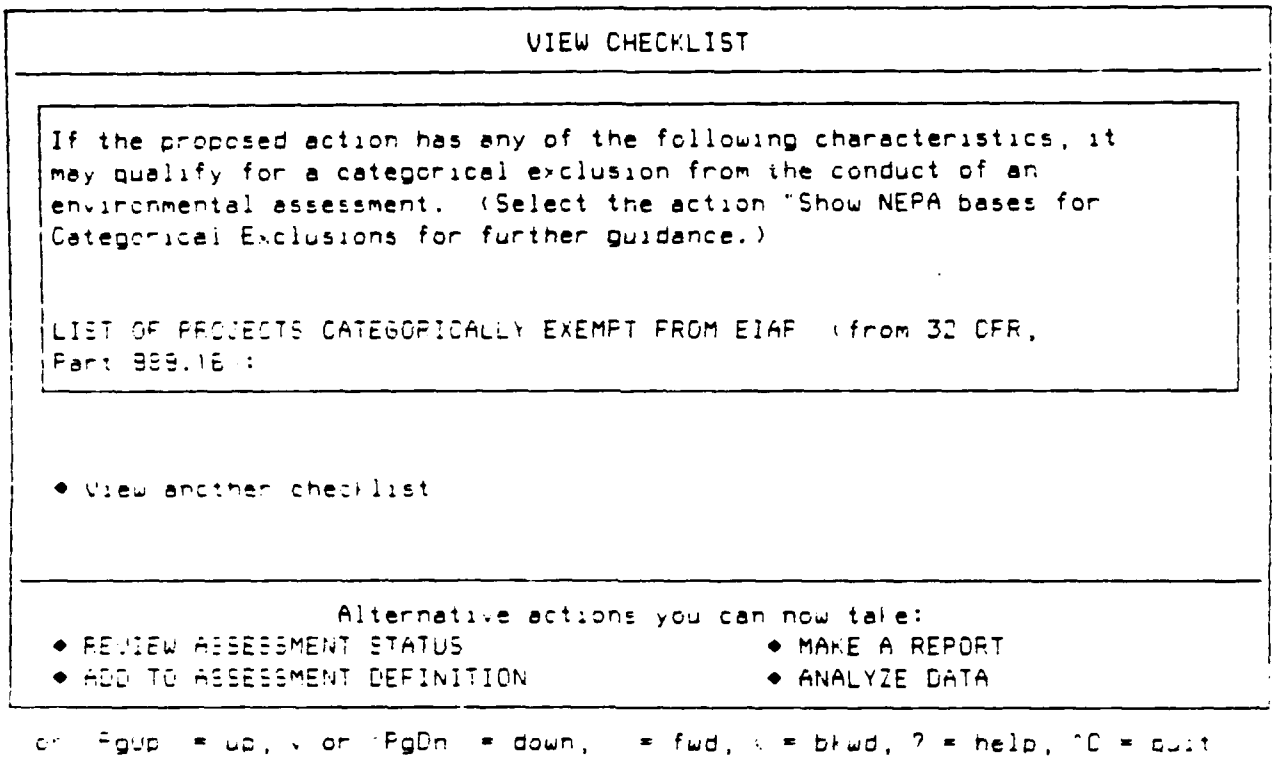


Figure B-23: View Checklist Screen - Continued.

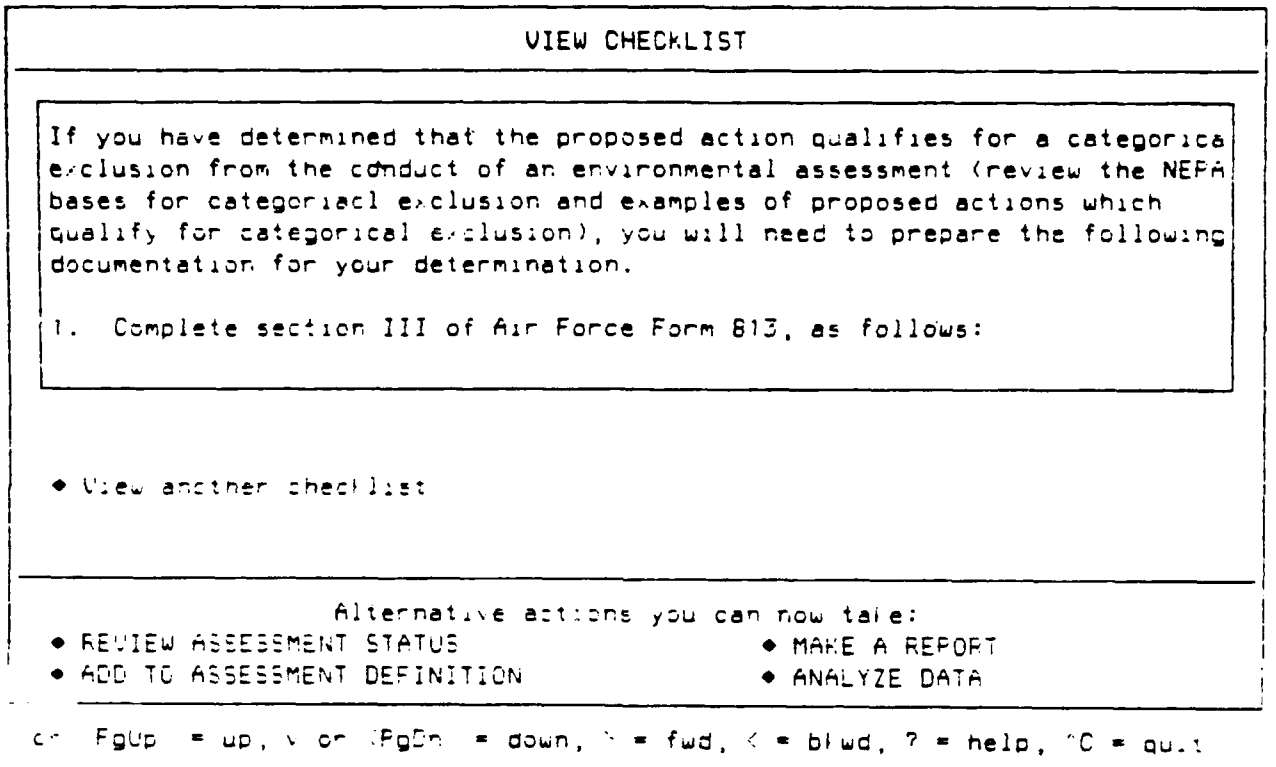


Figure B-24: View Checklist Screen - Continued.

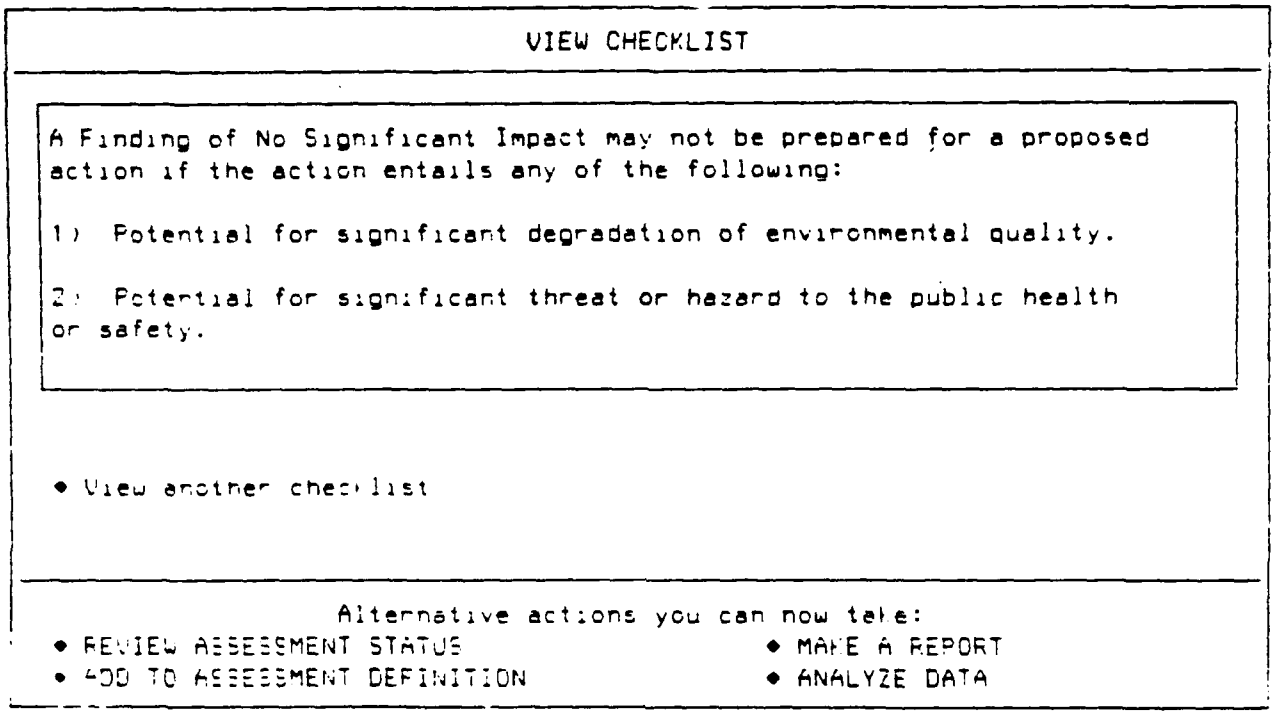


Figure B-25: View Checklist Screen - Continued.

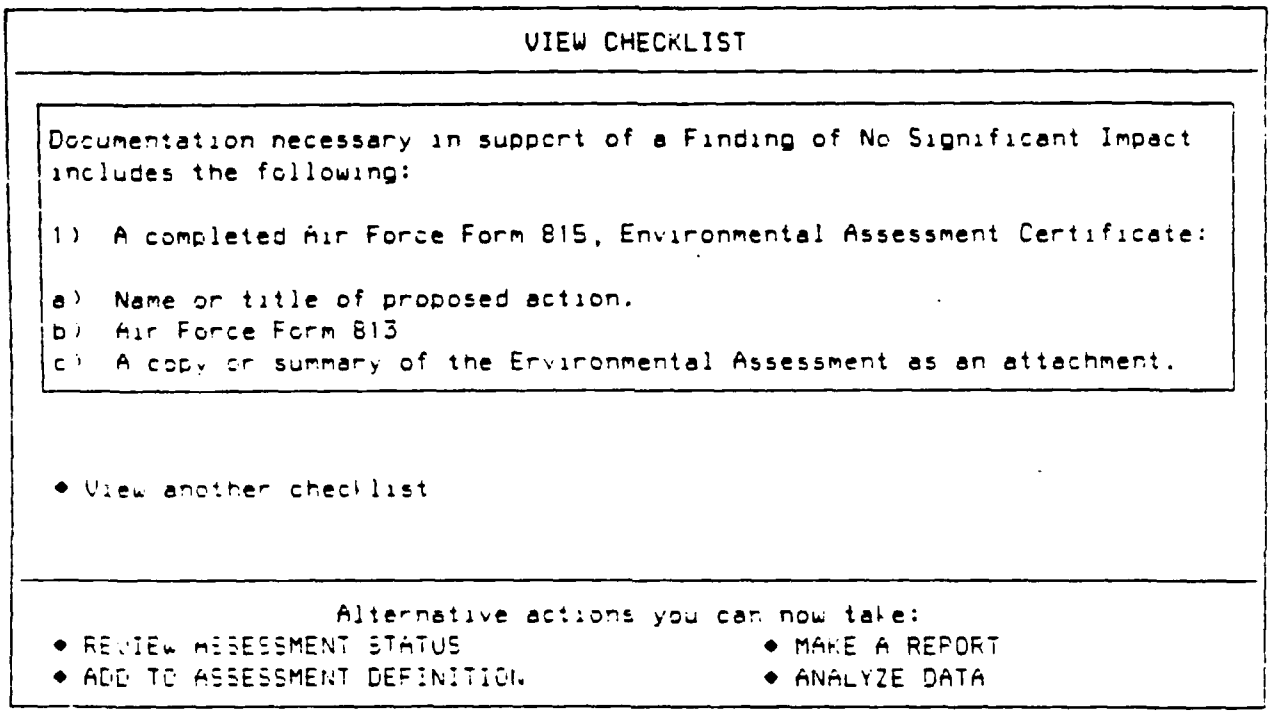


Figure B-26: View Checklist Screen - Continued.

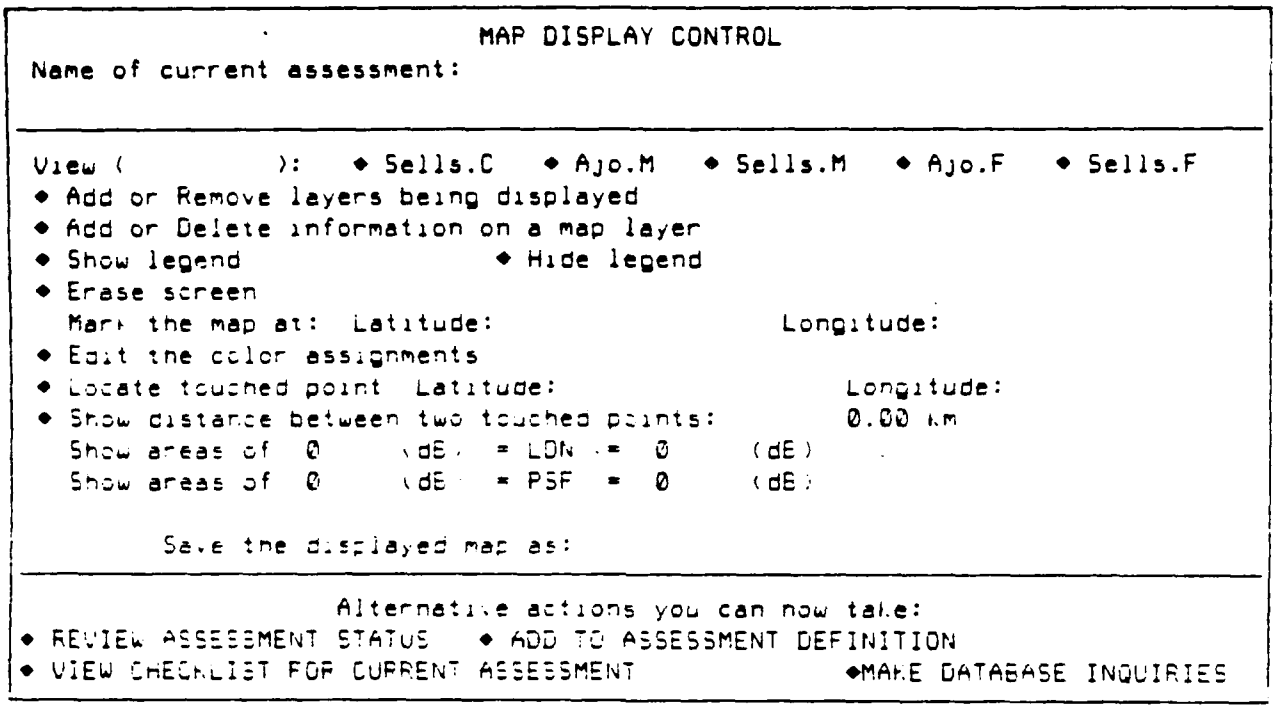


Figure B-27: Map Display Control Screen.

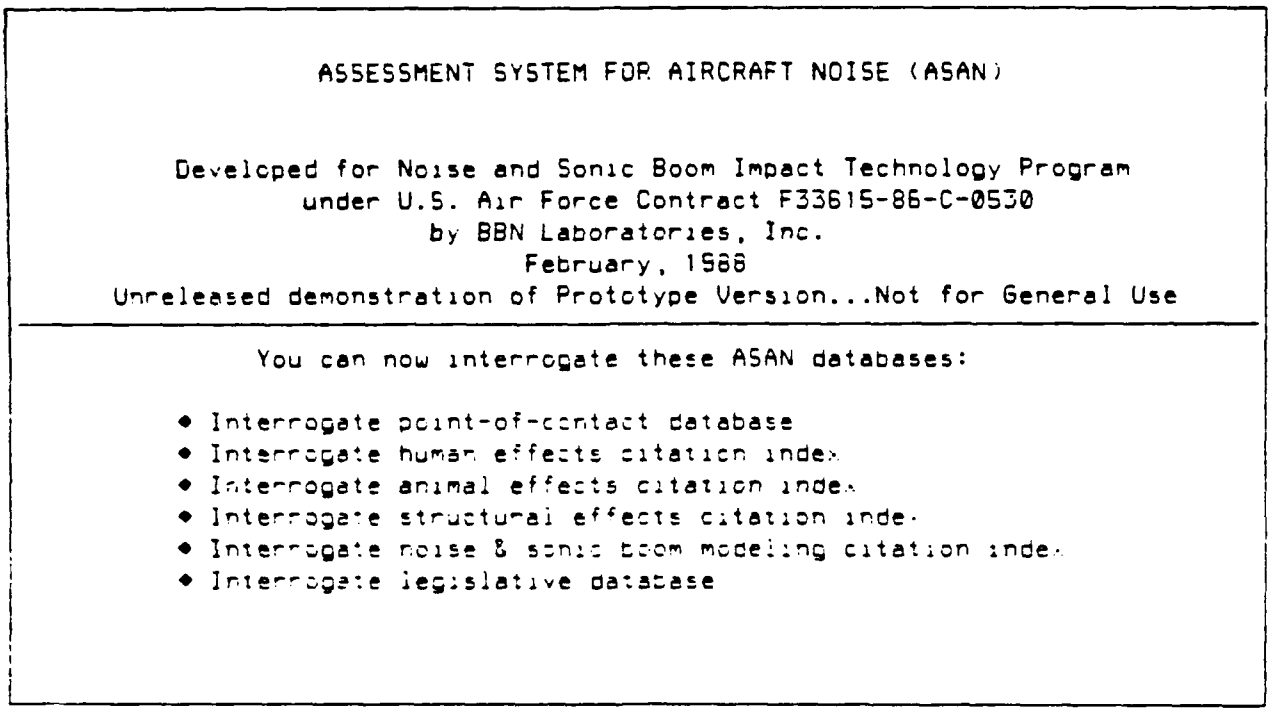
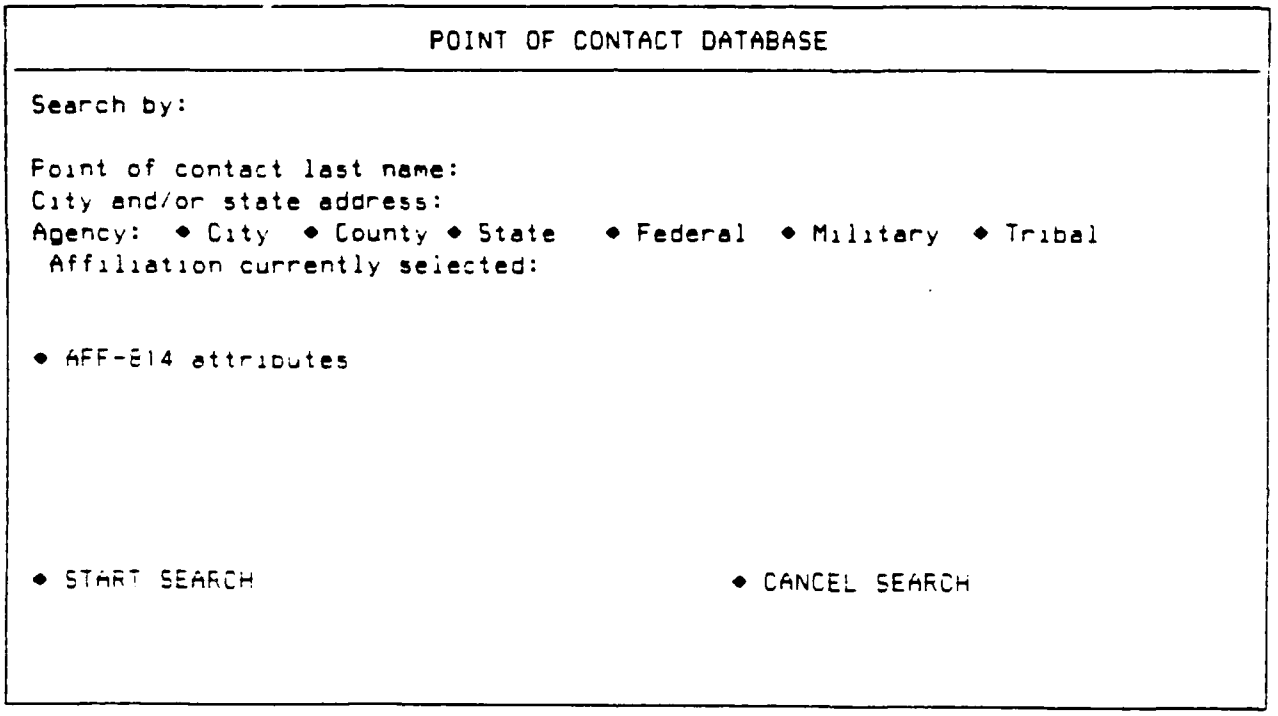


Figure B-28: Database Interrogation Title Screen.



, = fwd, = bkwd, enter = do it, ? = help, ^C = quit

Figure B-29: Point-of-Contact Database Screen.

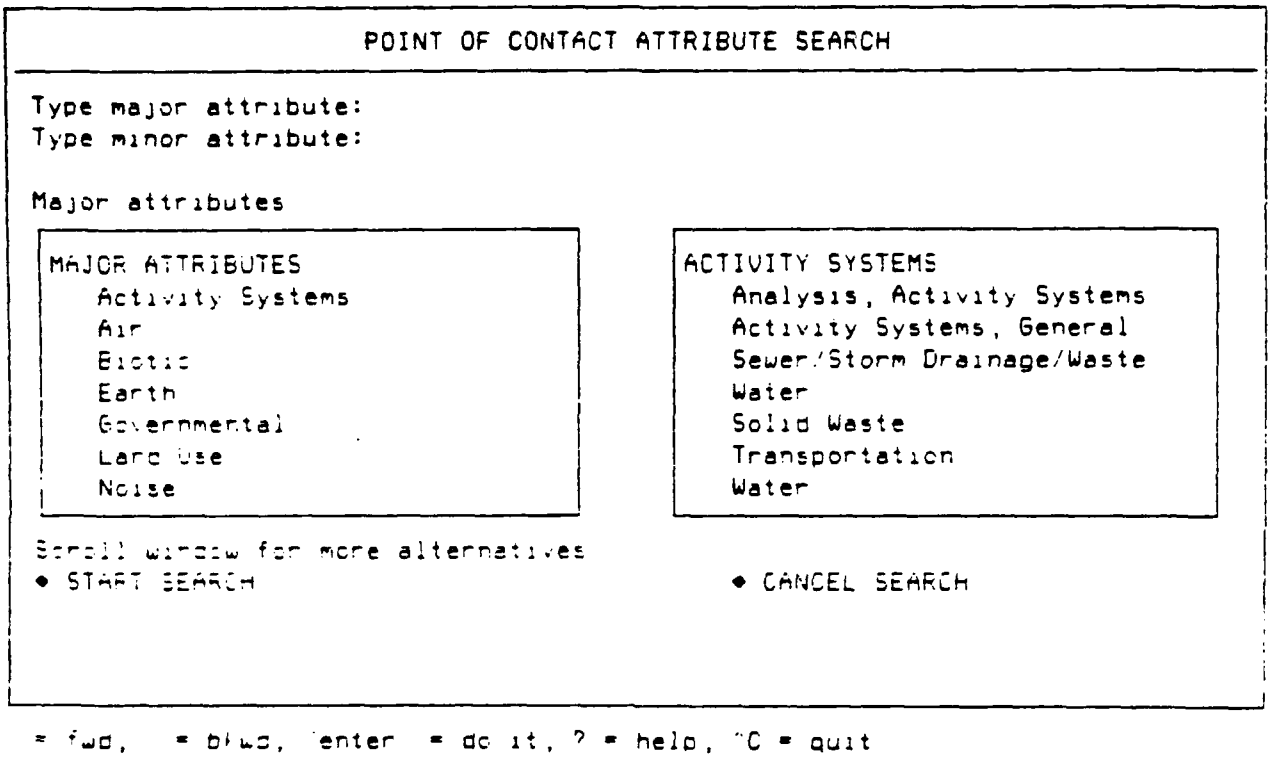


Figure B-30: Point-of-Contact Attribute Search Screen.

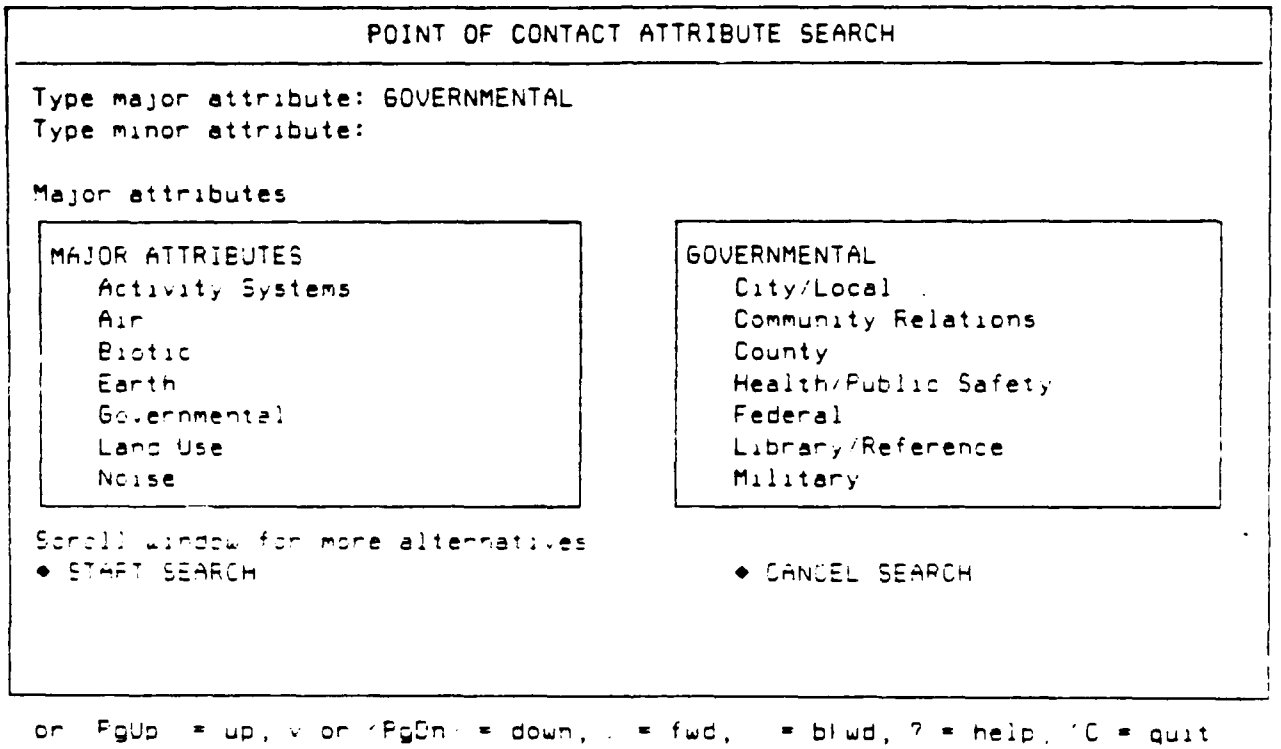


Figure B-31: Point-of-Contact Attribute Search Screen - Continued.

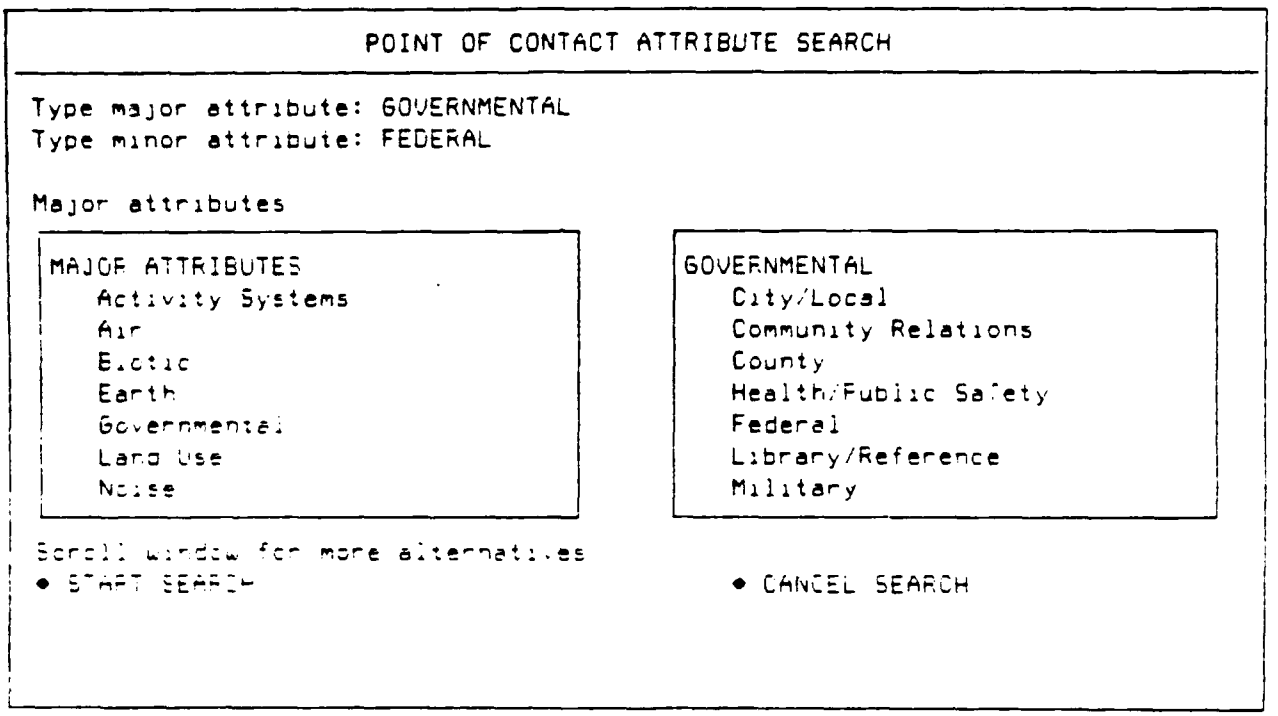


Figure B-32: Point-of-Contact Attribute Search Screen - Continued.

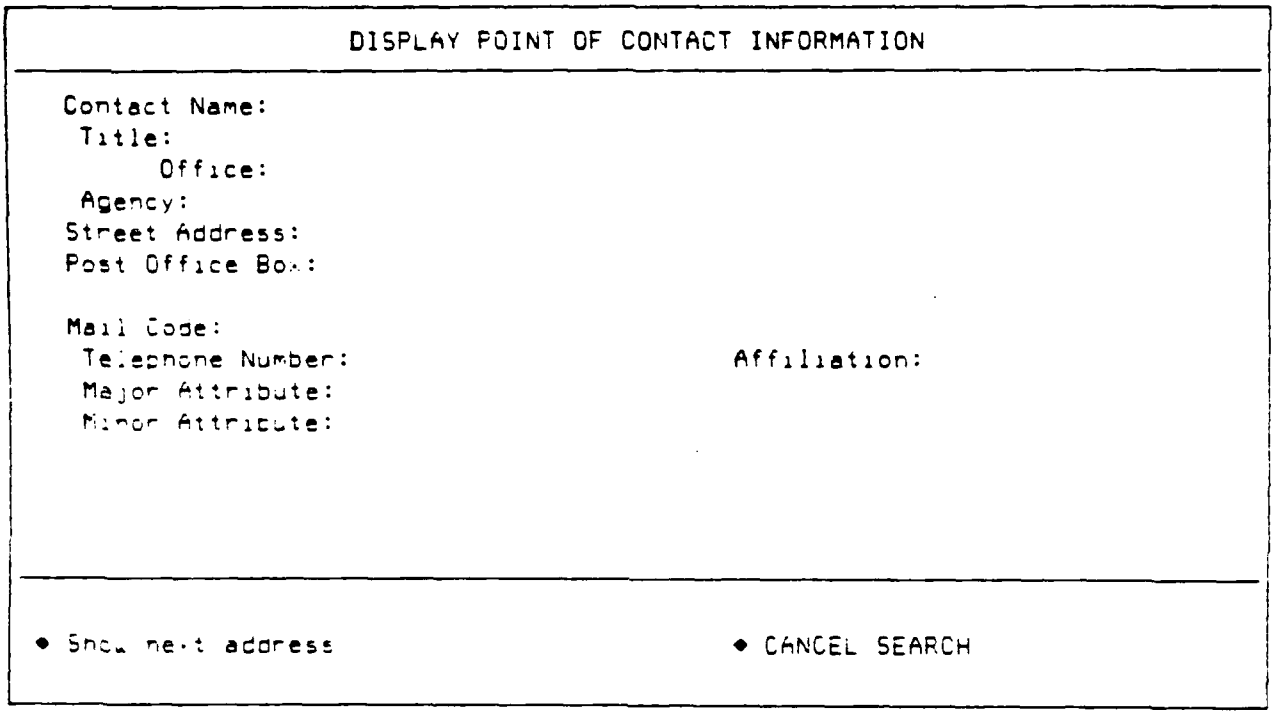
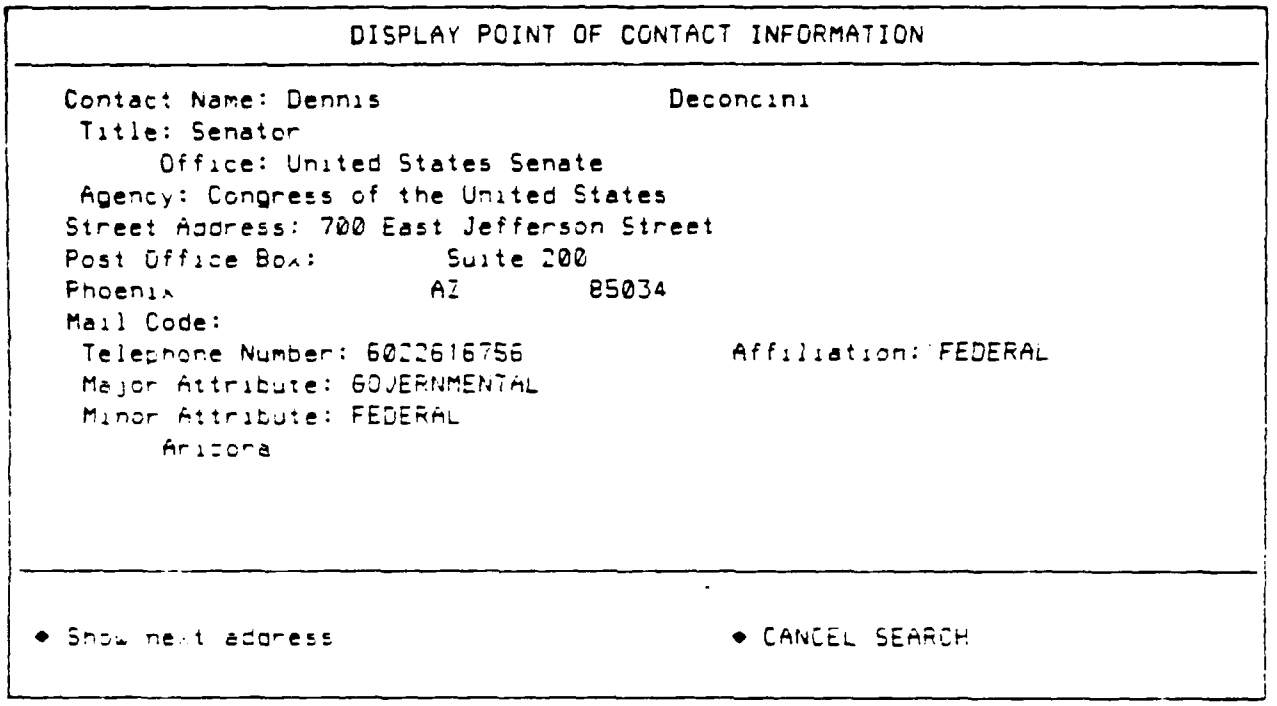


Figure B-33: Display Point-of-Contact Information Screen.



- fwd, ' = bkwd, enter = do it, ? = help, C = quit

Figure B-34: Display Point-of-Contact Information Screen - Continued.

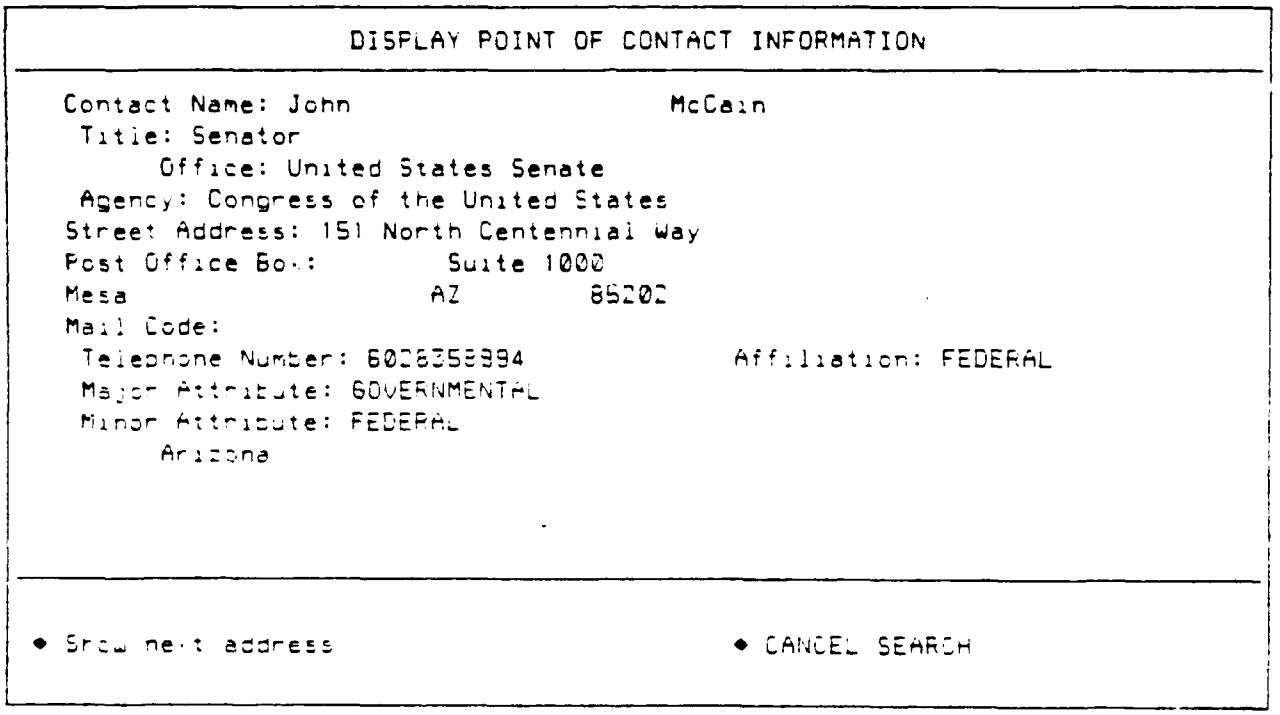


Figure B-35: Display Point-of-Contact Information Screen - Continued.

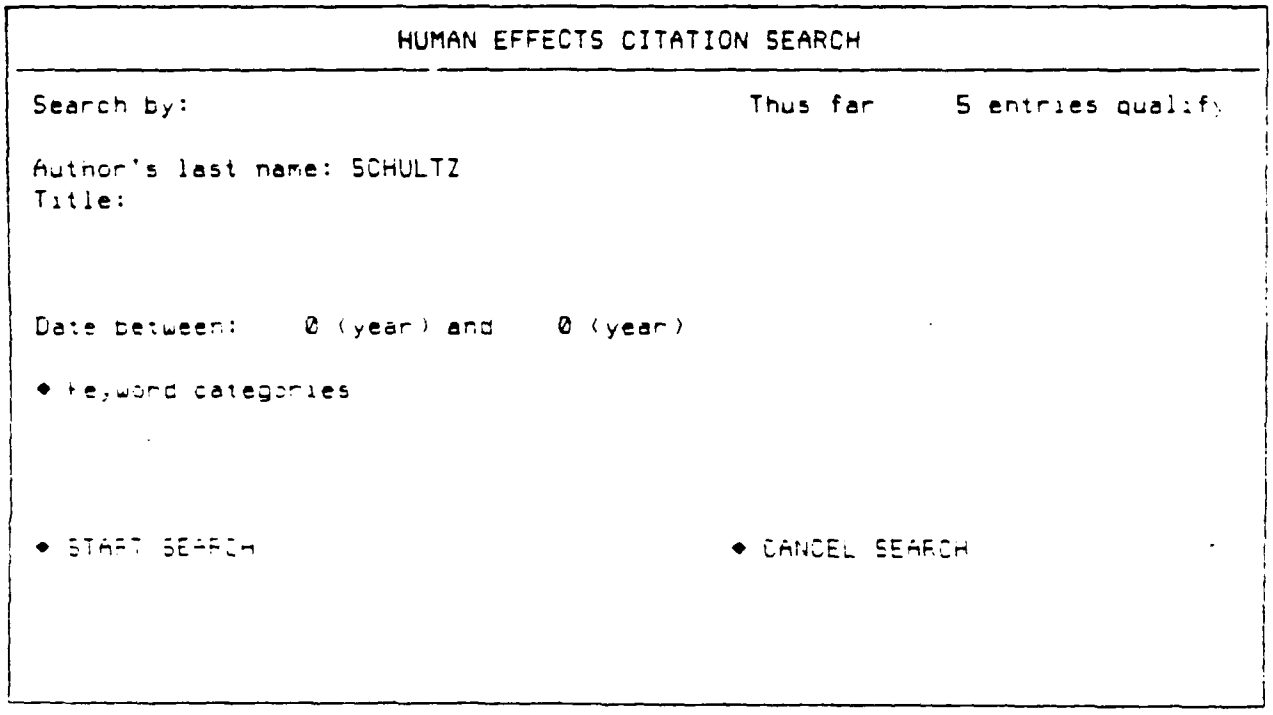


Figure B-36: Human Effects Citation Search Screen.

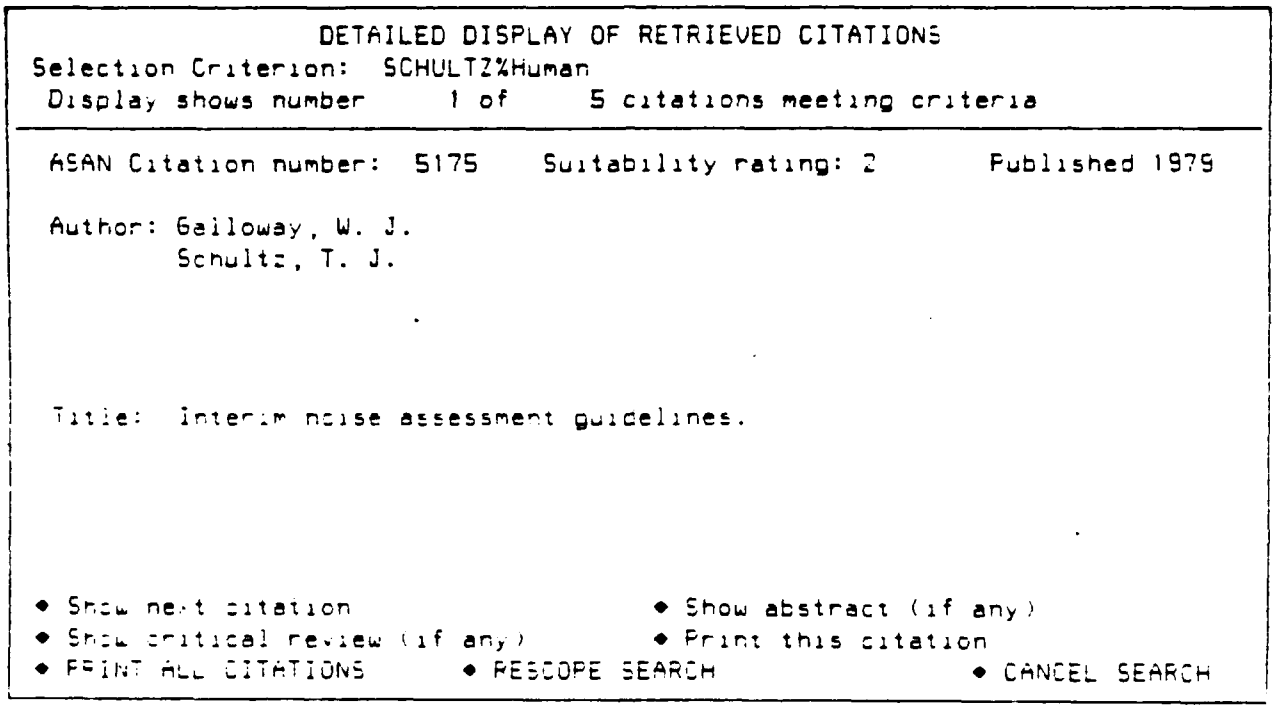


Figure B-37: Detailed Display of Retrieved Citations Screen.

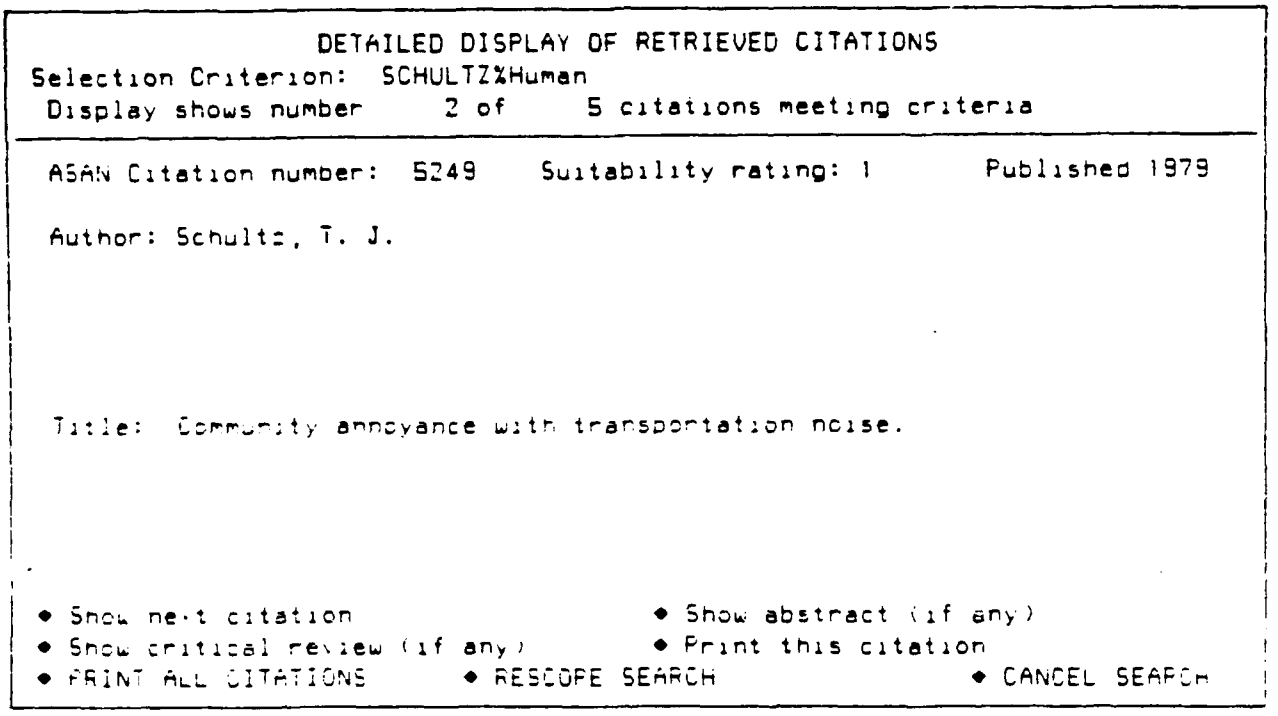


Figure B-38: Detailed Display of Retrieved Citations Screen - Continued.

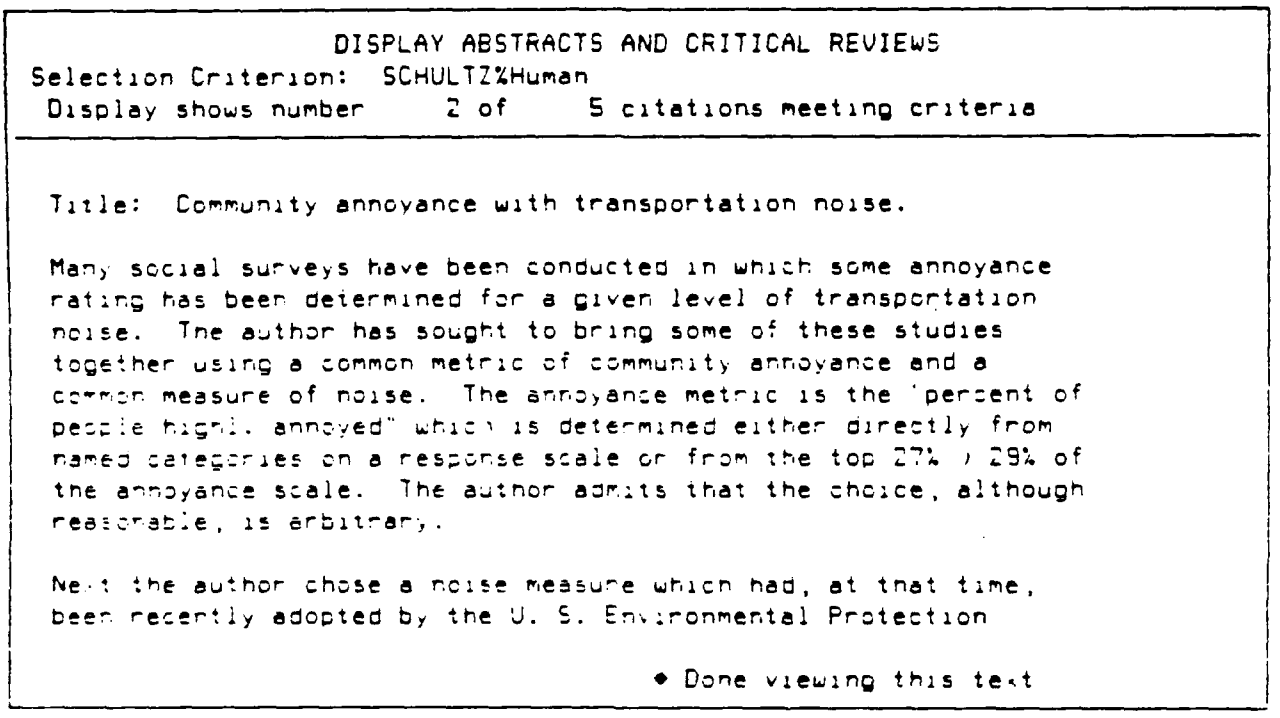


Figure B-39: Display Abstracts and Critical Reviews Screen.

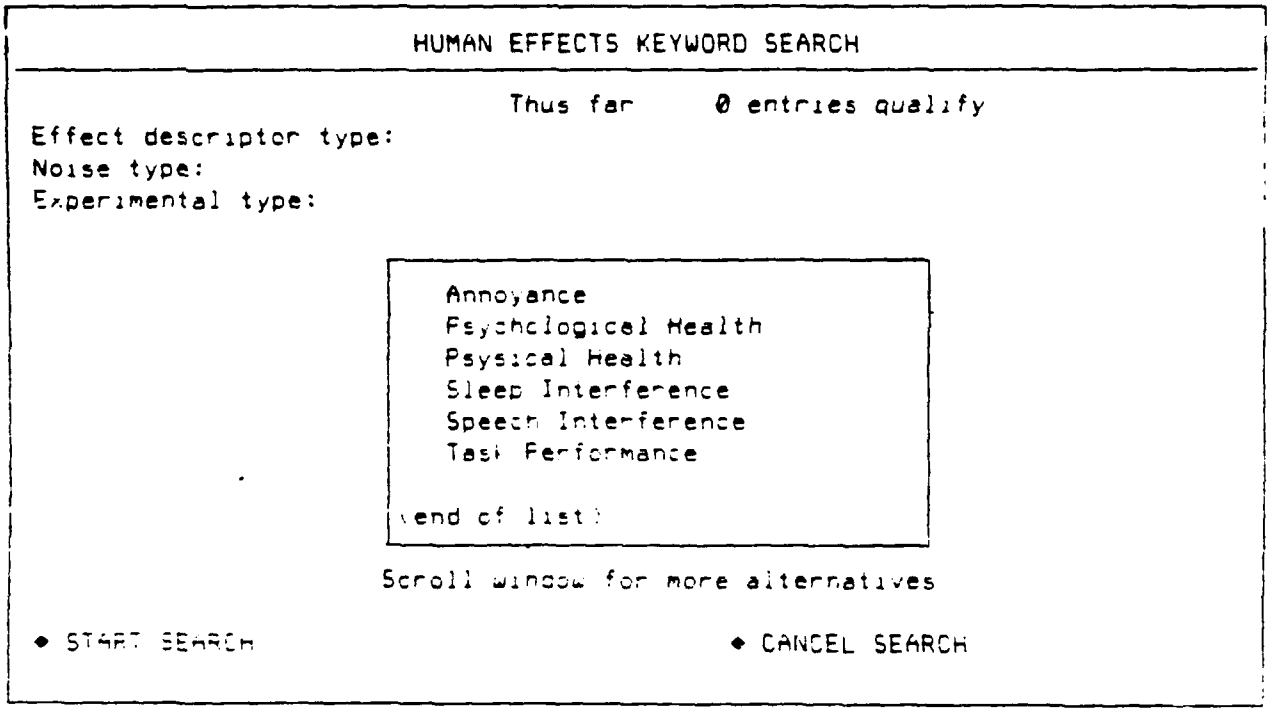


Figure B-40: Human Effects Keyword Search Screen.

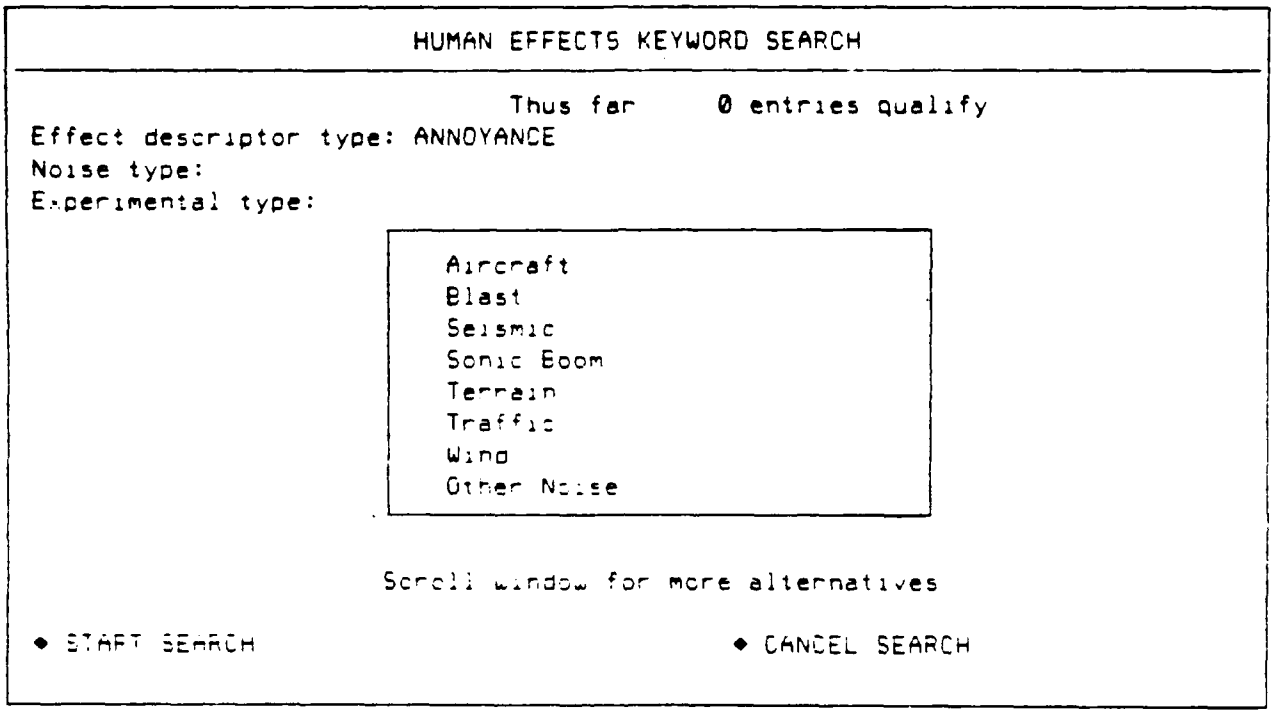


Figure B-41: Human Effects Keyword Search Screen - Continued.

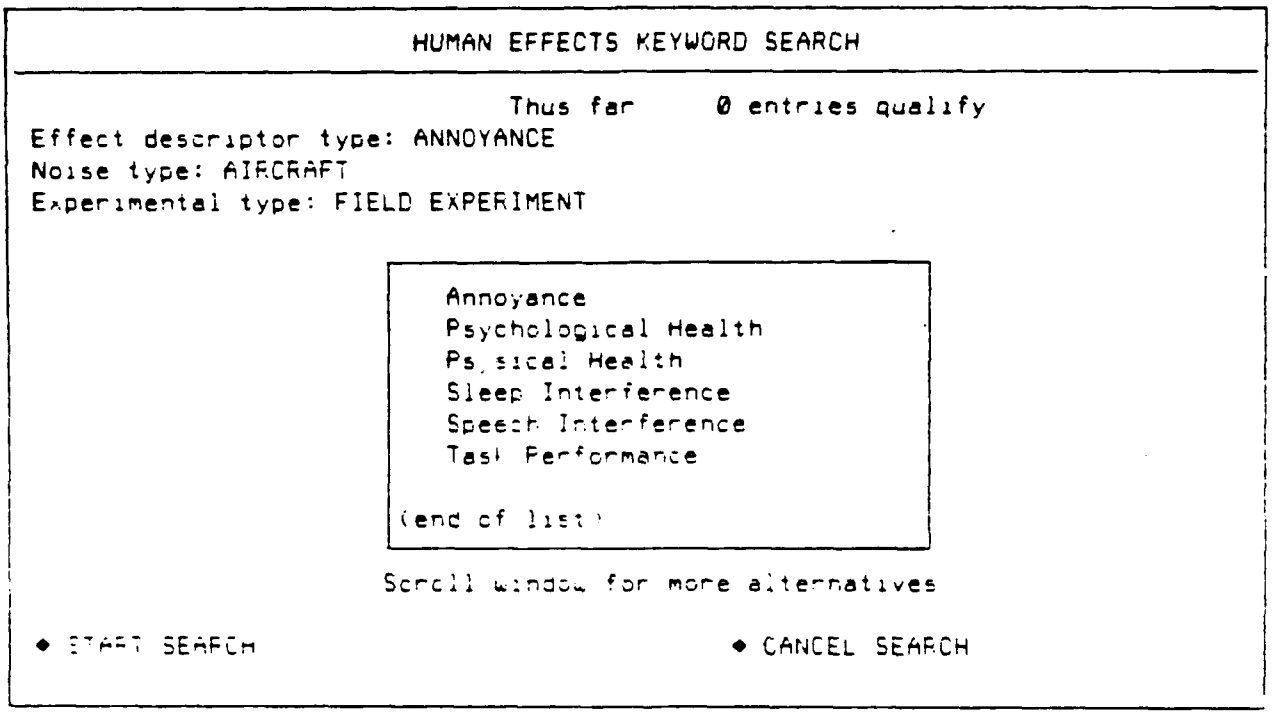


Figure B-42: Human Effects Keyword Search Screen - Continued.

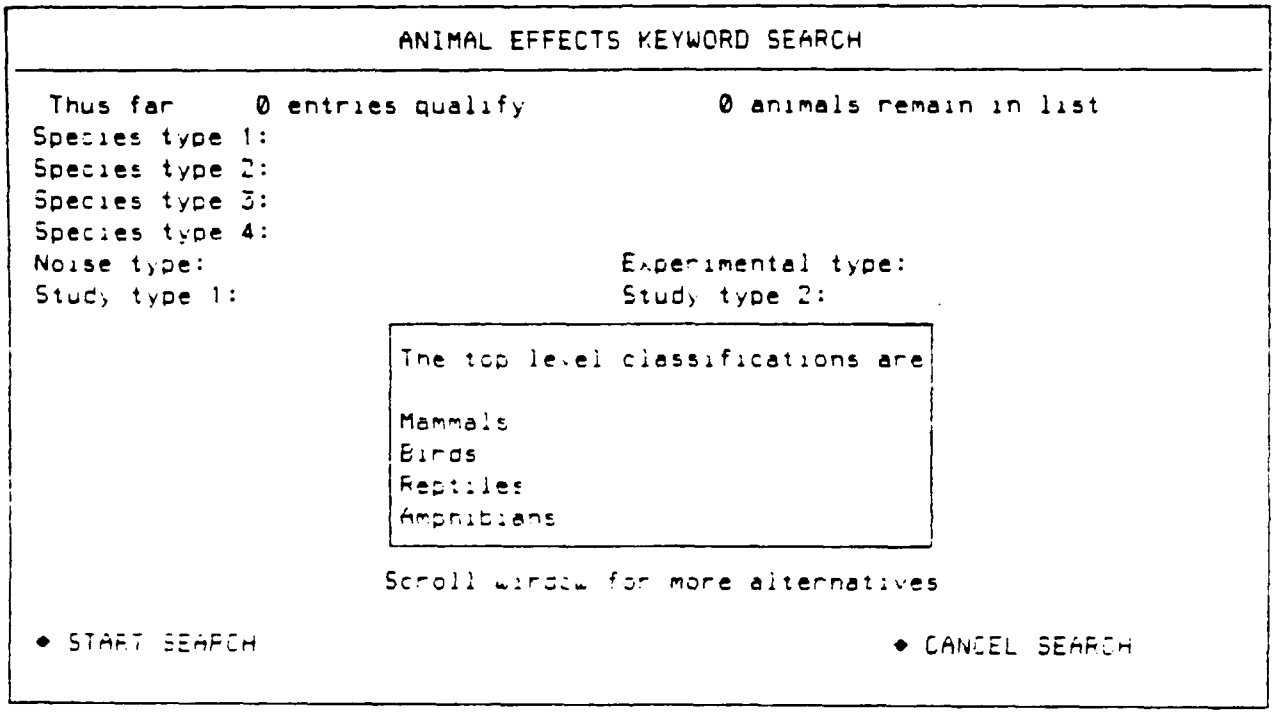


Figure B-43: Animal Effects Keyword Search Screen.

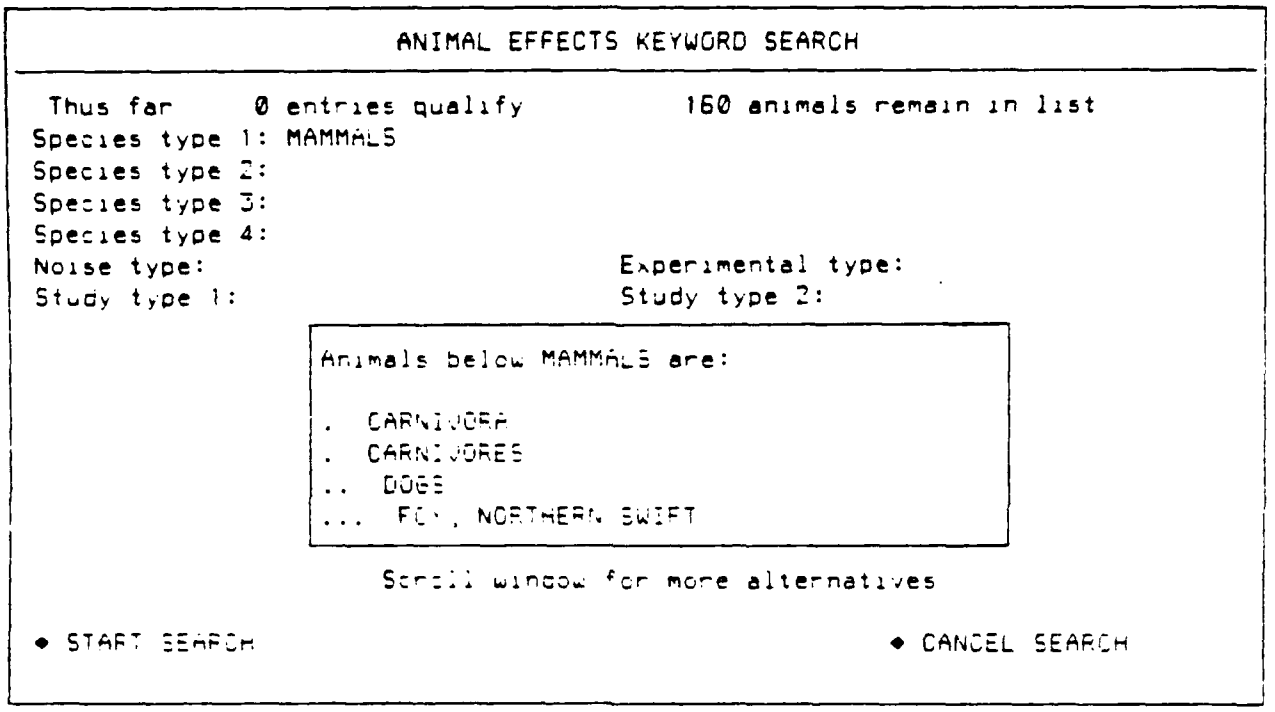


Figure B-44: Animal Effects Keyword Search Screen - Continued.

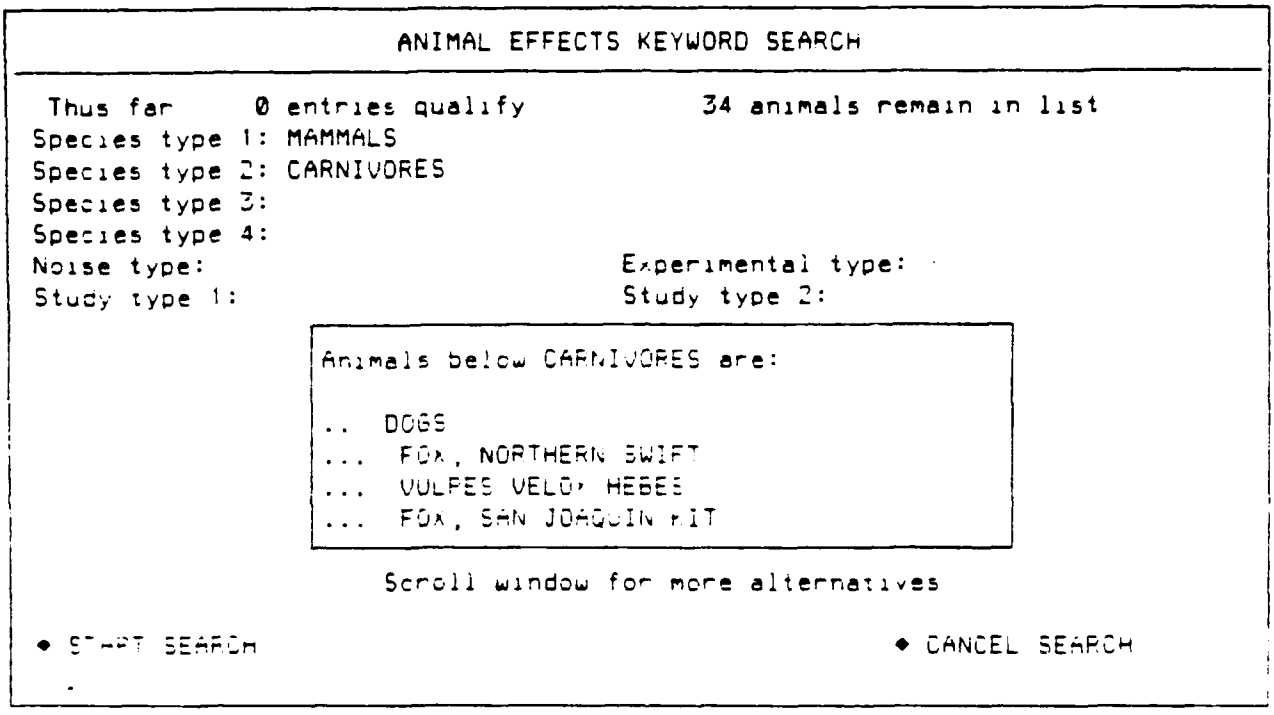


Figure B-45: Animal Effects Keyword Search Screen - Continued.

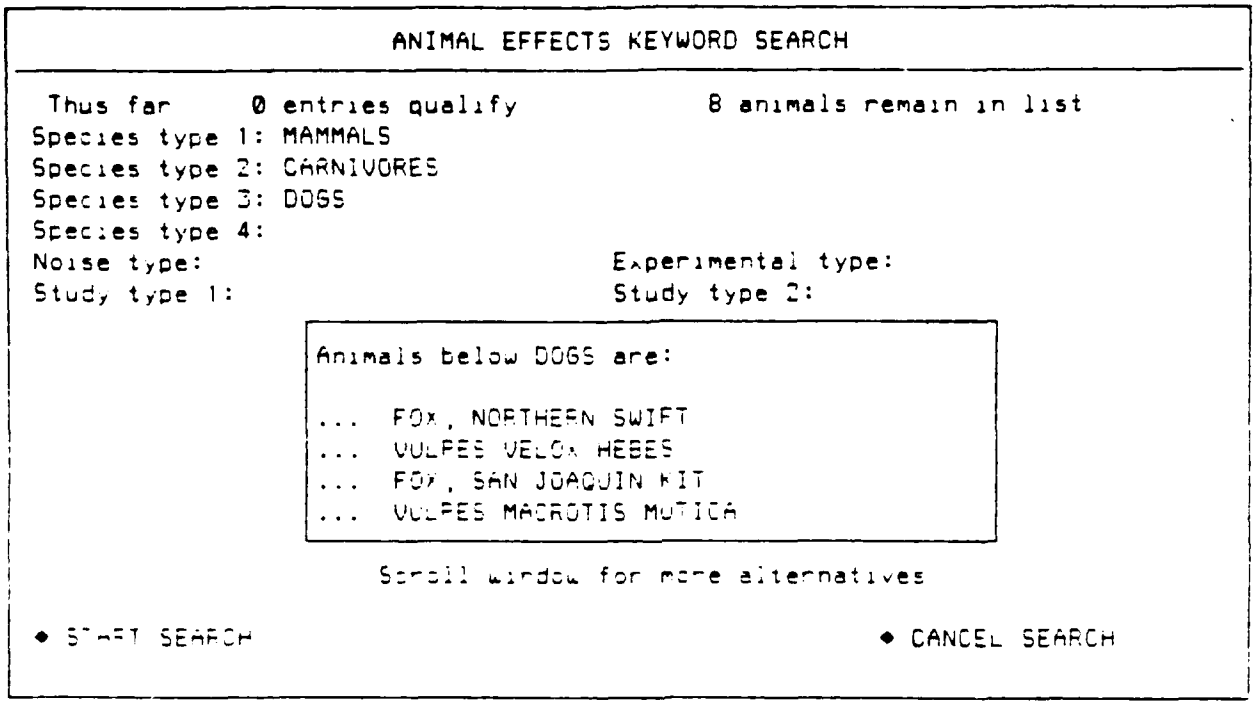


Figure B-46: Animal Effects Keyword Search Screen - Continued.

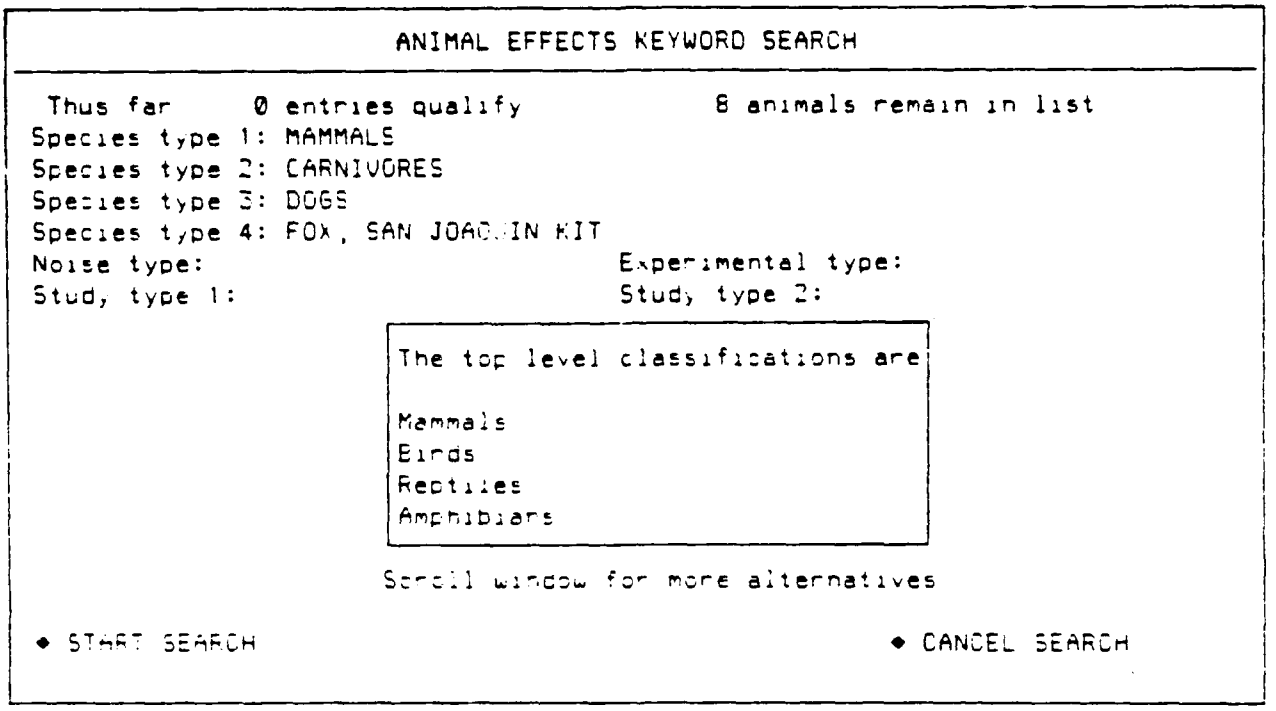


Figure B-47: Animal Effects Keyword Search Screen - Continued.

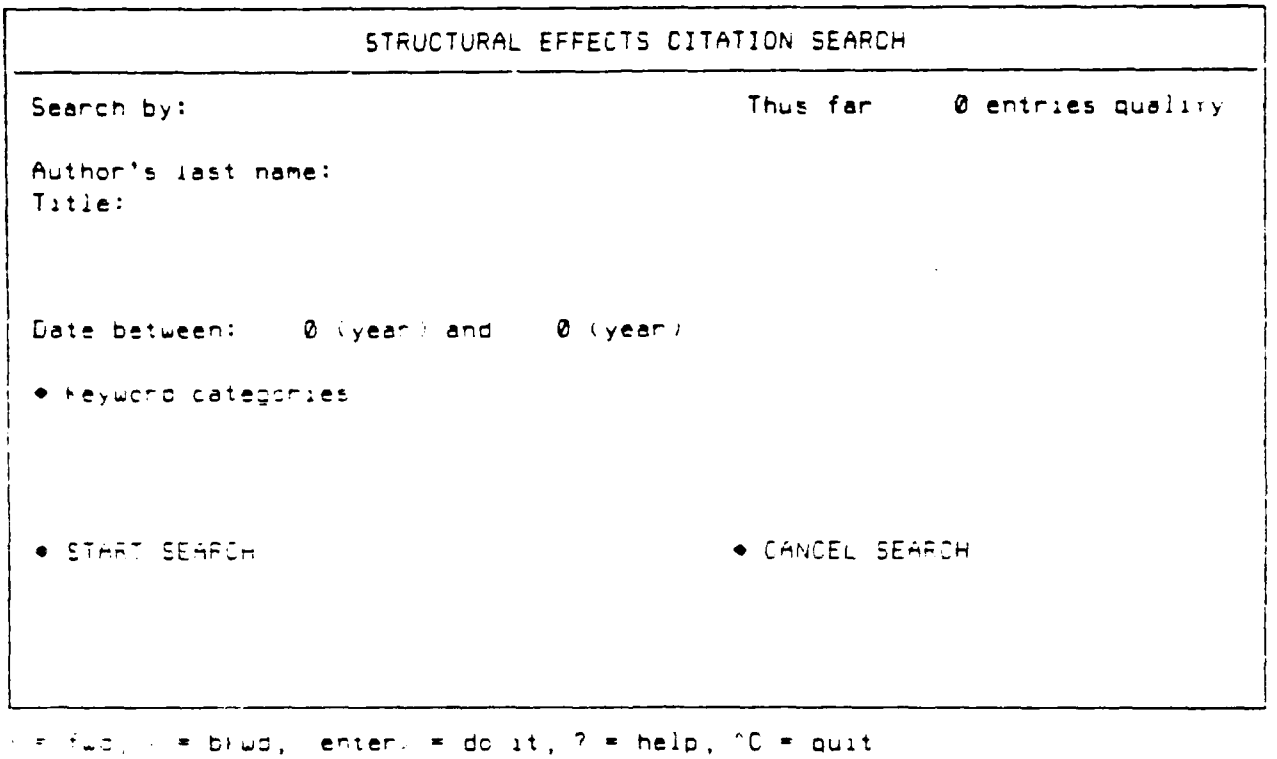


Figure B-48: *Structural Effects Citation Search Screen.*

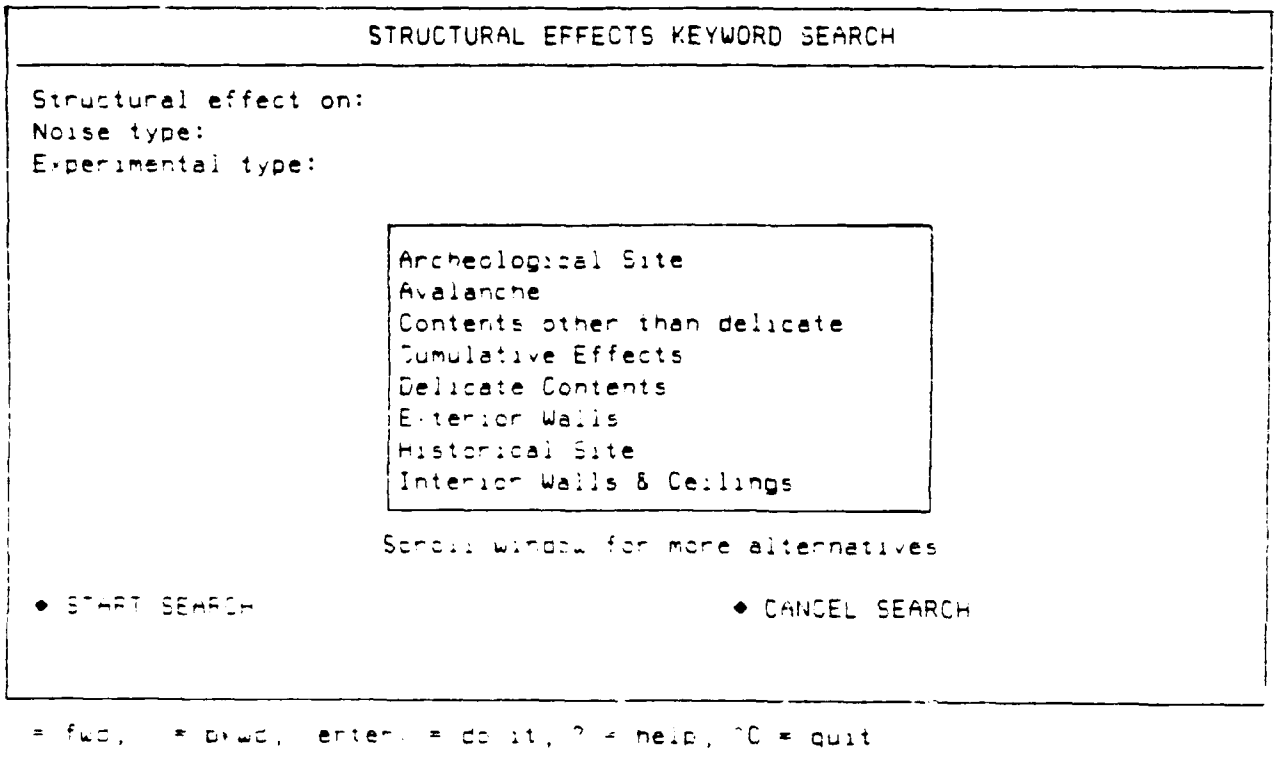


Figure B-49: Structural Effects Keyword Search Screen

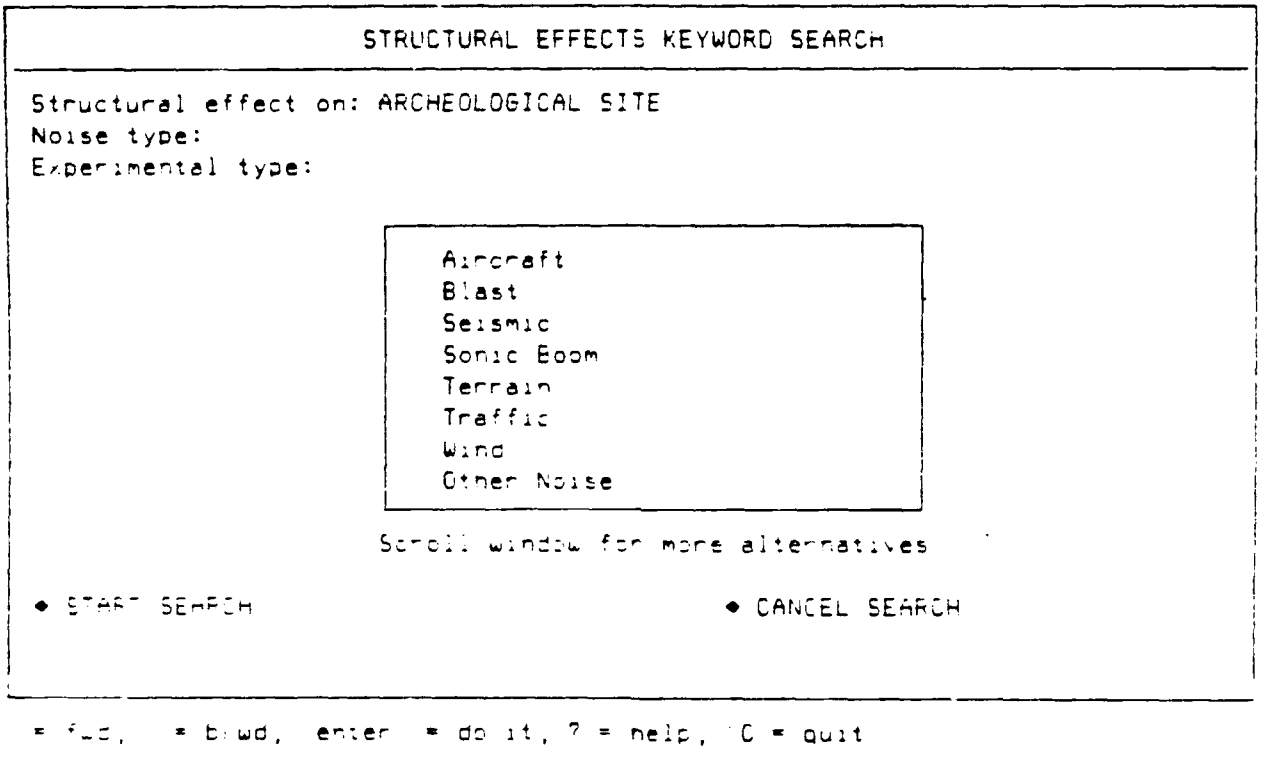


Figure B-50: Structural Effects Keyword Search Screen - Continued.

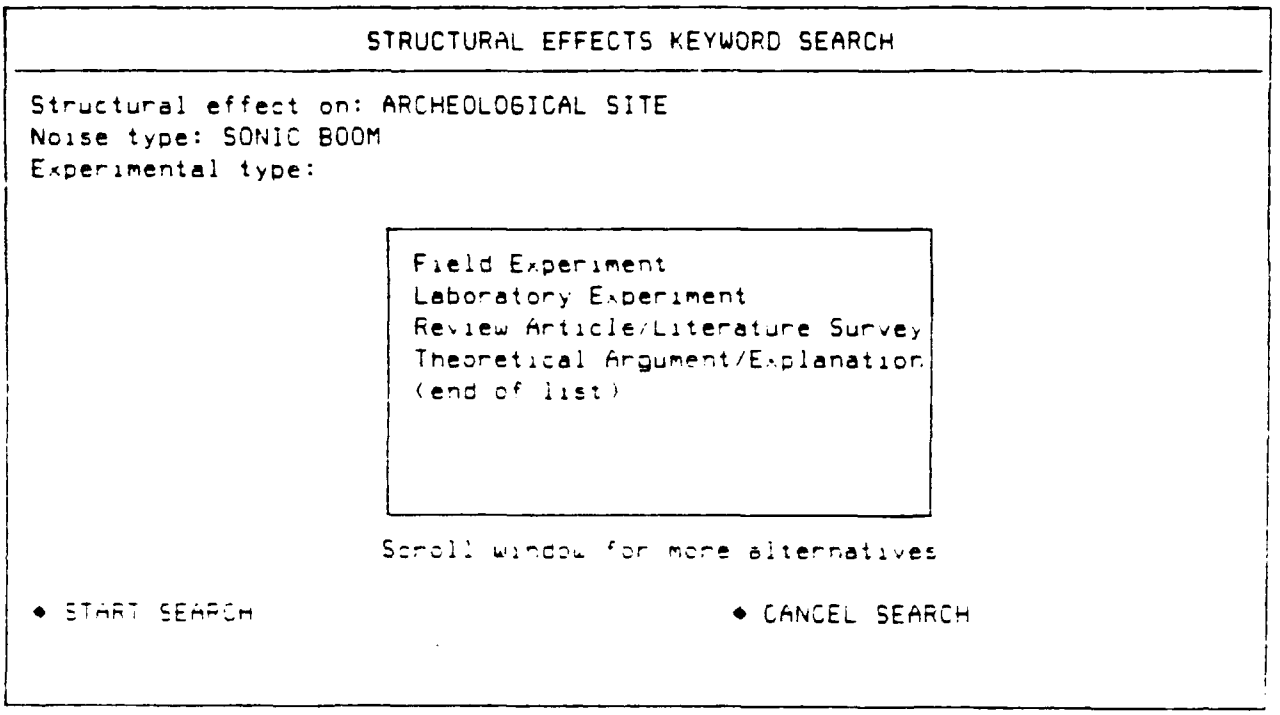


Figure B-51: Structural Effects Keyword Search Screen - Continued.

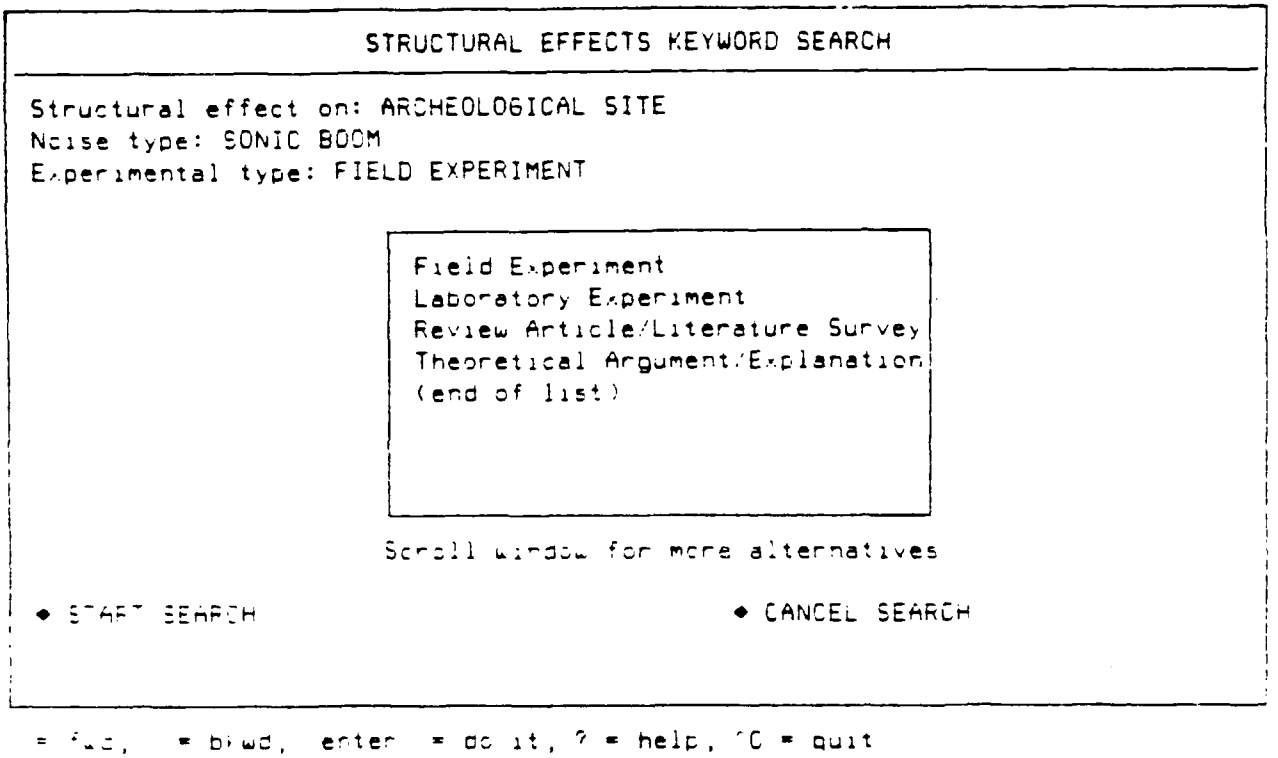


Figure B-52: Structural Effects Keyword Search Screen - Continued.

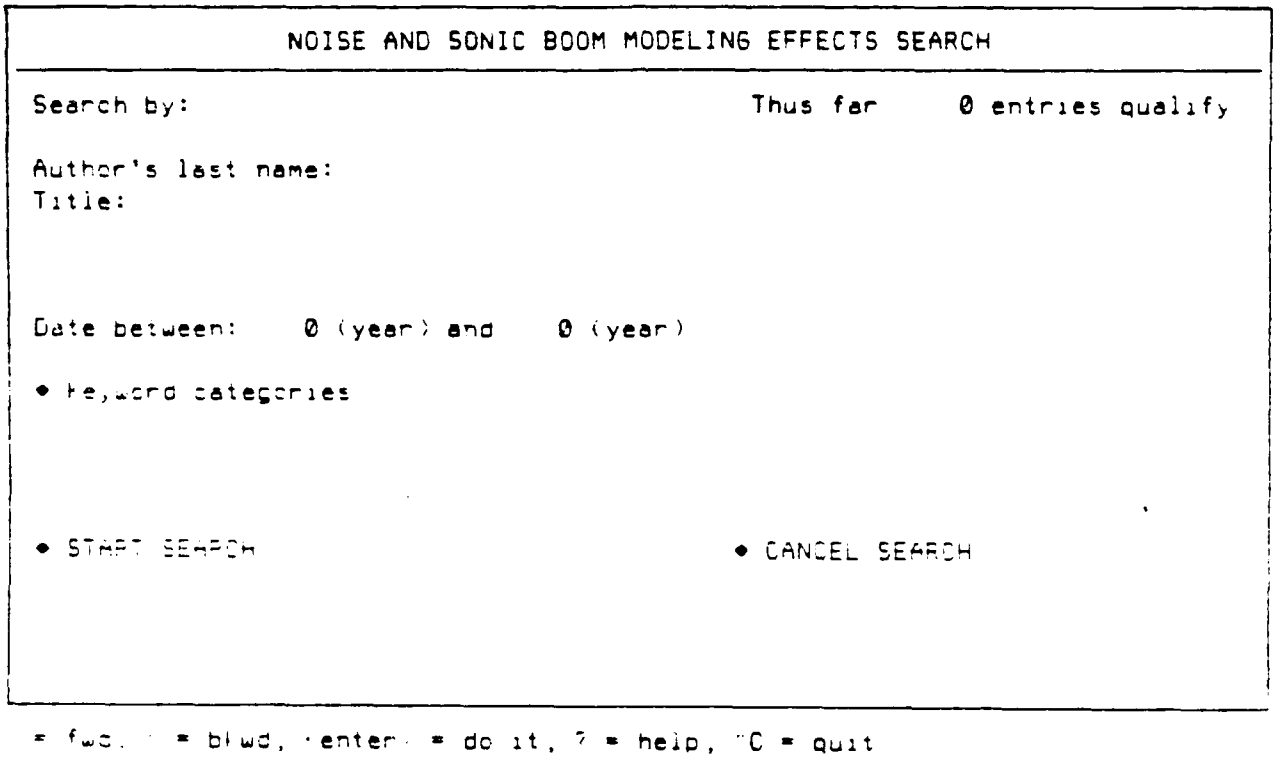


Figure B-53: Noise and Sonic Boom Modeling Effects Search Screen.

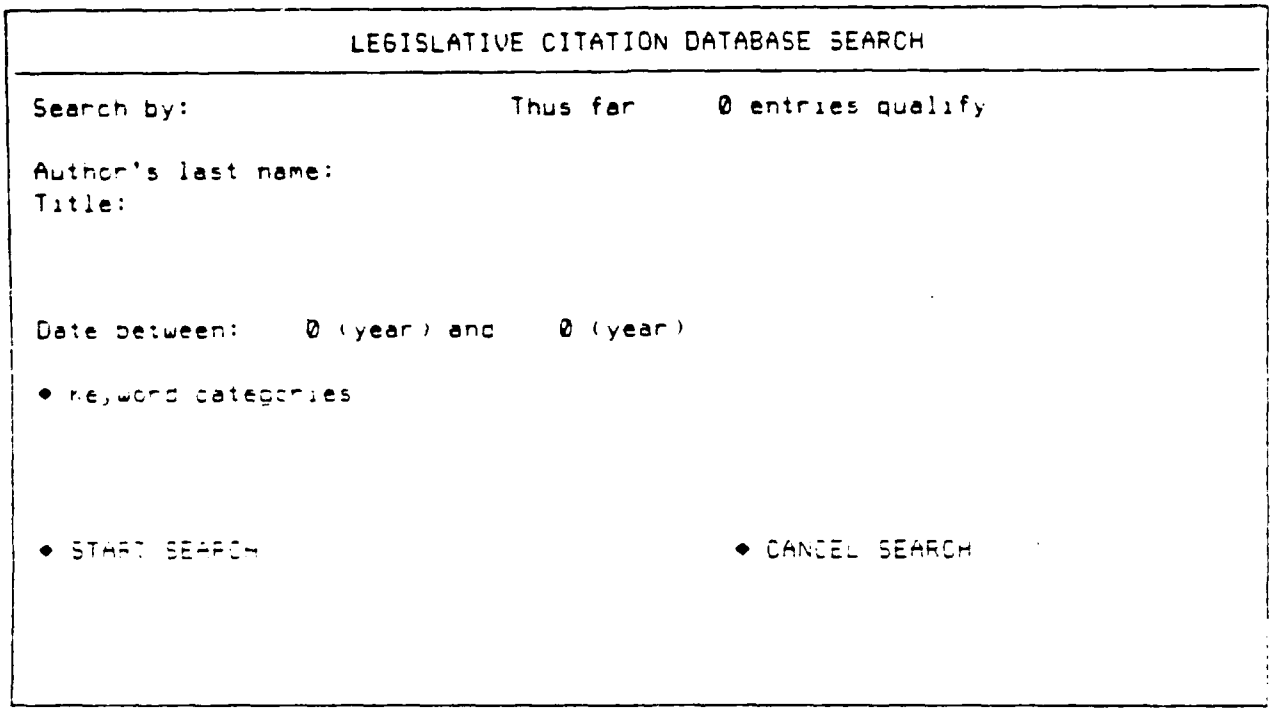


Figure B-54: Legislative Citation Database Search Screen.

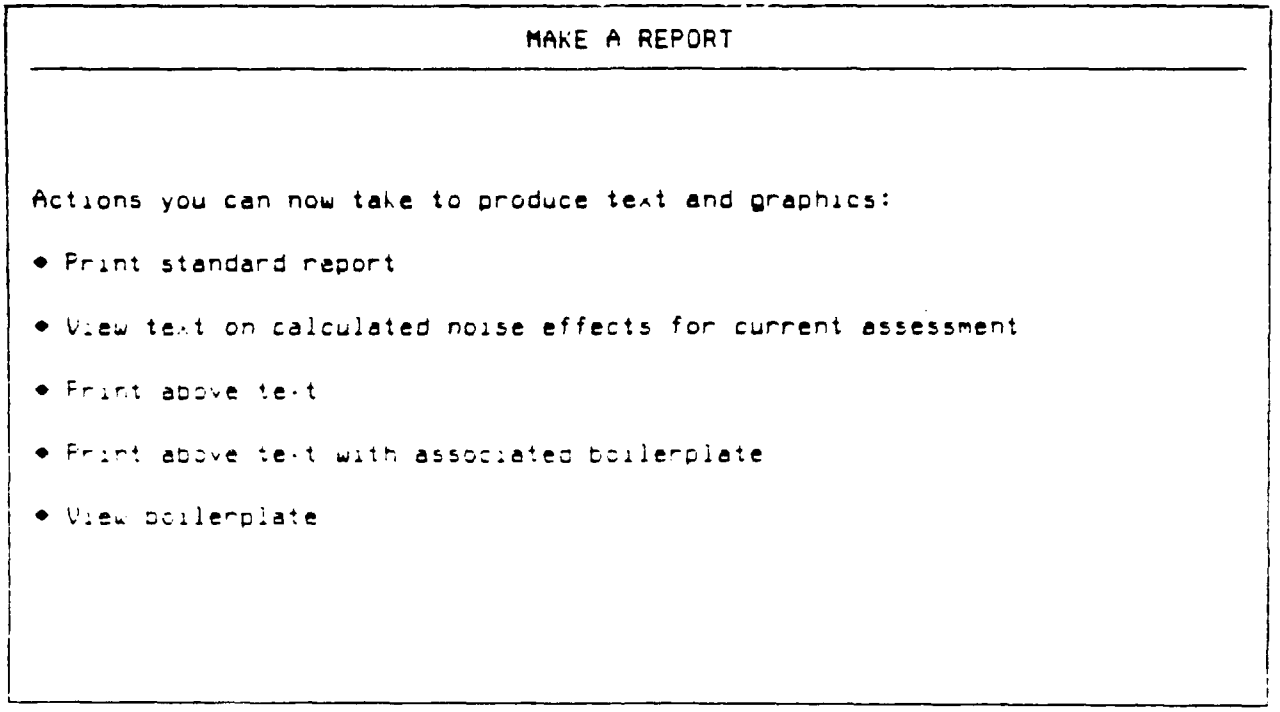


Figure B-55: Make a Report Screen.

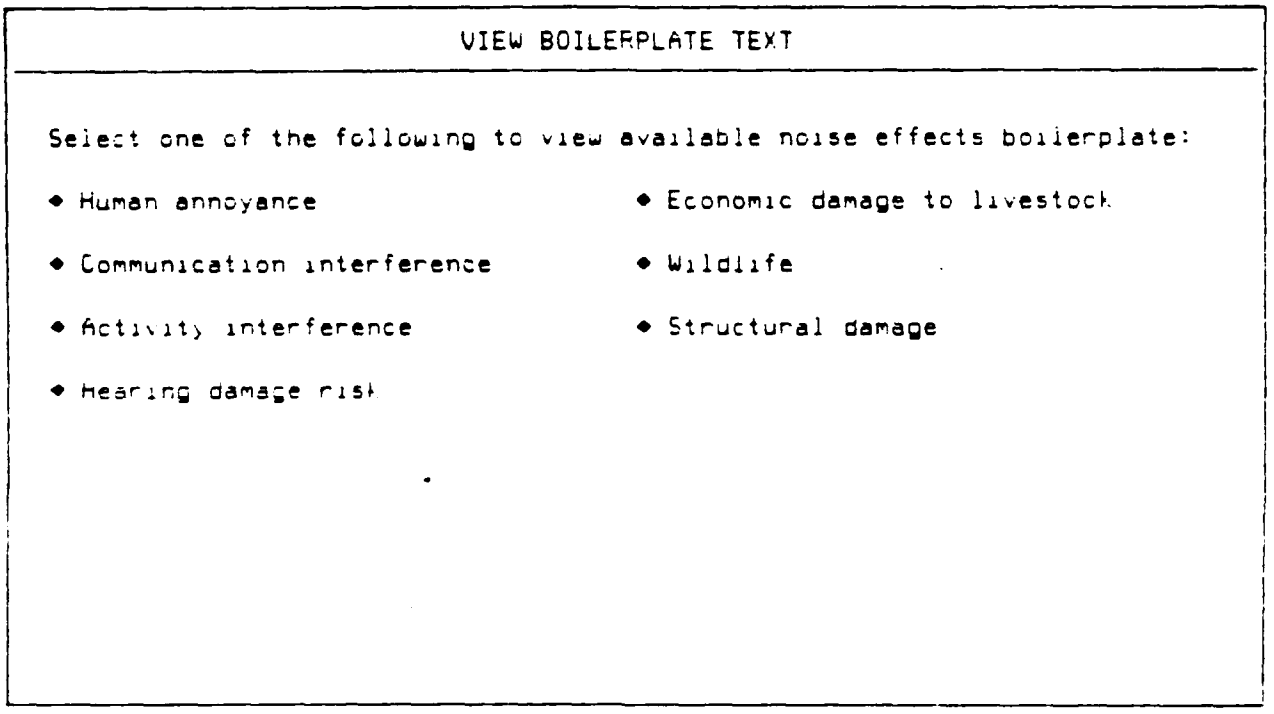


Figure B-56: View Boilerplate Text Screen.

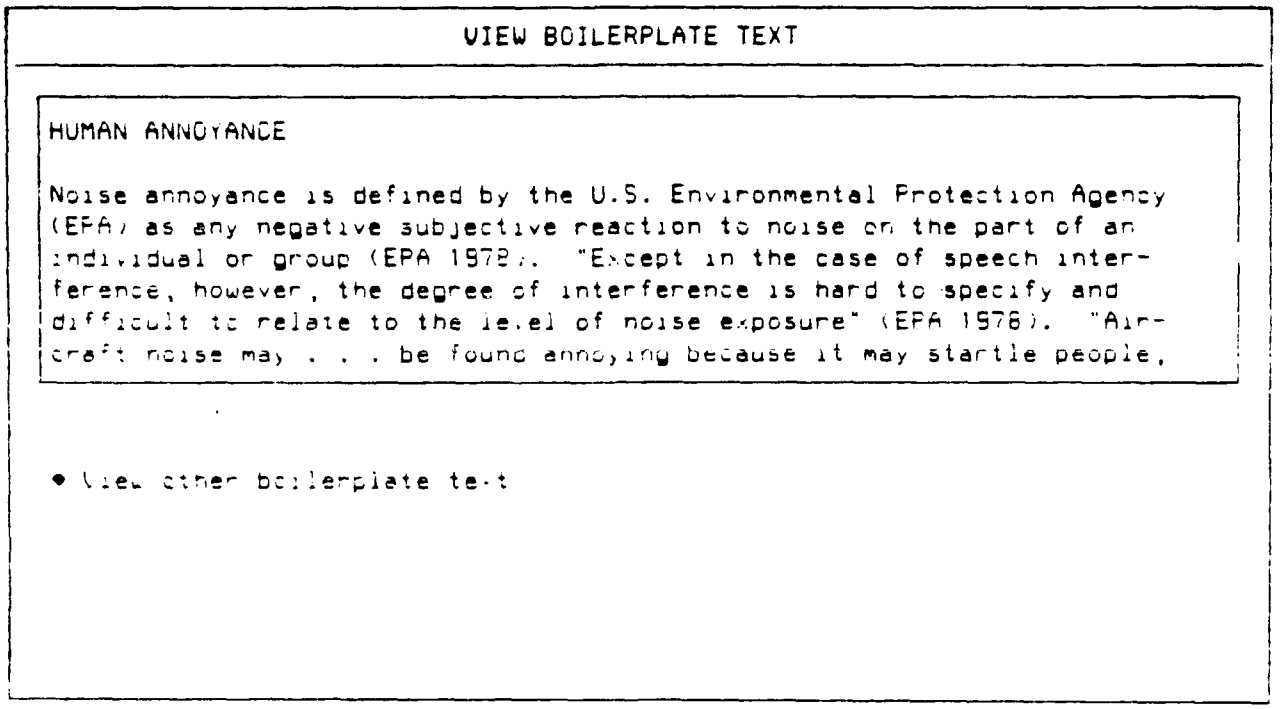


Figure B-57: View Boilerplate Text Screen - Continued.

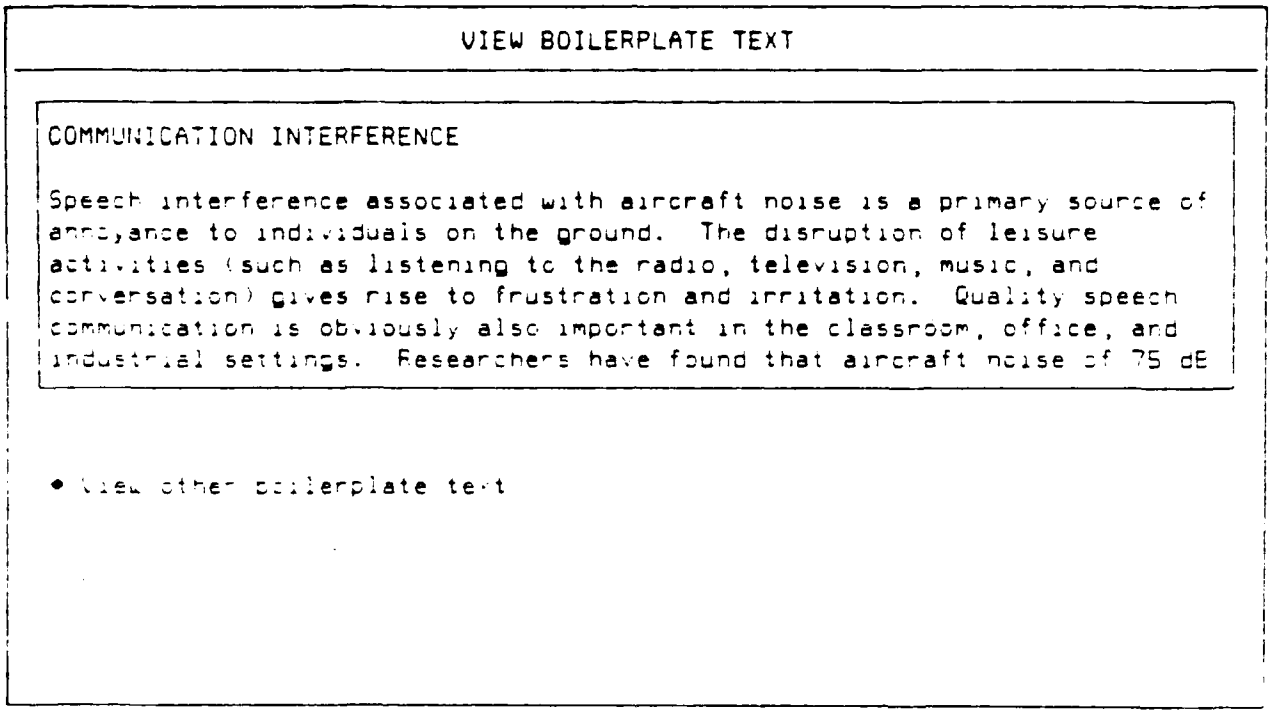


Figure B-58: Text Screen - Continued.

Appendix C
LISTINGS OF HELP FILES AND TEXT BLOCKS

This appendix contains listings of text files accessed by ASAN when user-selected actions require the display of either on-line help or text blocks.

File: ACTIVSYS.HLP

Please select minor attribute and hit "Enter." If no specific selection is made, all (6) minor attributes in category will be included.

File: ADDASS.HLP

If you select this option ASAN will assist you in adding new information to the current environmental assessment (the one described at the top of this screen).

File: ADDDEL.HLP

Select this action if you want to add or delete information to or from a particular map layer (not necessarily the one that is currently displayed on the map screen).

File: ADDELMAP.HLP

Select this action if you want to add some new land use information to an existing map, or if you wish to remove some information from an existing map.

File: ADDLAYER.HLP

Please type the name of one of the map layers shown above to add this layer to the map now displayed on the map display screen.

File: ADDREM.HLP

Select this action if you want to modify a map currently displayed on the map screen by adding or deleting a map layer from it.

File: ADDRESS.HLP

Select this action if you wish to search the point-of-contact database for all entries for a city or state for whose name you know at least the approximate spelling (i.e., at least the first few characters of the name). If you supply only two characters, a state abbreviation is implied; otherwise ASAN will look for a city name.

File: AIR.HLP

Please type minor attribute and hit "Enter." If no specific selection is made, all (1) minor attributes in category will be included.

File: AJOF.HLP

Select this action if you want to view a yet more finely digitized area surrounding the town of Ajo. This is a rectangular area of 3.75 miles by 5 miles (19 square miles).

```
VERTEX  LAT/LONG
SW      32 degrees 20 minutes / 112 degrees 54 minutes
SE      32 degrees 20 minutes / 112 degrees 49 minutes
NE      32 degrees 24 minutes / 112 degrees 49 minutes
NW      32 degrees 24 minutes / 112 degrees 54 minutes]
```

File: AJOF.HLP

Select this action if you want to view an area of about 500 square miles digitized at an intermediate scale that is not contained in the coarse scale map of Sells.

The coordinates of the vertices of this area are as follows:

```
VERTEX  LAT/LONG
SW      32 degrees 15 minutes / 113 degrees 0 minutes
SE      32 degrees 15 minutes / 112 degrees 34 minutes
NE      32 degrees 31 minutes / 112 degrees 34 minutes
NW      32 degrees 31 minutes / 113 degrees 0 minutes]
```

File: ALTMTR.HLP

Please provide the altitude (in feet) at which the aircraft you have specified flies on this MTR segment. You must also supply a single letter to specify the reference for this altitude: M for MSL, A for AGL, and S for SFC.

File: ANALYSIS.HLP

Select this action if you want ASAN to analyze any of the information that has already been entered for an environmental assessment.

File: ANMLCIT.HLP

If you take this action you can examine bibliographic information about the effects of noise on animals.

File: ASSESS.HLP

If you select this action, ASAN will assist you in conducting an assessment of aircraft noise impacts associated with use of a Military Operating Area (MOA) or Military Training Route (MTR). You will be expected to have on hand at least partial information about the proposed action and about land uses in the vicinity of the proposed action.

File: ASSTABLE.HLP

Select this action if you want to print all of the detailed information that has been entered into ASAN. You can select to see just the names and descriptions of the tables or also the names and descriptions of all the columns in each of the tables.

When you make your selection, you will then see a list of assessments and you can select the particular assessment you want. You also have the option to print the catalog for HEADQUARTERS and SUPERUSER.

File: AUTHOR.HLP

You can search this database for all entries associated with an individual author by typing the author's name where you just asked for help. You don't have to know the exact spelling of the author's name, as long as you know at least the first few characters of the name.

File: BEHAV.HLP

Please type your choice of Behavior and hit "Enter." If no specific selection is made, all citations in category will be included.

File: BIOTIC.HLP

Please select minor attribute and hit "Enter." If no specific selection is made, all (4) minor attributes in category will be included.

File: BLRPLATE.HLP

ASAN contains standard text describing various effects of aircraft noise on people, animals, and physical structures. You can view this text from the current screen. You can also request (from the Make a Report Screen) that the text be printed along with specific information about noise effects relevant to the environmental assessment that you are currently working on (the one whose name appears at the tops of most screens).

File: CAFF814.HLP

Select this action if you want to see a list of key words based on Air Force Form 814 (i.e., major attributes and activity systems) by which you may search the point-of-contact database. These key words will be shown to you in separate windows on another screen.

File: CANCLMTR.HLP

Select this action if you do not wish to retain the information you have just supplied about this MTR. ASAN will then ignore all information that you have entered and permit you to reenter other information about the MTR.

File: CATEX1.HLP

Select this action if you are interested in determining whether the proposed action qualifies for a categorical exclusion under NEPA provisions.

File: CATEX2.HLP

Select this action to view some examples of proposed actions which qualify for a categorical exclusion.

File: CATEX3.HLP

Select this action to view the requirements for documenting a categorical exclusion of a proposed action.

File: CCITY.HLP

Select this action if you wish to limit the point-of-contact database search to municipal organizations. If you select this option, any previous choice you made on this line of the screen will be superseded.

File: CCOUNTY.HLP

Select this action if you wish to limit the point-of-contact database search to county organizations. If you select this option, any previous choice you made on this line on the screen will be superseded.

File: CFEDERAL.HLP

Select this action if you wish to limit the point-of-contact database search to federal organizations. If you select this option, any previous choice you made on this line of the screen will be superseded.

File: CITATION.HLP

ASAN contains a bibliography of technical publications on a variety of topics concerning the effects of aircraft noise on humans, animals, and physical structures. You can search the bibliography in several ways, as shown on the screen from which you requested this help. In some cases, the information in ASAN about a technical publication is limited to that which you would need to find the publication in a library. In other cases, much more detailed information is available, including text that describes and interprets the article. When ASAN has information about more than one publication of the type you requested, it shows them to you one at a time on the Citation Display Screen. Information about a technical publication that is displayed on the Citation Display Screen can also be printed.

File: CMILITAR.HLP

Select this action if you wish to limit the point-of-contact database search to military organizations. If you select this option, any previous choice you made on this line of the screen will be superseded.

File: CNCLSRCH.HLP

Select this action when you are done viewing citations that have been selected by the criteria you earlier specified. You will then have an opportunity to interrogate other databases. If you merely want to change the criteria for the present search, select the "Rescope Search" action instead.

File: COMBMAP.HLP

ASAN permits you to combine map layers to create new maps. Select this action if you want to make a new map by combining one or more map layers, or by removing one or more map layers from an already-created map.

File: COMPNOIS.HLP

This action is not implemented in the current preliminary prototype version of ASAN. When this action is implemented, selecting it will permit you to compare the significance of the various noise impacts associated with the current assessment. For example, if aircraft noise from an MTR is predicted to produce small probabilities of both speech and sleep interference over a wide area but to annoy a great many people in a smaller area, ASAN would call this situation to your attention and suggest a rank ordering of severity of impacts.

File: CONTACTS.HLP

Select this action if you want to look up the names of people or offices who may be able to help you obtain information about environmental assessments.

File: CONTNAM.HLP

Select this action if you know at least the approximate spelling (i.e., at least the first few characters) of the last name of a party and you want to search the point-of-contact database for additional information about the party (full name, mailing address, organizational affiliation, etc.).

File: CREATXT.HLP

If you select this action ASAN will create connected discourse integrating its noise effects prediction.

File: CSTATE.HLP

Select this action if you wish to limit the point-of-contact database search to state organizations. If you select this option, any previous choice you made on this line of the screen will be superseded.

File: CTRIBAL.HLP

Select this action if you wish to limit the point-of-contact database search to tribal organizations. If you select this option, any previous choice you made on this line of the screen will be superseded.

File: CURARTCC.HLP

Please supply the name of the Air Route Traffic Control Center (ARTCC) having jurisdiction over the navigation fixi (e.g., ZAB, ZLA, ZOA, etc.)

File: CURFIXDI.HLP

Please supply the distance from the navigational facility to the navigation point in nautical miles (as three digits, e.g., 040 or 113).

File: CURFIXID.HLP

Please supply the facility identifier (e.g., SRP, TUS, TFD, SNS, etc.) for this navigational fix. Fixes without official location identifiers, (such as airway intersections, ARTCC boundary crossing points, etc.) may be identified by an FAA number (a five-digit computer code) that may be found in the United States Government Flight Information Publication "Digital Aeronautical Chart Supplement" for Military Training Routes (Section 4), published by the National Oceanic and Atmospheric Administration, National Ocean Service.

File: CURFIXRA.HLP

Please supply the radial from the navigational facility to the navigation fix in degrees as a three-digit number (e.g., 090, 180, 349, etc.)

File: CURFIXTP.HLP

Valid fix types are as follows:

Entry Point (ENTRY PT)

Exit Point (EXIT PT)

ARTCC Boundary Crossing Point (ARTCC-BDRY)

Turning Point (TRNG PT)

Alternate Entry Point (ALT ENTRY PT)

Alternate Entry/Exit Point (ALT EN/EX PT)

Alternate Exit Point (ALT EX PT)

File: CURHIALT.HLP

Please supply the ceiling altitude in feet above mean sea level (MSL), or above ground level (AGL). Use of SFC for surface is also supported. You may specify AS ASSGN'D, where this is appropriate.

File: CURLOALT.HLP

Please supply the floor altitude in feet above ground level (AGL) or mean sea level (MSL). Use of SFC for surface is also supported. You may specify AS ASSGN'D, where this is appropriate.

File: CURNAVPT.HLP

Please supply a navigation point identifier, usually a capital letter assigned in ascending alphabetic order to a sequence of points in the direction of flight.

File: CURWIDLF.HLP

Please supply the width to the left of the MTR centerline in nautical miles.

File: CURWIDRI.HLP

Please supply the name of the Air Route Traffic Control Center (ARTCC) having jurisdiction over the navigation fixi (e.g., ZAB, ZLA, ZOA, etc.)

File: CURWIDRT.HLP

Please supply the width to the right of the MTR centerline in nautical miles.

File: DATANAL.HLP

If you select this option ASAN will try to analyze information you have supplied so far about the current environmental assessment (the one described at the top of this screen). ASAN will tell you if it does not yet have enough information to conduct an analysis. The analyses include calculation of noise exposure estimates and noise impacts due to the estimated noise exposure.

File: DATE.HLP

You can restrict the search of this database to publications with dates between any 2 years (e.g., 1960 and 1980, inclusive). If you do not specify a time period of interest by providing ASAN with restrictive dates, you will be shown all database entries which meet any of the other search criteria that you have specified. You can specify the same year in both fields to restrict searches to a particular year. If you specify zero for the second date, the data base will be searched for citations published in the year given in the first date and all subsequent years. If you specify zero as the first date, the search will encompass citations in the year given in the second date and all preceding years.

File: DATEPUBL.HLP

Please supply a date in the form shown for the date of record of publication for the information you are entering. NOAA publishes new information about MTRs every 2 months.

File: DAYOPS.HLP

Enter the number of aircraft operations that are scheduled on a monthly basis during the hours of 0700 to 2200.

File: DBDATE.HLP

Select this action if you would like to see the dates of record for all of ASAN's databases. You can compare these dates with those of other versions of the same databases to determine whether the ones currently included in ASAN are current.

File: DIFFASS.HLP

If you select this action ASAN will show you a list of any other environmental assessments that have been previously defined by you or other users. You will be able to select one of these to work on instead of the current environmental assessment described at the top of this screen.

File: ECOLOGY.HLP

Please type your choice of Ecology and hit "Enter." If no specific selection is made, all citations in category will be included.

File: EDTCOLOR.HLP

Select this action if you wish to change the colors in which features on the currently displayed map are painted.

File: EFFCALC.HLP

If you select this option ASAN will calculate the effects of noise exposure on people, animals, and structures in the area that you have previously specified. These calculations will produce text that you can read and print from the "Make a Report" screen.

File: ENTDESC.HLP

You can search this database for all entries with a title that you supply. The title can be as long as four lines. While you do not have to know the exact wording of the title, you must be able to supply at least a few of the words of the title in sequence and correctly spelled to avoid being shown database entries with similar titles.

File: ENTROPS.HLP

Select this action when you are ready to provide ASAN with information about the number of operations during daytime and nighttime hours throughout the year. You will then see a screen that lets you actually enter this information.

File: ERASEMAP.HLP

Select this action to erase whatever is currently displayed on the map screen.

File: EVENOPS.HLP

Select this action if the number of operations per month on this MTR are constant throughout the year. This action will spare you the effort of specifying different numbers of night and day operations for each month of the year.

File: EXPCALC.HLP

If you select this option ASAN will perform a detailed and potentially lengthy calculation of noise exposure produced by the aircraft noise sources that you have specified in the area of interest that you have specified. If you're not yet interested in a detailed noise exposure analysis, you might be able to save some time by requesting a quicklook analysis via another alternative on this screen.

File: FINGER.HLP

Select this action if you would like ASAN to provide the latitude and longitude of a point that you touch on the map display screen.

File: FLTPARAM.HLP

Select this action when you are ready to provide ASAN with information such as the speed, powersetting, and altitude of aircraft flying the MTR that you are currently working on.

File: FONSI1.HLP

Select this action to determine if the proposed action qualifies under NEPA provisions for a finding of no significant impact.

File: FONSI2.HLP

Select this action to view the requirements for documenting a finding of no significant impact.

File: GEODEF.HLP

If you select this action ASAN will assist you in identifying a geographic area for which you will be able to make "quicklook" analyses of noise exposure and potential impacts.

File: GEOINQ.HLP

If you select this action ASAN will permit you to work with the geographic information displayed on the map screen. For example, you will be able to find the latitude/longitude coordinates for points, determine distances between points of interest, display areas of similar noise exposure, and so forth.

File: GETASSMT.HLP

If you take this action you will be shown a list of all of the environmental assessments currently known to ASAN. You will then be able to select one of them to work on.

File: GETMAP.HLP

The name of the map that ASAN is currently displaying may be found at the top of the screen. You should select the action from which you requested help only if you want to work with some other map. If you know the name of the map that you want to work with, type it where you find the cursor after you exit from this help message. If you don't know the name of the map that you want to work with, select the action "Show names of other maps" elsewhere on the map control screen.

File: GOVERNMT.HLP

Please type minor attribute and hit "Enter." If no specific selection is made, all (8) minor attributes in category will be included.

File: HOUSEKP.HLP

If you select this action ASAN will provide access to its various permanent databases so that you can modify their contents. You shouldn't have to do this in routine use of ASAN for assessing noise impacts.

File: HUMCIT.HLP

If you take this action you can examine bibliographic information about the effects of noise on people.

File: HUMIMP.HLP

Please type keyword and hit "Enter." If no selection is made, all citation in category will be included.

File: INTROHEL.HLP

The final version of this program, ASAN, will assist USAF personnel in complying with the provisions of NEPA for preparing environmental assessments of aircraft noise effects on people, animals, and structures. This demonstration of a prototype version of ASAN is a work in progress, not a final working version. The prototype version is intended only to demonstrate conceptually how later versions will operate. The final version of ASAN is not scheduled for completion until 1992. The present version should not be used for preparation of actual environmental assessment documents.

The final version of ASAN will assist in the conduct of environmental assessments in a variety of ways. It will help environmental planners organize information about many aspects of aircraft operations on MTRs and in MOAs; it will predict noise exposure created by such operations; it will predict potential environmental impacts associated with aircraft noise; it will be able to compare the severity of different noise impacts; and it will help prepare documents that may be needed as part of the environmental assessment process. ASAN will also help keep track of land uses in areas near aircraft operations; it will direct users to persons and offices knowledgeable about overflown areas; it will help store, manipulate and print maps; and it will provide access to information about effects of noise on people, animals, and structures.

This version of ASAN operates on a Zenith 248 personal computer equipped with graphics and other hardware. If the machine on which you are running this program is not properly configured you won't be able to take full advantage of ASAN's capabilities. In particular, ASAN requires a special graphics monitor and a touch screen to permit you to work with maps.

Detailed information about ASAN is available from the NSBIT office at Wright-Patterson Air Force Base (513-255-8416). Interactive help is also available for most of ASAN's features. The next paragraphs give you a quick overview of how ASAN can be used.

ASAN is intended to be used interactively: i.e., by performing actions that you select from screens displayed on this console monitor. The various capabilities of ASAN are commanded from different screens. There is no single route that you must follow through these screens to conduct an environmental assessment.

Often, however, you will start working on an environmental assessment by defining a problem (from the ENVIRONMENTAL ASSESSMENT DEFINITION Screen). You may then wish to analyze information that you have supplied (from the DATA ANALYSIS Screen) to predict aircraft noise exposure or calculate the effects of such exposure. You may at any time add or delete information from one or more environmental assessments that you have started, and then reanalyze whatever information is available. The ENVIRONMENTAL ASSESSMENT STATUS Screen summarizes what is known about the assessment that you are currently working on. (ASAN always has a "current" environmental assessment, even if it is only the default assessment that is loaded when the program is first started.) When you are satisfied with the information that you have provided and the analyses that you have performed, you may want to print your findings (from the MAKE A REPORT Screen). ASAN includes many other screens that implement other capabilities as well.

Becoming familiar with all of these capabilities will obviously take you some time and practice. A good way to explore ASAN's capabilities is to take a tour of its screens, noting the sorts of actions that they permit. Here are a few things you'll need to keep in mind to get started.

You work with ASAN by moving a cursor from one pickable spot on a screen to another. The cursor can rest only on pickable spots, which are of two kinds. One kind lets you enter information, while the other kind (marked with a small diamond) commands ASAN to perform some action.

The cursor can be moved either with the arrow keys or with the keys "f" (for "forward," meaning on to the next pickable spot on the screen) or "b" (for "backward," meaning back to the last pickable spot on the screen). Pressing the "enter" key causes ASAN to perform whatever operations are associated with the current cursor position. Pressing the "h" key (for "help") causes ASAN to describe what will happen if you press "enter."

The top of each screen displays its name. Those screens that operate on information relevant to a particular environmental assessment also show the name of that assessment near the top of the screen.

The middle part of the screen generally contains a set of actions that you can command ASAN to take. An area near the bottom of the screen shows you all other screens that can be reached directly from the current screen.

Watch the very bottom of the screen (the "status line") for error messages and other information such as the keys that you can press at any given time. To return to the screen from which you requested this information, just move the cursor (by typing "f"(orward) or "b"(ackward), or by using the arrow keys).

File: KBDNTRY.HLP

Select this option if you want to specify an area of interest in terms of latitude and longitude values.

File: KEYWORD.HLP

Select this action if you want to restrict the search of this database to certain keyword categories. You will be shown a list of keywords from which you may select those categories of interest. If you do not restrict the search to a keyword category, you will be shown a list of all database entries which satisfy any of the other conditions you have specified for the search.

File: LANDUSE.HLP

Please type minor attribute and hit "Enter." If no specific selection is made, all (8) minor attributes in category will be included.

File: LEGISLAT.HLP

Select this action if you want to make inquiries about any legislation or regulations affecting aircraft noise. There are no such regulations for the State of Arizona (the geographic area selected for this preliminary prototype version of ASAN). Additional information about noise regulations is available from ETIS, a dial-up service maintained by the University of Illinois in Champaign. Information about ETIS can be obtained by calling (217)333-1369.

File: LIFEHIST.HLP

Please type your choice of Life History and hit "Enter." If no specific selection is made, all citations in category will be included.

File: LOADGLOB.HLP

This option allows you to enter information into the tables that are accessible to all assessments in your installation. For example, when you enter an MTR it will be available to all assessments. Note that this result is different from entering an MTR as part of an assessment. In the latter case, the MTR remains "invisible" to other assessments.

File: MAJOR.HLP

Please type major attribute and hit "Enter." If no specific selection is made, all major attributes in category will be included.

File: MAKFM.HLP

If you select this alternative ASAN will assist you in making a map that displays various features of a specified area. You can also print such maps so that they may be included in reports.

File: MAKINQ.HLP

If you select this option ASAN will provide you with access to its Citation Index Database, its Legislative Database, and its Point-of-Contact Database. You may search these databases for various sorts of information.

File: MAPNAMES.HLP

Select this action if you would like to see a list of all of the maps that you can work with on the Map Library Screen. You will be able to recall any map whose name is shown on the Map Library Screen simply by selecting it and typing "a" (for action).

File: MAPWORK.HLP

If you select this action ASAN will help you to display various map layers and maps, to make entries on maps, to make inquiries about points and areas on maps, to combine map layers, and so forth.

File: MARKMAP.HLP

Please supply the latitude and longitude of a point on the currently displayed map. Separate the degrees, minutes and seconds either by spaces or by the letters d, m, and s.

File: METHODOL.HLP

Please type keyword and hit "Enter." If no selection is made, all citations in category will be included.

File: MINOR.HLP

Please select minor attribute and hit "Enter." If no specific selection is made, all minor attributes in category will be included.

File: MISDESC.HLP

Please supply a description for the mission that you are now entering. You can use up to 60 alphanumeric characters for this description.

File: MISSNAME.HLP

Please supply a name (up to 7 alphanumeric characters) for this mission. Since this is the name that ASAN will display whenever it asks you to select a mission, it helps if the name suggests the nature of the mission.

File: MISTYPE.HLP

Please enter a one character designation for the type of this mission. For example, you might designate a mission type of L for LANTIRN training, T for terrain following, or R for radar avoidance.

File: MNTHDAY.HLP

Enter the number of aircraft operations for this month that are scheduled during the hours of 0700 to 2200.

File: MNTHNITE.HLP

Enter the number of aircraft operations for this month that are scheduled during the hours of 2200 to 0700.

File: MOAWORK.HLP

If you select this action ASAN will expect you to provide information about the location and uses of a MOA.

File: MTRAIRCR.HLP

To calculate exposure for a mission on an MTR you need to specify the aircraft flying this mission. You can enter one of the aircraft in the folowing list, which also shows reference power and speed for each aircraft.

You can set the speed and power for this mission and this MTR, but you cannot change the units in which powersetting is expressed, because ASAN knows how to scale noise levels (SEL) only for the power units shown.

In the current version, ASAN does not make any checks to see that the conditions you specify are appropriate for the aircraft. Therefore, enter these values with care. SEL values will be scaled according to the ZROUTE algorithm. This model is available from AAMRL Wright-Patterson AFB.

B-1	98.5	%	RPM	270	KTS
B-52G	2.37		EPR	170	KTS
B-52H	1.1		EPR	250	KTS
FB-111	86.0	%	RPM	350	KTS
F-15	90.0	%	RPM	300	KTS
F-16	92.0	%	RPM	350	KTS
F-4	100.0	%	RPM	300	KTS
F-5E	101.0	%	RPM	300	KTS
F-111F	97.0	%	RPM	300	KTS
A-10A	6700		NF	350	KTS
T-37	99.0	%	RPM	170	KTS
T-38	100.0	%	RPM	300	KTS
C-130	970	C	TIT	170	KTS
C-141	1.9		EPR	250	KTS
A-6	100.0	%	RPM	250	KTS
A-7	96.0	%	RPM	300	KTS
AV-8B	95.0	%	RPM	300	KTS
F-14	100.0	%	RPM	300	KTS
F-18	101.0	%	RPM	300	KTS
KC-10A	110.0	%	RPM	230	KTS
KC-135A	2.45		EPR	200	KTS
KC-135R	89.6	%	RPM	300	KTS

File: MTRDESC.HLP

Please supply a name for the MTR that you are now entering. MTR names are generally composed of two capital letters, a hyphen, and one to four numbers (e.g., VR-244 or IR-103), but you may use as many as 30 characters for an MTR name if you like.

File: MTRSPEED.HLP

Please supply the groundspeed (in knots) of the aircraft you have specified for this MTR segment.

File: MTRWORK.HLP

If you select this action ASAN will expect you to provide information about the location and use of MTRs.

File: MULBUT.HLP

Selecting this action will cause the item displayed to be retrieved from ASAN's database. Selecting this action when no name is shown for an item may result in the display of an error message at the bottom of the screen, but no damage is done beyond the waste of time.

File: NAVNAME.HLP

Please supply a name for this navigation point. A single capital letter will generally suffice; however, you can enter as many as three letters if you are working with an exceptionally complicated MTR.

File: NEWASSMT.HLP

If you take this action you will be able to define a new environmental assessment (one that you have not previously worked on).

File: NEWMISS.HLP

Select this action if you want to create a new mission for the current MTR. You will then be asked to specify the types of aircraft flying the mission, the number of aircraft, their power settings, ground speeds, and so forth.

File: NITEOPS.HLP

Enter the number of aircraft operations that are scheduled on a monthly basis during the hours of 2200 to 0700.

File: NOASSESS.HLP

Select this action if you do not want to preserve any information about the assessment that you have just been specifying.

File: NOHELP.HLP

Sorry, no help yet available on this topic.

File: NOISE.HLP

Please type minor attribute and hit "Enter." If no specific selection is made, all (2) minor attributes in category will be included.

File: NOMISS.HLP

Select this action if you do not want to preserve any information about the mission that you have just been specifying.

File: NONEWMIS.HLP

Select this action if you do not wish to work with any of the missions listed on the screen. You will then see whichever screen you were working with before you asked to select another mission.

File: NONEWMTR.HLP

Select this action if you do not wish to work with any of the MTRs listed on the screen. You will then see whichever screen you were working with before you asked to select another MTR.

File: NSETYPE.HLP

Please type your choice of Noise Type and hit "Enter." If no selection is made, all citations in category will be included.

File: NTRMTRNM.HLP

Please supply the name to be associated with this new MTR that you are defining. MTR names usually consist of 2 letters and several numbers separated by a hyphen (i.e., IR-248, VR-244), but you can use longer strings of letters and numbers (up to 30 characters) for the name of an MTR if you like.

File: NTRWYPTS.HLP

Select this action if you want to describe the route segments of an MTR in terms of navigation points, widths, altitudes, and so forth. This information is stored for MTRs that have already been described to ASAN. New information of this sort is published every 56 days by the National Oceanic and Atmospheric Administration in Riverdale, MD (Telephone 301-436-6993) as Section 4 of a U.S. Government Flight Information Publication entitled "Digital Aeronautical Chart Supplement."

File: NUMFORM.HLP

Please enter the number of aircraft flying this mission (usually between one and four, but potentially as many as sixteen).

File: NXTNAV.HLP

Select this action when you have finished supplying all of the information associated with the current navigation point. The information you have just supplied will then be shown under the "PREVIOUS" column and the program will permit you to enter new information for the next navigation point.

File: ORIGMTR.HLP

ASAN expects you to enter the name of the originating activity for the current MTR. Some examples are 82 FTW/DOO, Williams AFB, 1 CEVG/RBDR, Barksdale AFB, etc. This information is available among other places in Section 4 of the Digital Aeronautical Chart Supplement published by the National Oceanic and Atmospheric Administration.

If you don't know the name of the originating activity for the MTR, just type "UNKNOWN."

File: OTHRCHK.HLP

ASAN will eventually provide access to other types of checklists that can provide guidance on the conduct of environmental assessments. No further checklists are implemented in the preliminary prototype version of ASAN.

File: PASSWORD.HLP

ASAN expects you to enter a string of characters that it will use to determine whether you will be given access to certain information. If you don't know the password, you should ask whomever supplied you with ASAN for it. For now, type the word "DEMO" and you will be permitted to continue, but without access to certain of ASAN's capabilities.

File: PHEALTH.HLP

Please type Physical Health and hit "Enter." If no specific selection is made, all citations in category will be included.

File: PROBDEF.HLP

Select this action if you want ASAN to add, correct, delete, or otherwise modify information about a particular environmental assessment.

File: PROBSTAT.HLP

Select this action if you would like to see when the current assessment was started, the date it was last modified, who worked on it last, and similar information.

File: PWRSPEC.HLP

Please supply a power setting for the aircraft you have specified on this MTR segment. The units for specifying the power setting are listed on the line below the one from which you asked for this help.

File: QCKLOOK.HLP

If you select this action ASAN will perform an approximate calculation of noise exposure for an area of interest that you have just specified either through the map screen or by providing latitude/longitude coordinates. This calculation will not require as much time as a more accurate and precise calculation.

File: RCALLMTR.HLP

Select the MTR that you want to work on at the moment. It will replace whatever MTR you had previously been working on as the "current" MTR. Don't worry about losing any information you may have entered about the current MTR - ASAN will automatically save any permanent changes in MTR information.

File: REMLAYER.HLP

Please type the name of one of the map layers shown above to remove this layer from the map now displayed on the map display screen.

File: REMLEG.HLP

Select this action if you wish to remove the legend from the map that is currently displayed on the map screen.

File: REPORTGE.HLP

Select this action if you want ASAN to produce a report describing the results of a noise-related environmental assessment.

File: RESCOPE.HLP

This option allows you to change the scope of your criteria without having to reenter them. You will go back to the beginning screen and you can now add or remove conditions.

You might use this, for example:

1. when you have found more citations meeting the current search specification than you expected or is useful to you, or
2. if you want to look at similar papers by different authors when no entries were found, or
3. when you want to go back to (and perhaps print) citations that have already gone by on the screen (you cannot go backwards!).

File: RESOURC.HLP

Please type minor attribute and hit "Enter." If no specific selection is made, all (2) minor attributes in category will be included.

File: REVSTAT.HLP

Select this action if you wish to review the status of the current environmental status, or if you wish to work on a different assessment.

File: ROLODEX.HLP

If you select this action ASAN will help you find names and addresses of points of contact that may be helpful in performing an environmental assessment.

File: SAVEMAP.HLP

Select this action if you want to preserve any changes that you have made to the current map (the one whose name is displayed at the top of the screen). You can use the same name if you simply want to store an updated version of the map, or you can use some other name if you have some reason that you want to distinguish the former and present versions of the map. A legal name for a map is composed of letters and numbers (no special characters or punctuation, other than the underscore, are permitted).

File: SAVEMISS.HLP

Select this action when you have finished entering all of the requested information about this mission. ASAN will then make a permanent record of this information in its database so that it will be available for later use.

File: SAVEMTR.HLP

Select this action when you have finished entering all of the requested information about this MTR. ASAN will then make a permanent record of this information in its database so that it will be available for later use.

File: SCHDMTR.HLP

ASAN expects you to enter the name of the scheduling activity for the current MTR. Some examples are 97 FTS/AAC, Williams AFB, HQ SAC/DONA, Offutt AFB, etc. This information is available among other places in Section 4 of the Digital Aeronautical Chart Supplement published by the National Oceanic and Atmospheric Administration.

If you don't know the name of the scheduling activity for the MTR, just type "UNKNOWN."

File: SELACM.HLP

Select this action when you're ready to specify the aircraft and missions that they will be flying on the current MTR.

File: SELLSC.HLP

Select this action if you want to view a coarse scale map of the entire Sells MOA.

This airspace contains a number of MTRs and MOAs that are extensively used by a variety of aircraft on a range of training missions. This coarse scale represents a rectangular area of the earth's surface about 96 miles by 104 miles, or roughly 10,000 square miles.

The coordinates of the vertices of the rectangle (counterclockwise from southwestern corner) are as follows:

```
VERTEX LAT/LONG
SW     31 degrees 34 minutes / 113 degrees 22 minutes
SE     31 degrees 34 minutes / 111 degrees 38 minutes
NE     32 degrees 59 minutes / 111 degrees 38 minutes
NW     32 degrees 59 minutes / 113 degrees 22 minutes]
```

File: SELLSF.HLP

Select this action if you want to view a yet more finely digitized area surrounding the town of Sells. This is a rectangular area of 3.75 miles by 5 miles (19 square miles).

```
VERTEX LAT/LONG
SW     31 degrees 53 minutes / 111 degrees 54 minutes
SE     31 degrees 53 minutes / 111 degrees 49 minutes
NE     31 degrees 57 minutes / 111 degrees 49 minutes
NW     31 degrees 57 minutes / 111 degrees 49 minutes]
```

File: SELLSM.HLP

Select this action if you want to view an area within the Sells airspace surrounding the town of Sells that has been digitized at an intermediate resolution. This is a rectangular area of 18.75 miles by 25 miles (area = 469 square miles), showing a completely contained piece of terrain surrounding the town of Sells.

The coordinates of the Sells area intermediate scale map are as follows:

```
VERTEX LAT/LONG
SW     31 degrees 45 minutes / 112 degrees 10 minutes
SE     31 degrees 45 minutes / 111 degrees 45 minutes
NE     32 degrees 2 minutes  / 111 degrees 45 minutes
NW     32 degrees 2 minutes  / 112 degrees 10 minutes]
```

File: SELMISS.HLP

Select this action when you are ready to select a mission that you want to study.

File: SELMTR.HLP

Select this action when you're done working with the current MTR and want to work on another one.

File: SHMRMISS.HLP

Select this action if you want to see the names of any other missions that may have been previously described to ASAN.

File: SHMRMTRS.HLP

Select this action if you want to see the names of any other MTRs that may have been previously described to ASAN.

File: SHOWDIS.HLP

Select this action if you want ASAN to show you the distance between two successively touched points on the map display screen.

File: SHWAREAL.HLP

ASAN expects you to supply a numeric value of the Day-Night Average Sound Level (e.g., 65 or 70) to serve as a bound for an area to be displayed on the map screen.

File: SHWLEG.HLP

Select this action if you wish to display a legend for the map that is currently displayed on the map screen.

File: SOCIOEC.HLP

Please type minor attribute and hit "Enter." If no specific selection is made, all (3) minor attributes in category will be included.

File: SONIC.HLP

Select this action if you want to make inquiries in a database of citations to the technical literature on the prediction of sound pressure levels created by subsonic and supersonic aircraft operations. (This database is not implemented in the preliminary prototype version of ASAN).

File: SPECIES.HLP

You can enter the name of an animal or be guided through the search by typing a higher level in the taxonomy. The next level down in the table will be displayed. You can use either scientific or common names. Entering a blank level or reaching the "end" of the branch in the taxonomy will move you to the next criterion.

File: SPECMISS.HLP

Select this action if you want to describe the types of aircraft that use MTRs, their speeds, power settings, number in formation, and so forth. The information you provide pertains only to the current MTR (the one identified by name at the top of the screen).

File: STARTMTR.HLP

Select this action if you want to describe a new MTR to ASAN - that is, one that has not been previously described. You should also select this action if you merely want to see "what happens" if you add some sorties to a route, change aircraft types, or otherwise change information about an MTR. Don't worry about messing up the standard definition for this MTR - ASAN will not make these temporary changes permanent without checking with you first.

File: STNEWASS.HLP

Please supply a name that describes the new environmental assessment that you are about to start. The name of an environmental assessment can contain as many as 30 alphanumeric characters.

File: STNEWMIS.HLP

Select this action if you want to describe a new mission to ASAN, i.e., one that has not been previously described. You should also select this action if you merely want to see "what happens" if you add some sorties to a route, change aircraft types, or otherwise change information about a mission.

File: STRCTCIT.HLP

If you take this action you can examine bibliographic information about the effects of noise on structures.

File: STRIMPAC.HLP

Please type keyword and hit "Enter." If no selection is made, all citations in category will be included.

File: STSEARCH.HLP

Select this action after you have restricted the search of the database as much as you wish. If you have not qualified the search by selecting one of the "Search by" options, you will be shown ALL of the entries in the database that you are currently searching.

File: STUDY1.HLP

Please type your choice of Study Subject and hit "Enter." If no specific selection is made, all citations in category will be included.

File: STUDY2.HLP

Please type your choice of Study Subject and hit "Enter." If no specific selection is made, all citations in category will be included.

File: SUBJTYPE.HLP

Please type your choice of Study Subject and hit "Enter." If no specific selection is made, all citations in category will be included.

File: UPDATEIN.HLP

This action has not been implemented in the preliminary prototype version of ASAN. Entry of new data into ASAN can presently be accomplished only through ORACLE directly.

File: USEMAP.HLP

Select this option if you want to use the high resolution color display terminal ("the map screen") to specify an area of interest with reference to a map.

File: USERNAME.HLP

ASAN expects you to type a thirty character name here. ASAN uses this name to keep track of information about environmental assessments stored or retrieved by users. If you don't know the names of other ASAN users who may have stored information that you would like to make use of, type "DEMO" (i.e., just the letters D, E, M, and O).

File: VIEWGEN.HLP

You've asked for help about how to view general information about ASAN. The short answer to your question is to type return (when you see the "View general information about this program" again). Read on to see how to get back to this point.

The long answer is that the screen cursor can rest in two different types of places in ASAN. Phrases that you see on the screen that are preceded by small diamonds are commands, i.e., actions that you "pick" by pressing return. In general, these actions command ASAN to pop up windows that contain other choices of actions, or show you other screens that permit you to modify or process various types of information. Commands are in the form of sentence fragments that you can think of as preceded by "I want to..." (e.g., "I want to view general information about this program" or "I want to conduct an environmental assessment" or "I want to perform database housekeeping").

The other kind of place on which the cursor can rest (that is, after phrases that are not preceded by small diamonds) are places in which ASAN expects you to fill in some information. Just start typing in the information that is requested, and type enter when you're done. You won't be able to type in more characters than there is room displayed for the entry.

In the present case, the action "View general information about this program" will cause ASAN to show you explanatory text about the program's capability. This information can be scrolled up and down in its display window by typing the letter "U"(p) or "D"(own). When you're done viewing this text, strike one of the arrow keys or type "F"(orward) or "B"(ackward) to return to the point from which you requested help.

File: VIEWLIST.HLP

If you select this action ASAN will show you the status of the current environmental assessment - what information has already been provided, what information is still lacking, and what can be done with the information currently in hand.

File: VIEWTEXT.HLP

If you select this alternative ASAN will show you text describing the effects of predicted noise exposure on people, animals, and structures.

File: VRBLOPS.HLP

Select this action if the number of operations on this MTR vary from month to month. You will then be given an opportunity to supply information about day and night operations for each month of the year.

File: WATER.HLP

Please type minor attribute and hit "Enter." If no specific selection is made, all (3) minor attributes in category will be included.

File: ANNYNCE.BPL

HUMAN ANNOYANCE

Noise annoyance is defined by the U.S. Environmental Protection Agency (EPA) as any negative subjective reaction to noise on the part of an individual or group (EPA, 1978). "Except in the case of speech interference, however, the degree of interference is hard to specify and difficult to relate to the level of noise exposure" (EPA, 1978). "Aircraft noise may . . . be found annoying because it may startle people, cause houses to shake, or elicit fear of a crash" (EPA, 1978).

File: HRINGDMG.BPL

HEARING DAMAGE RISK

Hearing loss can be either temporary or permanent. A noise-induced temporary threshold shift is a temporary loss of hearing experienced after a relatively short exposure to excessive noise. A noise-induced threshold shift means that the detection level of sound has been increased. Recovery is fairly rapid after cessation of the noise. A noise-induced permanent threshold shift is an irreversible loss of hearing caused by prolonged exposure to excessive noise. This loss is essentially indistinguishable from the normal hearing loss associated with aging. Permanent hearing loss is generally associated with destruction of the hair cells of the inner ear. Based on EPA (Environmental Protection Agency) criteria, hearing loss is not expected for people living within noise contours below DNL levels of 75 dB (decibels). Further, as stated in the EPA "Levels Document," changes in hearing levels of <5 dB are generally not considered noticeable or significant (EPA, 1974)

File: LIVESTCK.BPL

ECONOMIC DAMAGE TO LIVESTOCK

The U.S. Environmental Protection Agency (EPA) has reviewed the literature on noise effects in domestic animals (Dufour, 1980). In general, there is an overall trend for domestic animals to adapt to intermittent (aircraft or aircraft-like) noise under 120 dB (decibels). Busnel (1978) reviewed effects around large airports and found no evidence to indicate noise-related adverse effects.

Negative behavioral effects from exposure to sonic booms are rare among domestic animals such as horses, cattle, sheep and poultry (Cottereau, 1972; Fletcher & Busnel, 1978; Hinshaw et al., 1970; Nixon et al., 1968; International Civil Aviation Organization [ICAQ], 1970). Large farm animals may respond with spontaneous activity (i.e., galloping, bellowing, jumping). Poultry show mild reactions to the booms in most cases, but in less than 10% of the cases chickens reacted with crowding, cowering, or noise. No significant effect on egg production, milk production, or food consumption was reported. Pigs, both in the open and in shelter, show a tendency to be quiet (ICAQ, 1970). Observations show greater responses resulting from low-level subsonic flights, motorcycles, paper blown by the wind and other startling stimuli (ICAQ, 1970). There appears to be no report of panic, injury or negative effects upon reproductive success (Fletcher & Busnel, 1978).

File: NOBLRPLT.BPL

Sorry, no boilerplate yet available for this topic.

File: SLPINTF.BPL

SLEEP INTERFERENCE

Sleep interference is one of the factors contributing to aircraft noise annoyance. Airport nighttime restrictions have been employed to minimize this annoyance. In the case of nighttime operations, an exterior maximum sound level (AL_m) of 72 dB (decibels) is identified as an acceptable sleep interference condition for a windows-closed condition. This corresponds to an interior ALm of about 55 dB.

To provide a basis for estimation of the number of people who could be awakened by a specific noise event, data developed by Goldstein and Lukas (1980) were used to develop a relationship between the SEL value and the percent of exposed persons who would be awakened by the noise event. These data indicated that the percent awakened by a specific interior noise level can be expressed by the following equation:

$$\text{Percent Awakened} = 1.1(\text{ASEL}) - 49.5 \qquad \text{(C-1)}$$

where ASEL = the interior A-weighted sound exposure level.

Since noise must penetrate the home to disturb sleep, interior noise levels will be lower than outside levels due to the absorption of sound energy (attenuation) by the structure. The amount of attenuation provided by the building is dependent on the type of construction and whether windows are open or closed. The Environmental Protection Agency recommends attenuation factors of 17 dB (decibels) for summertime (windows open) residential conditions and 27 dB for wintertime (windows closed) conditions.

Incorporating the attenuation factors into the Equation C-1 gives the following relationships for the percent awakened under summertime and wintertime conditions:

$$\text{Percent Awakened (summer)} = 1.1(\text{ASEL} - 17) \qquad \text{(C-2)}$$
$$- 49.5 = 1.1(\text{ASEL}) - 68.2$$

$$\text{Percent Awakened (winter)} = 1.1(\text{ASEL} - 27) \qquad \text{(C-3)}$$
$$- 49.5 = 1.1(\text{ASEL}) - 79.2$$

File: SPCHINTF.BPL

COMMUNICATION INTERFERENCE

Speech interference associated with aircraft noise is a primary source of annoyance to individuals on the ground. The disruption of leisure activities (such as listening to the radio, television, music, and conversation) gives rise to frustration and irritation. Quality speech communication is obviously also important in the classroom, office, and industrial settings. Researchers have found that aircraft noise of 75 dB (decibels) annoyed the highest percentage of the population when it interfered with the television sound. Eighty percent of the list of annoyances for the surveyed population was flickering of the television picture and interference with casual conversation by aircraft noise (Newman & Beattie, 1985).

File: STRCTDMG.BPL

STRUCTURAL DAMAGE

By far, the largest percentage of sonic boom damage claims stem from broken or cracked glass. All of the tests conducted in the United States have confirmed that glass damage is the most prevalent damage caused by sonic booms (Hershey & Higgins, 1973). Because the microstructure of glass is amorphous rather than crystalline, the practical design strength of glass is dependent on the surface scratch condition. Glass that has been sandblasted, scratched, or nicked will not exhibit the same strength as a properly installed relatively new pane of glass.

File: WILDLIFE.BPL

WILDLIFE

Possible adverse effects of noise exposure on wildlife include stress, hearing loss, interference with communication, physiological changes, behavioral reactions or changes, reduced reproductive success, and reduction of populations within the areas affected by the noise. The impact of noise exposure will generally be greater if the noise events are unexpected, if the noise events occur suddenly, if noise levels are high, and if the individual animal is inexperienced with noise. The impacts may also vary with the source of the noise and with the duration and frequency pattern of the noise (Fletcher, 1978; Shotton, 1982; EPA, 1980).

While reported observations and studies regarding the effects of low-level flight on wildlife and domestic animals are not conclusive, the preponderance of information to date indicates that wildlife and farm animals do not suffer major long-term adverse effects from low-level subsonic jet overflight.

File: ACTIVSYS.TXT

Activity Systems

Analysis, Activity Systems

Activity Systems, General

Sewer/Storm Drainage/Waste

Water

Solid Waste

Transportation

Water

File: AIR.TXT

Air

  Analysis, Air

File: ANIMAL.TXT

The top level classifications are:

Mammals

Birds

Reptiles

Amphibians

Fish

Other Taxa

File: BEHAV.TXT

Behav

  Response to disturbance

  Social behavior

  Migratory

  Feeding

  Maintenance

  Predator-avoidance

  Learning

File: BIOTIC.TXT

Biotic

Analysis, Biotic

Biotic, General

Game Animals & Fish

Threatened & Endangered Species

File: CATEX1.TXT

The provisions of the National Environmental Policy Act of 1969 allow for a categorical exclusion (CATEX) of a proposed action from the necessity for preparing an environmental assessment. If the proposed action involves any of the following six issues, you may NOT categorically exclude the current assessment:

ISSUES WHICH PRECLUDE A CATEGORICAL EXCLUSION

1. Greater scope or size than generally experienced for a particular category of action;
2. Potential for degradation of already existing poor environmental conditions, or initiation of a degrading influence, activity, or effect in areas not already significantly modified from their natural condition;
3. Employment of unproven technology;
4. Presence of threatened or endangered species, archaeological remains, historical sites, or other protected resources;
5. Use of hazardous or toxic substances which may come in contact with the surrounding environment. If under controlled conditions CATEX still applies; and
6. Proposed actions that affect areas of critical environmental concern such as prime or unique agricultural lands, wetlands, coastal zones, wilderness areas, flood plains, or wild and scenic river areas.

If the proposed action does not entail any of the actions previously mentioned, then it may be possible to categorically exclude the necessity for conducting an informal assessment. If the current assessment does not conflict with any of the previous 6 items, and if it satisfies at least 1 of the following 5 criteria, then under most circumstances an environmental assessment is not necessary.

CIRCUMSTANCES UNDER WHICH A CATEGORICAL EXCLUSION IS PERMISSIBLE

1. minimal adverse effect on environmental quality;
2. no significant change to existing environmental conditions;
3. no significant cumulative environmental impact;
4. social and economic effects only; or
5. similarity to actions previously assessed and found to have no significant environmental impacts.

Select the action "Show examples of proposed actions qualifying for CATEX" for further guidance on this issue.

File: CATEX2.TXT

If the proposed action has any of the following characteristics, it may qualify for a categorical exclusion from the conduct of an environmental assessment. (Select the action "Show NEPA bases for Categorical Exclusions for further guidance.)

LIST OF PROJECTS CATEGORICALLY EXEMPT FROM EIAP (from 32 CFR, Part 989.16):

1. Actions with an insignificant effect as established in a previously written environmental assessment and finding of no significant impact (FONSI) or in an environmental impact statement (EIS).
2. Preparing regulations, directives, manuals, or other guidance documents that implement (without substantial change) the regulations, directives, manuals or other guidance documents from higher headquarters or other federal agencies.
3. Emergency activities (e.g., riot control or search and rescue activities) that do not require assessments or an EIS. Emergency response by USAF authorities which result in significant harm to the environment must be reported through command channels to SAF/MIQ officials, who notify the Council on Environmental Quality of the circumstances.
4. Supersonic flying operations above 30,000 feet mean sea level.
5. Formal requests to the Federal Aviation Agency for establishing special-use airspace (e.g., restricted areas, warning areas, military operations areas) and military training routes for subsonic operations, having a base altitude of 3,000 feet above ground level or higher.
6. Moving aircraft and associated personnel and equipment to temporary duty at a military location other than the home station. Activities after deployment must be separately evaluated for environmental impact or excepted under the categorical exclusion list.
7. Temporary (less than 30-day) increases in air operations up to 50% of the typical installation aircraft operation rate or increases of 50 operations a day, whichever is greater.
8. Flying activity complying with the federal aviation regulations that is dispersed over a wide area, and does not frequently (greater than once a day) pass over the same ground points. (Regular activity on established routes or within military operating areas is not covered under this categorical exclusion.)
9. Adopting approach, departure and en-route procedures that do not cause traffic to be routed on a routine basis over noise sensitive areas that may include residential neighborhoods, cultural, historical, and outdoor recreational areas. Such patterns at or greater than 3,000 feet above ground level are categorically excluded regardless of underlying land use.
10. Installing remote transmitter or receiver facilities or addition of communication channels to the existing facilities when on airport property and usually accessible only to maintenance personnel.
11. Installing equipment on airports (e.g., runway visual range equipment, visual approach slope indicators, or upgrade of such equipment).
12. Repairing and replacing real property installed equipment (RPIE).
13. Facility and utility system maintenance and repair.
14. Interior and exterior construction within the 5-foot line of a building and not changing land use of the existing building.
15. Assigning workload to USAF-owned industrial facilities.

16. Routine manpower decreases and increases including work force conversion to either on-base contractor operation according to AFM 26-1 and AFR 40-350 or to military operation from contractor operation (excludes base closure or reduction and mission realignment actions).
17. Arms transfers to foreign nations which includes the grant, loan, lease, exchange, or sale of defense articles or defense services.
18. Continuation of actions, if there is not substantial, adverse change from previously existing conditions.
19. Minor training exercises on military property, assuming they comply with all other environmental and natural resource conservation laws.
20. Land and facility transfers for which the General Services Administration is the action agency.
21. Adopting or revising regulations that do not significantly affect the quality of the human environment in their implementation.
22. Routine procurements for goods and services.
23. Basic and applied scientific research usually confined to the laboratory and assuming it complies with all other environmental and natural resource conservation laws that apply.
24. Study efforts that involve no commitment of resources other than manpower and funding allocations.
25. Proposed actions that are of such environmentally insignificant nature they clearly do not meet threshold for requiring an environmental assessment or EIS.

File: CATEX3.TXT

If you have determined that the proposed action qualifies for a categorical exclusion from the conduct of an environmental assessment (review the NEPA bases for categorical exclusion and examples of proposed actions which qualify for categorical exclusion), you will need to prepare the following documentation for your determination.

1. Complete section III of Air Force Form 813, as follows:
    a. In space 11, check the box that states "proposed action qualified for CATEX."
    b. Prepare a brief statement (1-2 pages) justifying the CATEX finding. Include full description of the category (see list under CATEGORICAL EXCLUSIONS STEP III) into which the proposed action falls. Make reference to any tiered or generic impact assessment documents for similar projects which resulted in a finding of no significant impact. Describe the process used to determine that this action involves no unique circumstances that might trigger a requirement for further environmental impact analysis. Attach this documentation to Form 813.
    c. Complete line 13 of Form 813 by typing name and grade of Environmental Planner; sign and date.
    d. Obtain approval from Environmental Protection Committee. Complete line 14 by obtaining signature of EPC Chairman and date.
    e. Return a copy of completed Form 813 to the project proponent, and keep a copy for your files.

File: EARTH.TXT

Earth

Analysis, Earth

Earth, General

Erosion

Surface Stability

File: ECOLOGY.TXT

Predator-Prey Interactions

Habitat Use

Distribution

Abundance

File: FONSI1.TXT

A FONSI may not be prepared for a proposed action if the action entails any of the following:

1. Potential for significant degradation of environmental quality.
2. Potential for significant threat or hazard to the public health or safety.
3. Public controversy concerning significance or nature of the biophysical environmental impact of an action.
4. Potential for significant impact on protected natural or historic resources.

If the proposed action does not entail any of these problems, then a FONSI may be permissible. Before preparing a FONSI, however, you should do the following:

1. Review the definition of "significant" contained in the Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR, section 1508.27; also AFR 19-2, Attachment 1, 10 August 1982). This section includes ten criteria for significance ranging from context and intensity through precedent and cumulative effects.
2. Decide whether the proposed action might result in an effect that is considered significant under 40 CFR, 1508.27.
3. Discuss your preliminary finding with the proponent to determine whether the proposed action could be modified to eliminate or reduce any potentially significant impacts. Also discuss project alternatives.

File: FONSI2.TXT

Documentation necessary in support of a FONSI includes the following:

1. A completed Air Force Form 815, Environmental Assessment Certificate:

a. Name or title of proposed action.

b. Air Force Form 813

c. A copy or summary of the Environmental Assessment as an attachment.

d. The name and rank of the Environmental Planner, signed and dated.

e. A checkmark in the box on Form 815 indicating a FONSI. A checkmark in the box indicating whether a 30-day waiting period is required. This period is generally not required unless the proposed action is (or is similar to) one for which a complete Environmental Impact Statement would normally be prepared; or if the nature of the proposed action is without precedent; or if the action is one for which it could be reasonably argued that a significant impact would or could occur.

In these limited cases, the FONSI must be made available for public review for 30 days prior to making a final determination about whether a complete Environmental Impact Statement is required, and before the action is implemented.

If a 30-day waiting period is recommended, discuss the reasons for it under Section 5 (Remarks) on Air Force Form 815.

f. Enter the name and grade of the Chief, Engineering and Environmental Planning Branch, and obtain and date the Chief's signature.

2. Prepare a brief document (not to exceed two pages) containing the following:

a. The name of the proposed action. A brief description of the proposed action and alternatives. A brief discussion of anticipated environmental effects. Conclusions that have led to the finding of no significant impact.

3. Attach this FONSI to Air Force Form 815.

4. Send Air Force Form 815 with the attached FONSI to the Environmental Protection Committee at the initiating level for the chairperson's approval, signature, and dating.

5. Send Air Force Form 815 with the attached FONSI to the organization commander at the initiating level for approval, signature, and dating.

6. Send Air Force Form 815 with the attached FONSI to the higher level Environmental Protection Committee for concurrence and for signature and dating by the chairperson.

7. Notify the affected public of the FONSI prior to implementing the proposed action or alternatives, unless security reasons prevent this notification. The text of the local notice should be identical to the Federal Register announcement. Public notification may be accomplished through local media or direct mailings. Authority to approve notices prepared for publication in local media is delegated as specified in Air Force Order 650.5.

File: GOVERNMT.TXT

City/Local

Community Relations

County

Health/Public Safety

Federal

Library/Reference

Military

Tribal

File: HUMIMP.TXT

Annoyance

Psychological Health

Physical Health

Sleep Interference

Speech Interference

Task Performance

File: INTRO.TXT

This program, ASAN, is intended to assist USAF personnel to prepare environmental assessments of aircraft noise effects on people, animals, and structures, in compliance with the provisions of the National Environmental Policy Act of 1969. This version of ASAN is not a final working version, but only a prototype version intended to demonstrate how later versions will operate. This prototype version of ASAN should not be used for preparation of environmental assessment documents.

The final version of ASAN that will be available in 1992 will be able to assist in the conduct of environmental assessments in a variety of ways. It will be able to help you define and keep track of many aspects of aircraft operations on MTRs and in MOAs; it will be able to predict noise exposure created by such operations; it will be able to predict potential environmental impacts associated with aircraft noise; and it will be able to help you prepare documents that may be needed as part of the environmental assessment process. ASAN will also be able to help you to keep track of land uses in areas near aircraft operations; it will be able to direct you to persons and offices knowledgeable about overflown areas; it will be able to help you work with and print maps; and it will be able to provide you with information about effects of noise on people, animals and structures.

This version of ASAN operates on a Zenith 248 personal computer equipped with graphics and other hardware. If the machine on which you are running this program is not properly configured you won't be able to take full advantage of ASAN's capabilities.

Detailed information about ASAN is available from the NSBIT office at Wright-Patterson Air Force Base (513-255-8416). Interactive help is also available for most of ASAN's features. The next paragraphs give you a quick overview of how ASAN can be used.

ASAN is intended to be used interactively: i.e., by performing actions that you select from screens displayed on this console monitor. The various capabilities of ASAN are commanded from different screens. There is no single route that you must follow through these screens to conduct an environmental assessment.

Often, however, you will start working on an environmental assessment by defining a problem (from the Environmental Assessment Definition Screen). You may then wish to analyze information that you have supplied (from the Data Analysis Screen) to predict aircraft noise exposure or calculate the effects of such exposure. You may at any time add or delete information from one or more environmental assessments that you have started, and then reanalyze whatever information is available. The Environmental Assessment Status Screen summarizes what is known about the assessment that you are currently working on. When you are satisfied with the information that you have entered and the analyses that you have performed, you may want to print your findings (from the Make a Report Screen).

Becoming familiar with all of these capabilities will obviously take you some time and practice. A good way to explore ASAN's capabilities is to take a tour of its screens, noting the sorts of actions that they permit. Here are a few things you'll need to keep in mind to get started.

You command ASAN by moving a cursor from one pickable spot on a screen to another. The cursor can be moved with the arrow keys, but always rests on some pickable spot. Pressing the "enter" (or "return") key causes ASAN to perform whatever operations are associated with the current cursor position, and then automatically move on to the next pickable spot. Pressing the "?" key causes ASAN to describe what will happen if you press the "enter" key.

The top of each screen displays its name. Those screens that operate on information relevant to a particular environmental assessment also show the name of that assessment near the top of the screen.

The middle part of the screen generally contains a set of actions that you can command ASAN to take. An area near the bottom of the screen shows you all other screens that can be reached directly from the current screen.

Watch the very bottom of the screen (the status line) for error messages and other information such as the keys that you can press at any given time. Right now the status line tells you what keys you can press to scroll this message up and down, and how to exit help to return to the screen from which you requested help.

File: INTROTXT.TXT

ASSESSMENT SYSTEM FOR AIRCRAFT NOISE (ASAN)

Developed for Noise and Sonic Boom Impact Technology Program
under U.S. Air Force Contract F33615-86-C-0530

by BBN Laboratories, Inc.
February, 1988
Unreleased demonstration of Prototype Version...Not for General Use

File: LANDUSE.TXT

Access to Minerals

Analysis, Land Use

History, Archaeological Areas

Land Use, General

Off-Base Land Use

On-Base Land Use

Parks and Recreation

Zoning/Planning

File: LAYERS.TXT

15MIN 15min latitude/longitude grid, with labels

OUTLINE outline of the general area

ZOOMAREA outlines of ASAN DEMO view areas

DMA_ELEV Defense Mapping Agency elevation contours

AIRPORTF airports

AIRPOR_T airport labels

CITYNAME city names

DIRTRDS dirt roads

HIGHWAY highways

HWYNUMBE highway numbers

ROADS roads

RR railroads

RR_NAME labels for railroads

STREETNA street names

STRUCTFE structural features

AGRICULT agricultural areas

AGRI_TXT agricultural area labels

RESIDENT residential areas

RESI_TXT labels for residential areas

RECREATF recreational features

RECREATI recreational areas

RECREATX labels for recreational features & areas

DOMEST domestic livestock

DOMEST_T labels for domestic livestock

RANCHING Ranching areas

RANCHTXT labels for ranching areas

FARMING farming regions

FARMTXT labels for farming regions

DRYSEA dry season grazing areas

DRYSEA_T labels for dry season grazing areas

WETSEA wet season grazing areas

WETSEA_T labels for wet season grazing areas

HISTRANC historical ranches

HISTRUIN historical ruins

INDIAN Papago Indian reservations

IND_RESN labels for Papago Indian reservation

NATPARK Organ Pipe National Monument

NATPKNAM labels for Organ Pipe National Monument

PREHISTH prehistoric houses

PREHISTT prehistoric towns

LAKE lakes

MENAGERS labels for lake

SPRINGS springs

SPRINGTE labels for springs

STREAMS streams

STREAMNA labels for streams

BGHRSP_L Big-horn Sheep habitats, low density

BGHL_TXT labels for Big-horn Sheep, low density

BGHRSH_S Big-horn Sheep habitats, sparse density

BGHS_TXT labels for Big-horn Sheep, sparse density

CLAP_L Yuma Clapper Rail habitats, low density

CLAPL_T labels for Yuma Clapper Rail, low density

CLAP_S Yuma Clapper Rail habitats, sparse density

CLAPS_T labels for Yuma Clapper Rail, sparse density

MULDEERS Mule Deer habitats, sparse density

MULDRS_T labels for Mule Deer, sparse density

MULDEERV Mule Deer habitats, very sparse density

MULDRV_T labels for Mule Deer, very sparse density

PRANTELO Pronghorn Antelope habitats, very sparse density

PRANT_VS labels for Pronghorn Antelope, very sparse density

CEN48 census tract # 48

CEN49 census tract # 49

CEN50 census tract # 50

CEN_TXT labels for census tracts

LEGISBOR legislative area boundaries

LEGISNUM labels for legislative areas

MARICOBO Maricopa County boundary

MARICO_T labels for Maricopa County boundary

PIMABORD Pima County boundary

PIMA_NAM labels for Pima County boundary

PINALBOR Pinal County boundary

PINAL_NA labels for Pinal County boundary

MOA1_BOR Sells 1 MOA

MOA1_TXT labels for Sells 1 MOA

MOALO_BO Sells Low MOA

MOALO_TX labels for Sells Low MOA

R2304BOR MRA 2304

R2304NAM labels for MRA 2304

R2305BOR MRA 2305

R2305NAM labels for MRA 2305

VR1219 Visual Rules MTR # 1219

VR223 Visual Rules MTR # 223

VR238 Visual Rules MTR # 238

VR243 Visual Rules MTR # 243

VR244 Visual Rules MTR # 244

VR246 Visual Rules MTR # 246

VR259 Visual Rules MTR # 259

VR260 Visual Rules MTR # 260

VR263 Visual Rules MTR # 263

FAKENOIS fake noise contours

DBL_FAKE labels for fake noise contours

REALNOIS actual noise contours

DBL_REAL labels for actual noise contours

File: LIFEHIST.TXT

Survival Reproduction Age/Sex Composition

File: MAJOR.TXT

MAJOR ATTRIBUTES Activity Systems Air Biotic Earth Governmental Land Use Noise Resources Socioeconomics Water

File: MEMOTXT.TXT

Many social surveys have been conducted in which some annoyance rating has been determined for a given

level of transportation noise. The author has sought to bring some of these studies together using a common metric of community annoyance and a common measure of noise. The annoyance metric is the "percent of people highly annoyed" which is determined either directly from named categories on a response scale or from the top 27% - 29% of the annoyance scale. The author admits that the choice, although reasonable, is arbitrary.

Next the author chose a noise measure which had, at that time, been recently adopted by the U. S. Environmental Protection Agency to quantify environmental noise. The measure was called Day-Night Average sound level. Basically it is an average of the sound levels over a 24 hour period with 10 dB added to levels measured during the nighttime hours (10 pm to 7 am).

The author reviewed 18 surveys and after converting the original results to "percent highly annoyed" and Day-Night Level found 11 of the surveys provided extremely consistent results. The 11 surveys included responses from 20,000 people, 15,000 of whom had been exposed to noise from aircraft flyovers. The remaining 7 surveys produced results that were more divergent from the average response curve than the results of the "clustering" surveys. Part of the reason for the divergence was difficulty in determining the "percent highly annoyed" according to the author.

Converting the various noise measures used in the original surveys to DNL in this analysis required separate methods for each measure. The measures included Noise and Number Index (NNI) from England, the Stoer index (Q) from Germany, the isopsophic index (R) from France, and both the Composite Noise rating (CNR) and the Noise Exposure Forecast (NEF) from the United States.

The net result of all the analysis produce a relationship between DNL and "percent highly annoyed" as follows:

$$\%HA = 0.8553L) 0.0401L^2 +0.00047L^3 \quad (C-4)$$

where %HA is "percent highly annoyed"
and L is Day-Night Level

The results are somewhat controversial in that they treat all transportation noise as equal while some feel that people respond differently to aircraft noise than they do to motor vehicles or trains. Also there is concern that the percent highly annoyed measure is not sensitive enough to include all those that may be annoyed.

File: METHODOL.TXT

Field Experiment

Laboratory Experiment

Review Article/Literature Survey

Theoretical Argument/Explanation

(end of list)

File: MINOR.TXT

ACTIVITY SYSTEMS

Analysis, Activity Systems

Activity Systems, General

Sewer/Storm Drainage/Waste

Water

Solid Waste

Transportation

Water

AIR

Analysis, Air

BIOTIC

Analysis, Biotic

Biotic, General

Game Animals & Fish

Threatened & Endangered Species

EARTH

Analysis, Earth

Earth, General

Erosion

Surface Stability

GOVERNMENTAL

City/Local

Community Relations

County

Health/Public Safety

Federal

Library/Reference

Military

Tribal

LAND USE

Access to Minerals

Analysis, Land Use

History, Archaeological Areas

Land Use, General

Off-Base Land Use

On-Base Land Use

Parks and Recreation

Zoning/Planning

NOISE

Environmental Planning

Noise, General

RESOURCES

Non-Fuel Resource

Consumption/Conservation

Resources, General

SOCIOECONOMICS

Commercial Activities

Housing Supply/Demand

Socioeconomics, General

WATER

Aesthetic Properties &

Potential Use of Water

Analysis, Water

Water, General

File: NOISE.TXT

Environmental Planning

Noise, General

File: NSETYPE.TXT

Aircraft

Blast

Seismic

Sonic Boom

Terrain

Traffic

Wind

Other Noise

File: NTRWYPTS.TXT

Select this action if you want to describe the route segments of an MTR in terms of navigation points, widths, altitudes, and so forth. This information is stored for MTRs that have already been described to ASAN. New information of this sort is published every 56 days by the National Oceanic and Atmospheric Administration in Riverdale, MD (301-436-6993) as Section 4 of a U.S. Government Flight Information Publication entitled "Digital Aeronautical Chart Supplement."

File: PHEALTH.TXT

General

Traumatic Incidents

Audition

Stress

Growth

File: RESOURC.TXT

Non-Fuel Resource

Consumption/Conservation

Resources, General

File: RULES.TXT

RESTRICTIONS ON U-DISPLAYABLE TEXT BLOCKS:

NO TABS

NO FORMFEEDS

NO CONTROL CHARACTERS

File: SOCIOEC.TXT

Commercial Activities

Housing Supply/Demand

Socioeconomics, General

File: SPECMISS.TXT

Select this action if you want to describe the types of aircraft that use MTRs, their speeds, power settings, number in formation, and so forth. The information you provide pertains only to the current MTR (the one identified by name at the top of the screen).

File: STRIMPAC.TXT

Archaeological Site

Avalanche

Contents other than delicate

Cumulative Effects

Delicate Contents

Exterior Walls

Historical Site

Interior Walls & Ceilings

Landslide

Material Mechanical

Properties

Windows

Wall Connections

File: STUDY1.TXT

STUDY TYPE 1

Life History

Behavior

Psychical Health

Ecology

File: STUDY2.TXT

STUDY TYPE 2

LIFE HISTORY

Survival

Reproduction

Age/Sex Composition

BEHAVIOR

Response to disturbance

Social behavior

Migratory

Feeding

Maintenance

Predator-avoidance

Learning

PHYSICAL HEALTH

General

Traumatic Incidents

Audition

Stress

Growth

ECOLOGY

Predator-Prey Interactions

Habitat Use

Distribution

Abundance

File: SUBJTYPE.TXT

Life History

Behavior

Psychical Health

Ecology

File: WATER.TXT

Aesthetic Properties & Potential Use of Water

Analysis, Water

Water, General

Appendix D
STRUCTURE OF ORACLE TABLES

D.1 Structure of ORACLE Database Tables

The ORACLE relational database system is used for all nongraphic data management needs in ASAN. ORACLE is a full implementation of a logically relational database system implementing the facilities of ANSI SQL, a nonprocedural protocol by which applications and relational database software can communicate.

The structure and organization of data storage within ORACLE is irrelevant to ASAN. Indeed, they are invisible in the MS-DOS environment, since they reside in memory beyond the 640 kbytes that MS-DOS recognizes and execute in the microprocessor's protected mode. All of ASAN's databases appear to the application programmer as relational databases. SQL embodies the three-language model: a data definition language, a data control language and a data manipulation language (Date, 1986)

ORACLE provides levels of data separation and privacy among different users through the assignment of usernames and passwords. Data owned by each of these users is logically separate: each user "sees" only the data stored by that user. However, ORACLE also supports the ability to make data entered by one user available to other users. A user may grant various levels of access (e.g., SELECT, UPDATE, ADD) to their data to other users. In addition, certain users may be assigned special privileges consistent with the Data Base Administration function (see, for example, Martin, 1976).

ASAN makes use of much of the machinery provided by ORACLE's implementation of SQL to maintain data integrity and--in the production version--to obtain data independence (Martin, 1976) ASAN uses the partitioning of the database by username as part of the schema. In addition to using two special usernames, HEADQUARTERS and SUPERUSER, which contain information that may be used by all assessments or are used for internal bookkeeping, ASAN will also enroll a new ORACLE username for each ASAN assessment.

As a result, ASAN's design assumes that five classes of information that may exist in the ORACLE database. ASAN is primarily concerned with classes 1, 2, and 3. ASAN is aware, however, that classes 4 and 5 may also exist and it will insure that conflicts do not occur, provided that other users with DBA privilege (ORACLE Database Administrator's Guide, 1987) respect ASAN's internal, automatic DBA activities. (These take place entirely transparent to the user of ASAN.) The database is logically divided into these five classes:

1. Information that is supplied by some central entity and generally not updated except by a new release of ASAN. Examples are: aircraft noise and performance scaling data, database of citations. This information is stored under the HEADQUARTERS username. These tables have the SELECT privilege granted to PUBLIC and are therefore accessible by all ORACLE users.
2. Information that is generated and updated local to a particular installation and typically shared among many assessments. This information is stored under the SUPERUSER username. Examples are: local

contacts, maps, MTRs. In addition, SUPERUSER "owns" the administrative information at a site: ASAN table of contents, system status information, access logbook.

SUPERUSER has also Data Base Administration attributes. It can add new assessments to the database, close out assessments, print status reports, allocate more space, etc.

Access privileges granted on SUPERUSER tables to other users depend on the nature of the individual table. Usually a user can only see that part of SUPERUSER's tables that pertain to that user. Information that is owned by other users (e.g., entries in the system log made by others) is invisible.

3. Details of the analysis for a given assessment. ASAN assigns each assessment a separate username. Data stored here is private to the assessment and remains invisible to other users unless specific access has been given. The prototype version does not have any provision for cross- assessment data access.
4. The information stored under the SYS and SYSTEM usernames, which are used by ORACLE for its own internal bookkeeping (e.g., data dictionary, audit files). These tables are updated by ORACLE during its execution and should not be modified by users. ASAN makes use of some of the facilities provided by the data dictionary.
5. Information stored by users other than ASAN assessments. ASAN uses the facilities of the ORACLE database manager, but ORACLE is a free-standing application. It can be used for any database application consistent with the license. ASAN keeps track of the assessments that it creates and will make sure that a new assessment's username will not conflict with one already enrolled on the ORACLE database.

   Conversely, a site's data administrator should take care not to manually override ASAN's housekeeping routines and revoke or change privileges or passwords, since this will ultimately result in ASAN's detecting a breach of security which will shut the system down.

The partitioned database schema can be obtained from the housekeeping screen by printing the list of assessments and printing the detailed structure of the database tables. (This option prints the structure, not the contents.) ASAN will automatically create all tables needed when an assessment is enrolled on the database. Results are stored in dynamically allocated tables: additional columns will be added during execution of ASAN as needed.

In the prototype version subschemas are often identical to table structures. In some cases views are used to restrict access, but no attempt has been made to obtain data independence. The decoupling of logical organization at the application level from logical and physical organization at the database and hardware level is primarily useful to the on-going maintenance of a production system. It has limited usefulness during a prototype phase. Once further analysis of and experimentation with the prototype has taken place, it becomes meaningful to make ASAN programs data independent and it is our intent to do so in the next development phase.

The discussion of the database structure below reflects the prototype version, but does not imply that the same physical or logical structure will be used in subsequent versions of ASAN.

D.2 Tables stored in "HEADQUARTERS"

The prototype version HEADQUARTERS username has ten tables. The first two of these tables contain aircraft noise characteristics, and the remaining eight contain the citation database. The aircraft noise characteristics table used by ASAN is a simple model of MTR calculations (AAMRL's ZROUTE program). In addition, the SEL values used in AAMRL's NOISEMAP program are stored, not because they are used by any calculation routine in the ASAN prototype, but to demonstrate that significant amounts of data that are already available within USAF can readily be transferred into ASAN.

The citation database is assembled from the efforts of a number of contractors. The fields used to audit the data entry process have been removed from the following descriptions, although they are carried in the prototype version. These fields are only meaningful to the BBN project team and will be removed in the production version.

1. MTR_SEL contains the two-parameter model of noise level versus distance and the noise level scaling factors for speed and power setting used in Ldnmr calculations (Plotkin, Sutherland and Molino, 1987).

Name	Null?	Type
AIRCRAFT	NOT NULL	CHAR(12)
SOURCE		CHAR(20)
POWER_UNITS		CHAR(6)
POWER		NUMBER
POWER_SCALE		NUMBER
INTERCEPT		NUMBER
SLOPE		NUMBER
SPEED		NUMBER
TIMESTAMP		DATE

2. NOISEMAP_SEL contains the library of level aircraft flyover data, as processed by AAMRL's OMEGA programs and used in NOISEMAP's airbase model. The table is included as an example of how externally available data may be adapted to ASAN/ORACLE.

Name	Null?	Type
AIRCRAFT	NOT NULL	CHAR(12)
PROFILE_ID	NOT NULL	CHAR(6)
PROFILE_REV	NOT NULL	CHAR(2)
SOURCE		CHAR(20)
PROFILE_DATE		DATE
ENGINE		CHAR(15)
POWER_DESCRIPTION		CHAR(20)
CONFIG_DESCRIPTION		CHAR(20)
ALTITUDE		NUMBER
ALTITUDE_UNITS	NOT NULL	CHAR(2)
SPEED		NUMBER
SPEED_UNITS	NOT NULL	CHAR(3)
POWER_SETTING		NUMBER
POWER_UNITS	NOT NULL	CHAR(6)
POWER_SETTING2		NUMBER
POWER_UNITS2		CHAR(6)

3.	POWER_SETTING3	NUMBER
	POWER_UNITS3	CHAR(6)
	TEMPERATURE	NUMBER
	HUMIDITY	NUMBER
	AG_00200	NUMBER
	AG_00250	NUMBER
	AG_00315	NUMBER
	AG_00400	NUMBER
	AG_00500	NUMBER
	AG_00630	NUMBER
	AG_00800	NUMBER
	AG_01000	NUMBER
	AG_01250	NUMBER
	AG_01600	NUMBER
	AG_02000	NUMBER
	AG_02500	NUMBER
	AG_03150	NUMBER
	AG_04000	NUMBER
	AG_05000	NUMBER
	AG_06300	NUMBER
	AG_08000	NUMBER
	AG_10000	NUMBER
	AG_12500	NUMBER
	AG_16000	NUMBER
	AG_20000	NUMBER
	AG_25000	NUMBER
	GG_00200	NUMBER
	GG_00250	NUMBER
	GG_00315	NUMBER
	GG_00400	NUMBER
	GG_00500	NUMBER
	GG_00630	NUMBER
	GG_00800	NUMBER
	GG_01000	NUMBER
	GG_01250	NUMBER
	GG_01600	NUMBER
	GG_02000	NUMBER
	GG_02500	NUMBER
	GG_03150	NUMBER
	GG_04000	NUMBER
	GG_05000	NUMBER
	GG_06300	NUMBER
	GG_08000	NUMBER
	GG_10000	NUMBER
	GG_12500	NUMBER
	GG_16000	NUMBER
	GG_20000	NUMBER
	GG_25000	NUMBER

4. ANIMAL_EFFECTS contains flags for animal effects for citations where animal effects are an appropriate dimension. ENTRY_NUM is the primary key.

Name	Null?	Type
ENTRY_NUM	NOT NULL	CHAR(5)
ANML_ID	NOT NULL	CHAR(12)
AL_DOME		CHAR(1)
AL_SURV		CHAR(1)
AL_REPR		CHAR(1)
AL_AASC		CHAR(1)
AL_RESP		CHAR(1)
AL_SOCI		CHAR(1)
AL_MIGR		CHAR(1)
AL_FEED		CHAR(1)
AL_MAIN		CHAR(1)
AL_PRAV		CHAR(1)
AL_GENE		CHAR(1)
AL_TRAU		CHAR(1)
AL_AUDI		CHAR(1)
AL_STRE		CHAR(1)
AL_GROW		CHAR(1)
AL_PRPR		CHAR(1)
AL_HABI		CHAR(1)
AL_DIST		CHAR(1)
AL_ABUN		CHAR(1)

5. ANIMAL_LIST contains the taxonomy table of animals that are of interest within the scope of ASAN. This table correlates taxon numbers (ANML_ID) with animal names (ANML_NAME). Synonyms (e.g., scientific and common names for animals) are supported.

Name	Null?	Type
ANML_NAME	NOT NULL	CHAR(40)
ANML_ID	NOT NULL	CHAR(12)

6. AUTHOR_CITATION_LINK contains two-column tuples linking authors and citations through their internal identifier. This table supports complex structures in both directions: any citation can have an arbitrary number of authors and any author can have contributed to any number of citations.

Name	Null?	Type
ENTRY_NUM	NOT NULL	CHAR(5)
AUTHORNUM	NOT NULL	CHAR(5)

7. AUTHOR_LIST contains the list of authors and their internal identifier. This table supports multiple distinct authors with identical names.

Name	Null?	Type
AUTHORNUM	NOT NULL	CHAR(5)
AUTHOR		CHAR(40)

8. CITATION_DETAILS contains the information detail (e.g., publisher name, page number) about a citation which completes the reference, but which is not necessary to retrieve the citation.

Name	Null?	Type
ENTRY_DATE		DATE
ENTRY_NUM	NOT NULL	CHAR(5)
PRESCREENER_INTL		CHAR(3)
DOCTYPE		CHAR(1)
JOURL_TITL		CHAR(80)
JOURL_VOL		CHAR(4)
JRL_ISS_NO		CHAR(4)
JOURL_PAGE		CHAR(10)
PUB_NAME		CHAR(40)
PUB_CITY		CHAR(40)
PUB_CNTRY		CHAR(20)
PUB_STATE		CHAR(2)
GOV_CNT_NO		CHAR(20)
NTIS_NUMBR		CHAR(20)
ISB_NUMBER		CHAR(20)
LIB_CON_NO		CHAR(20)
PO_RPT_NUM		CHAR(20)
NO_REFRNCE		CHAR(4)
HARDCOPY		CHAR(1)
CPYRT_STAT		CHAR(1)
CPYR_ACT_DATE		DATE
ABSTRACT		CHAR(10)
ACQUISITION		CHAR(1)
PERFRM_ORG		CHAR(40)
SPONSR_ORG		CHAR(40)
DOC_LANG		CHAR(10)

ABSTRT_LAN	CHAR(10)
E_COMMENTS	CHAR(10)
PRELIM_REV_INITL	CHAR(3)
PRELIM_REV_NOTES	CHAR(10)
REVISION	CHAR(10)
NS_SONICBM	CHAR(1)
NS_BLAST	CHAR(1)
NS_SEISMIC	CHAR(1)
AIRCRAFT	CHAR(1)
TRAFFIC	CHAR(1)
OTHR_NSE	CHAR(1)
NS_TERRAIN	CHAR(1)
WIND_NSE	CHAR(1)
FIELD_EXPT	CHAR(1)
LAB_EXPMNT	CHAR(1)
REVIEW_ART	CHAR(1)
PROPOSL_AR	CHAR(1)
REVIEWER_1	CHAR(3)
REVIEWER_2	CHAR(3)
REVIEWER_3	CHAR(3)
CRITIQUE_R1	CHAR(10)
CRITIQUE_R2	CHAR(10)
CRITIQUE_R3	CHAR(10)
R1_NOTES	CHAR(10)
R2_NOTES	CHAR(10)
R3_NOTES	CHAR(10)
CONTROVRSL	CHAR(1)
FINAL_CHCK	CHAR(1)

9. CITATION_SEARCH contains the primary search attributes of a citation. ENTRY_NUM is the unique primary key.

Name	Null?	Type
ENTRY_NUM	NOT NULL	CHAR(5)
DATE_PUB		CHAR(4)
SUITABILITY		CHAR(1)
HUMAN_AREA		CHAR(1)
ANIML_AREA		CHAR(1)
STRUC_AREA		CHAR(1)
MODEL_AREA		CHAR(1)
H_ANNOYANC		CHAR(1)
H_PHYSICAL		CHAR(1)
H_PSYCHLGY		CHAR(1)
H_PERFRMNC		CHAR(1)
H_SPEECH		CHAR(1)
H_SLEEP		CHAR(1)
H_KEYWORD1		CHAR(20)
H_KEYWORD2		CHAR(20)

S_WINDOW	CHAR(1)
S_INWALLS	CHAR(1)
S_EXWALLS	CHAR(1)
S_WALLCON	CHAR(1)
S_DELICAT	CHAR(1)
S_CONTENT	CHAR(1)
S_ARCHAEO	CHAR(1)
S_HISTORIC	CHAR(1)
S_OTHCONVN	CHAR(1)
S_AVALANCH	CHAR(1)
S_LANDSLID	CHAR(1)
S_MECHAN	CHAR(1)
S_CUMEFFCT	CHAR(1)

10. CITATION_TITLES contains the titles of citations stored by primary key ENTRY_NUM.

Name	Null?	Type
ENTRY_NUM	NOT NULL	CHAR(5)
TITLE		CHAR(240)

11. MEMO_FILE contains the text strings representing abstract, critical reviews, comments, etc. of citations. BLOCK_NUMBER is the unique primary key.

Name	Null?	Type
BLOCK_NUMBER	NOT NULL	CHAR(10)
MEMO_TEXT		LONG

D.3 Tables stored in "SUPERUSER"

In the prototype version, the SUPERUSER username contains the following ASAN-wide, locally significant data tables.

1. ASSESSMENTS contains the list of ASAN-created ORACLE usernames with their description records. A public synonym TABLE_OF_CONTENTS is defined which allows any assessment to view the complete list of assessment. This is analogous to ORACLE's SYSUSERLIST view, which returns all usernames on the system, whether or not they correspond to ASAN assessments.

Name	Null?	Type
IDNUMBER	NOT NULL	NUMBER
DESCRIPTION		CHAR(240)

2. MTR_EXP_TAB is a prototype table for MTR exposure calculations which is copied into each assessment's work space. These copies are then filled with data, but the SUPERUSER prototype remains always empty.

Name	Null?	Type
SIDELINE		NUMBER(5)

3. MTR_FIXES contains the UTM coordinates and corresponding latitude and longitude expressed in seconds of arc referred to the Greenwich meridian of all navigation points in all MTRs on the system, whether officially published or created by an assessment as part of an evaluation.

Name	Null?	Type
FIX_LABEL	NOT NULL	CHAR(12)
X		NUMBER
Y		NUMBER
LAT		NUMBER
LON		NUMBER

4. MTR_SEGM contains the description of MTR segments in user terms (e.g., latitude and longitude, NAVAID references, ARTCC information).

Name	Null?	Type
FIX_LABEL	NOT NULL	CHAR(12)
FLOOR_REF		CHAR(3)
CEILING_REF		CHAR(3)
FIX_ID		CHAR(5)
FIX_TYPE		CHAR(12)
ARTCC		CHAR(3)
FIX_LAT		CHAR(13)
FIX_LON		CHAR(13)
FIX_RAD		NUMBER(3)
FIX_DIST		NUMBER(3)
FLOOR		NUMBER
CEILING		NUMBER
WIDTH_LEFT		NUMBER
WIDTH_RIGHT		NUMBER

5. NOISE_SOURCES contains the identifiers and types of all noise sources (i.e., MTRs, MOAs or any other defined area where noise generating activities take place). Assessments access the information through view AVAILABLE_SOURCES which has the following properties: (1) entries made by SUPERUSER are accessible by all assessments; and (2) entries made by an ASAN assessment are only accessible to that assessment. Modifications can only be made through view USER_SOURCES which allows changes only to those sources which were entered by the assessment.

Name	Null?	Type
LABEL	NOT NULL	CHAR(9)
TYPE	NOT NULL	CHAR(1)
STATUS		CHAR(1)
DESCR		CHAR(64)
ORIG		CHAR(50)
SCHED		CHAR(50)
OWNER		NUMBER
DATE_PUB		DATE
TIMESTAMP		DATE

6. POINT_OF_CONTACT contains the address file of local points of contact.

Name	Null?	Type
LAST_NAME		CHAR(15)
FIRST_NAME		CHAR(10)
TITLE		CHAR(45)
OFFICE		CHAR(45)
AGNCY_DEPT		CHAR(45)
ST_ADD_DIV		CHAR(25)
PO_BOX		CHAR(10)
MISC_ADD		CHAR(10)
CITY_BASE		CHAR(25)
STATE		CHAR(2)
ZIPCODE		CHAR(9)
MAIL_CODE		CHAR(10)
REGION		CHAR(2)
PHONE		CHAR(20)
AFFILIATION		CHAR(8)
MAJ_ATTRIB		CHAR(16)
MIN_ATTRIB		CHAR(45)
AREA		CHAR(15)
SCOPE_AUTH		CHAR(10)
OWNER		NUMBER

7. WHODIDWHAT contains the site's sign-on/sign-off logbook. View LAST_LOGIN returns the name and status parameters that prevailed at the time of the last ASAN login. The view is only available to SUPERUSER. Information is entered through public synonym REGISTER, to which all assessments have ADD-only privilege. SELECT-only view WHATDIDIDO, available through a public synonym LOGBOOK, allows assessments to see their own entries.

Name	Null?	Type
PLANNER		CHAR(30)
LASTMTR		CHAR(9)
LASTMOA		CHAR(9)
START_WORK		DATE
STOP_WORK		DATE
IDNUMBER		NUMBER

D.4 Tables Stored in Individual Assessments

Individual assessments store information that is limited in scope to the assessment and not of a type that is usually kept at a higher level. That is, flight data are kept in the assessment's tables but, for example, alternatives to the routing of an MTR is kept by SUPERUSER, who keeps all MTRs. SUPERUSER will, of course, properly flag the entry belonging to a specific assessment so that other assessments can not inadvertently use it.

Most results information is kept in a set of clustered (on UTM coordinates) dynamically allocated tables. In the prototype R_LDN, R_LDNMR, R_LEQ, R_PSF are defined, but it is becoming clear that an alternative, which does not include R_LDN and a changed meaning for R_LDNMR is more useful. Additional acoustic metrics may be needed as the development of noise exposure models warrants. Each of these tables will have an arbitrary number of columns (as defined in the ACTIVITIES table) depending on the nature of the data entered for the assessment.

MTR_EXP_TAB is a dynamic table, meaningful for MTRs only, which stores the exposure due to an activity on an MTR. In the prototype it stores exposure at the first point only, implicitly assuming that the entire MTR is flown level without meaningful changes to power and speed.

The dynamic tables are derived from information contained in a set of static tables. While further development of the software will no doubt necessitate additional tables or the restructuring of some tables, the prototype version currently has:

1. ACTIVITIES contains the list of activities accounted for in the assessment. Activity are defined as an aircraft flying a particular mission on a particular MTR. ACTIVITY is a unique number corresponding to the joint-unique triplet (S_LABEL, M_IDENT, AIRCRAFT).

Name	Null?	Type
S_LABEL	NOT NULL	CHAR(9)
M_IDENT	NOT NULL	CHAR(7)
AIRCRAFT	NOT NULL	CHAR(12)
ACTIVITY		NUMBER

2. MISSIONS contains the number of aircraft in a formation (if appropriate) the type of mission and a one-line description of the mission.

Name	Null?	Type
MISSION	NOT NULL	CHAR(7)
TYPE		CHAR(1)
DESCR		CHAR(60)
SORTIE_SIZE		NUMBER

3. MTR_FLIGHT_PARAM contains the sequenced list of navigation points traversed by a particular mission on a particular MTR.

Name	Null?	Type
ACTIVITY	NOT NULL	NUMBER
FIX_LABEL		CHAR(12)
ALT_REF		CHAR(3)
ALT		NUMBER
PWR		NUMBER
SPD		NUMBER
SEQ		NUMBER(3)

4. OPERATIONS contains the number of operations, month by month, for each activity.

Name	Null?	Type
ACTIVITY	NOT NULL	NUMBER
MONTH		NUMBER(2)
DAY		NUMBER
NIGHT		NUMBER
LASTUPD		DATE

5. QUAL_CIT1 and QUAL_CIT2 are temporary tables to hold citation entry numbers. Since citation queries are performed by a separate program in the prototype version these tables are not used, but are provided for future compatibility.

D.5 Database Navigation

The linkages among the relations are shown diagrammatically in Figure D-1 and Figure D-2.

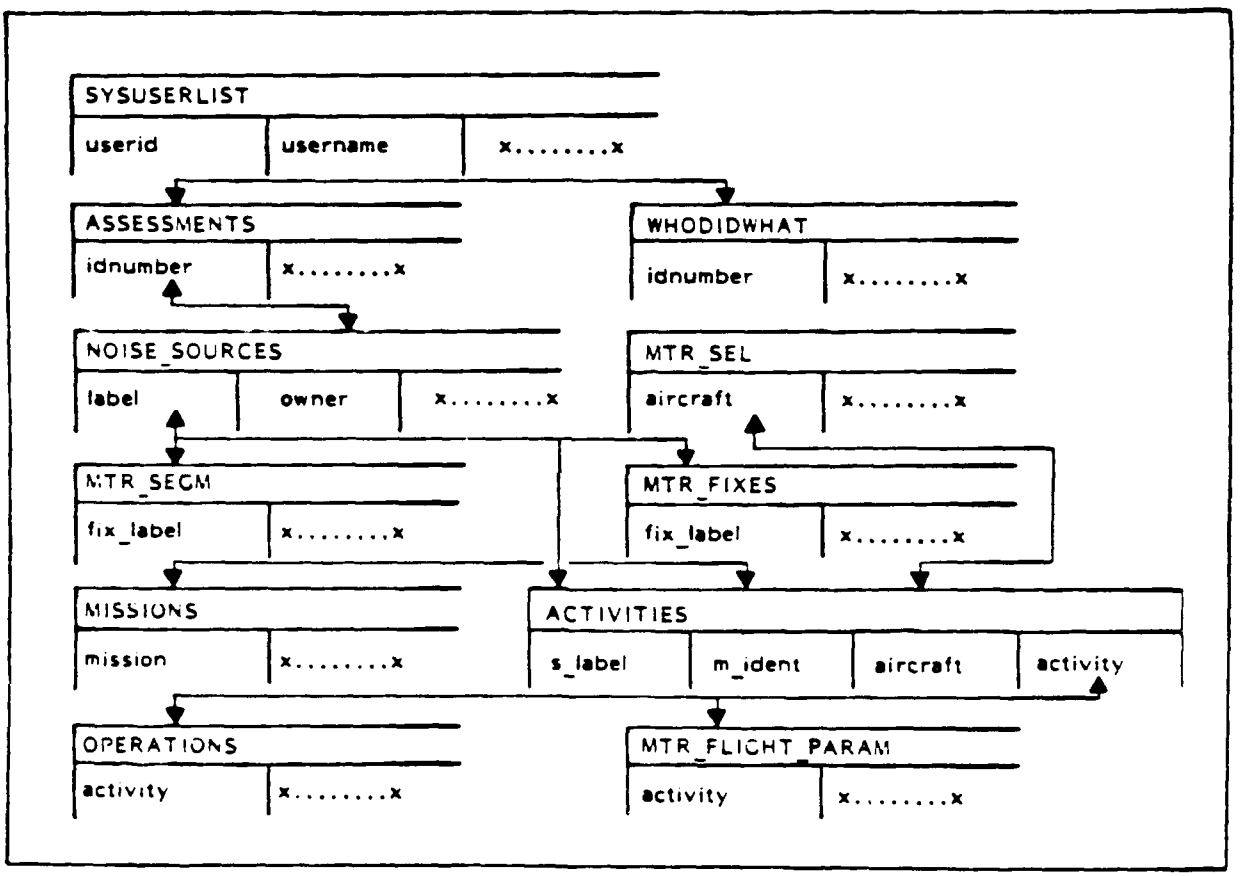


Figure D-1: Linkages Among Flight Operation Relations.

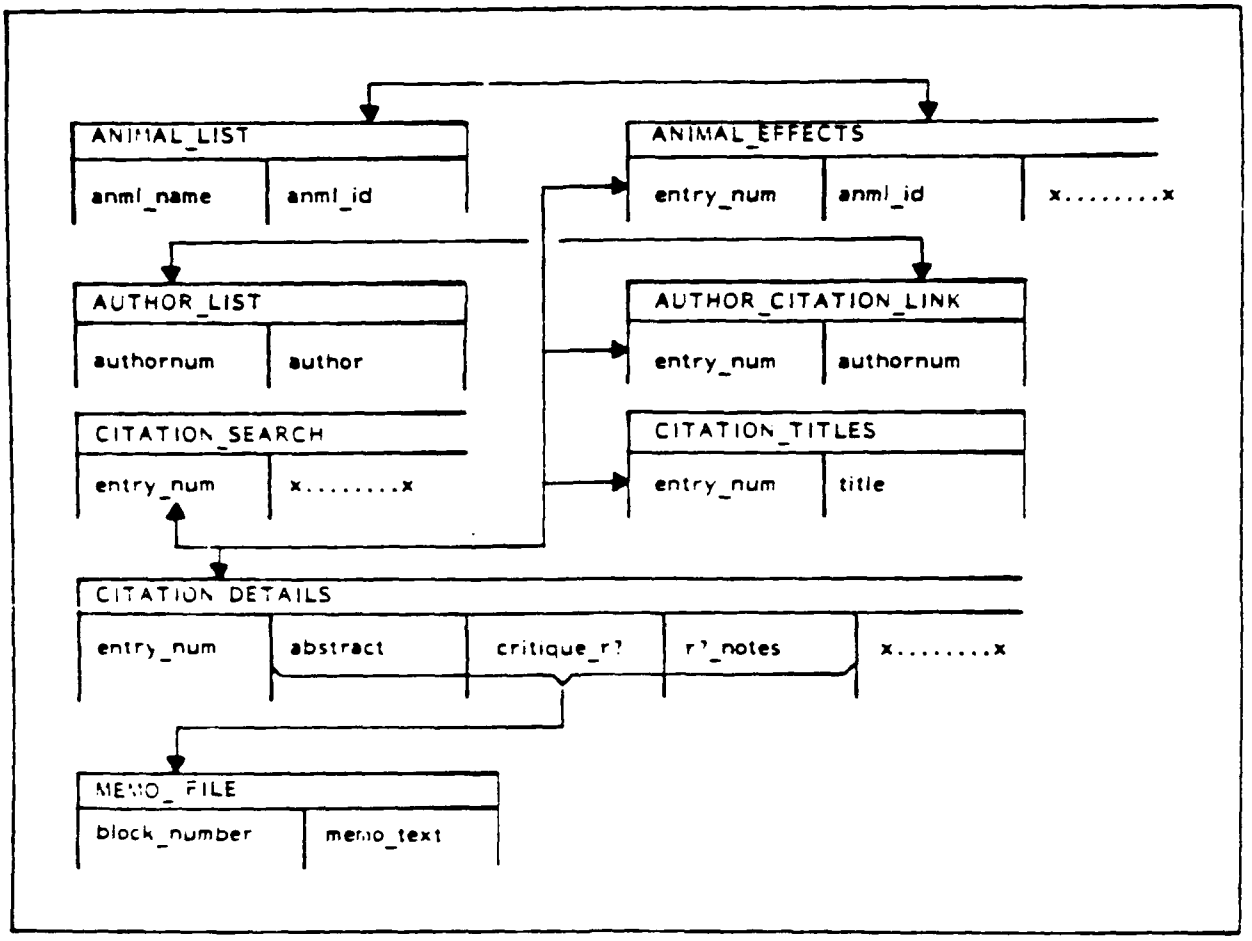


Figure D-2: Linkages Among Citation Relations.

Appendix E
REPORT GENERATOR OUTPUT

The following text is produced when a user of the preliminary prototype version of ASAN requests a standard report.

E.1 Description of Proposed Action

The proposed action, known as DEMONSTRATION, (Sample environmental assessment for NSBIT Meeting 2/18/88) consists of the use of the MTR segments as described in Table E-1. The subsonic flight operations proposed for these MTR segments are described in Table E-2.

Table E-1: Description of MTR VR-244.

Description of MTR VR-244				
NAV POINT	*FIX*	*RAD/DIS*	*LATITUDE*	*LONGITUDE*
A	SRP	073/020	33 27 00.0	111 30 00.0
B	SRP	063/050	33 37 00.0	110 55 00.0
C	SRP	082/073	33 18 00.0	110 27 00.0
D	TUS	341/030	32 36 00.0	110 59 00.0
E	TUS	252/027	32 03 00.0	111 27 00.0
F	TFD	180/054	32 00 00.0	112 08 00.0
G	TFD	225/063	32 18 00.0	112 57 00.0
H	TFD	233/067	32 25 00.0	113 06 00.0

Table E-2: Description of Flight Operations on VR-244 by Month.

```
MISSION  TYPE_2   (2 AIRCRAFT/FORMATION)

AIRCRAFT:  F-16          POWER:    92.00 % RPM
ALTITUDE:  300 AGL       SPEED:   360.00 kts
```

Operations		
Month	*Day*	*Night*
JAN	250	0
FEB	0	0
MAR	250	0
APR	300	0
MAY	0	0
JUN	100	25
JUL	200	0
AUG	0	0
SEP	0	0
OCT	0	0
NOV	0	0
DEC	0	0

E.2 Summary of Predicted Noise Exposure

Noise exposure produced by aircraft operations may be specified in a variety of units. The noise of low altitude high speed flights on Military Training Routes is specified for current purposes by a cumulative noise metric called the onset rate adjusted monthly day-night average, A-weighted sound level, abbreviated L_{dnmr}. As described by Plotkin et al. (1987), this metric is based on an integration period equal to the calendar month with the highest number of operations (Table E-3).

Table E-3: Summary of Maximum Noise Exposure Produced by Flight Operations.

Summary of Maximum Noise Exposure					
MTR	*Mission*	*Aircraft*	*Month*	*Distance*	L_{dnmr}
VR-244	TYPE_2	F-16	JUN	0.0 miles	50.1
				0.5 miles	64.3
				1.0 miles	57.3
				1.5 miles	53.8
				2.0 miles	47.6

E.3 Description of Land Use Compatibility

MTR: VR-244 MISSION: TYPE_2 AIRCRAFT: F-16 MONTH: JUN

Land uses compatible with the noise exposure produced by the flight operations associated with the proposed action, as specified in the Joint Services Land Use Planning Manual, are as noted below under worst case assumptions. These land use interpretations are for the MTR segment and month producing the highest noise exposure.

- 0.0 miles from the MTR Centerline:
  - The following are compatible land uses:
    - Family housing
    - Bachelor housing
    - Transient lodging - hotels, motels
    - Classrooms, libraries, churches
    - Offices and administration buildings, military
    - Offices - business and professional
    - Hospitals, medical facilities, nursing homes

- Dental clinic, medical dispensaries
- Outdoor music shells
- Retail stores, restaurants, banks, movie theaters
- Flight line operations, maintenance and training
- Industrial, manufacturing and laboratories
- Outdoor sports arenas, outdoor spectator sports
- Playgrounds, active sport recreational areas
- Neighborhood parks
- Gymnasiums, indoor pools
- Outdoor - frequent speech communication
- Outdoor - infrequent speech communication
- Livestock farming, animal breeding
- Agricultural (except livestock)

- 0.5 miles from the MTR Centerline:
  - The following are compatible land uses:
    - Family housing
    - Bachelor housing
    - Transient lodging - Hotels, motels
    - Classrooms, libraries, churches
    - Offices and administration buildings, military
    - Offices - business and professional
    - Hospitals, medical facilities, nursing homes
    - Dental clinic, medical dispensaries
    - Outdoor music shells
    - Retail stores, restaurants, banks, movie theaters
    - Flight line operations, maintenance and training
    - Industrial, manufacturing and laboratories
    - Outdoor sports arenas, outdoor spectator sports
    - Playgrounds, active sport recreational areas
    - Neighborhood parks
    - Gymnasiums, indoor pools
    - Outdoor - frequent speech communication
    - Outdoor - infrequent speech communication
    - Livestock farming, animal breeding
    - Agricultural (except livestock)

- 1.0 miles from the MTR Centerline:
    - The following are compatible land uses:
        - Family housing
        - Bachelor housing
        - Transient lodging - hotels, motels
        - Classrooms, libraries, churches
        - Offices and administration buildings, military
        - Offices - business and professional
        - Hospitals, medical facilities, nursing homes
        - Dental clinic, medical dispensaries
        - Outdoor music shells
        - Retail stores, restaurants, banks, movie theaters
        - Flight line operations, maintenance and training
        - Industrial, manufacturing and laboratories
        - Outdoor sports arenas, outdoor spectator sports
        - Playgrounds, active sport recreational areas
        - Neighborhood parks
        - Gymnasiums, indoor pools
        - Outdoor - frequent speech communication
        - Outdoor - infrequent speech communication
        - Livestock farming, animal breeding
        - Agricultural (except livestock)
- 1.5 miles from the MTR Centerline:
    - The following are compatible land uses:
        - Family housing
        - Bachelor housing
        - Transient lodging - hotels, motels
        - Classrooms, libraries, churches
        - Offices and administration buildings, military
        - Offices - business and professional
        - Hospitals, medical facilities, nursing homes
        - Dental clinic, medical dispensaries
        - Outdoor music shells
        - Retail stores, restaurants, banks, movie theaters
        - Flight line operations, maintenance and training

- Industrial, manufacturing and laboratories
- Outdoor sports arenas, outdoor spectator sports
- Playgrounds, active sport recreational areas
- Neighborhood parks
- Gymnasiums, indoor pools
- Outdoor - frequent speech communication
- Outdoor - infrequent speech communication
- Livestock farming, animal breeding
- Agricultural (except livestock)

- 2.0 miles from the MTR Centerline:
  - The following are compatible land uses:
    - Family housing
    - Bachelor housing
    - Transient lodging - hotels, motels
    - Classrooms, libraries, churches
    - Offices and administration buildings, military
    - Offices - business and professional
    - Hospitals, medical facilities, nursing homes
    - Dental clinic, medical dispensaries
    - Outdoor music shells
    - Retail stores, restaurants, banks, movie theaters
    - Flight line operations, maintenance and training
    - Industrial, manufacturing and laboratories
    - Outdoor sports arenas, outdoor spectator sports
    - Playgrounds, active sport recreational areas
    - Neighborhood parks
    - Gymnasiums, indoor pools
    - Outdoor - frequent speech communication
    - Outdoor - infrequent speech communication
    - Livestock farming, animal breeding
    - Agricultural (except livestock)

E.4 Description of Inconsequential Noise Effects

MTR: VR-244 MISSION: TYPE_2 AIRCRAFT: F-16 MONTH: JUN

The following effects of noise exposure produced by the flight operations associated with the proposed action on people, structures, or animals were determined to be inconsequential in the current environmental assessment.

- 0.0 miles from the MTR Centerline:
  - Prevalence of Annoyance Among Population
  - Hearing Damage Risk to Residential Population
- 0.5 miles from the MTR Centerline:
- 1.0 miles from the MTR Centerline:
- 1.5 miles from the MTR Centerline:
  - Prevalence of Annoyance Among Population
- 2.0 miles from the MTR Centerline:
  - Hearing Damage Risk to Residential Population

E.5 Description of Noise Effects of Minor Importance

MTR: VR-244 MISSION: TYPE_2 AIRCRAFT: F-16 MONTH: JUN

The following effects of noise exposure produced by the flight operations associated with the proposed action on people, structures, or animals were determined to be of minor importance in the current environmental assessment.

- 0.0 miles from the MTR Centerline:
  - There were no effects of noise in this category at this distance
- 0.5 miles from the MTR Centerline:
  - Hearing Damage Risk to Residential Population
- 1.0 miles from the MTR Centerline:
  - Prevalence of Annoyance Among Population
  - Hearing Damage Risk to Residential Population
- 1.5 miles from the MTR Centerline:
  - Hearing Damage Risk to Residential Population
- 2.0 miles from the MTR Centerline:

E.6 Human Annoyance

Noise annoyance is defined by the U.S. Environmental Protection Agency (EPA) as any negative subjective reaction to noise on the part of an individual or group (EPA, 1978). "Except in the case of speech interference, however, the degree of interference is hard to specify and difficult to relate to the level of noise exposure" (EPA, 1978). "Aircraft noise may . . . be found annoying because it may startle people, cause houses to shake, or elicit fear of a crash" (EPA, 1978).

E.7 Hearing Damage Risk

Hearing loss can be either temporary or permanent. A noise-induced temporary threshold shift is a temporary loss of hearing experienced after a relatively short exposure to excessive noise. A noise-induced threshold shift means that the detection level of sound has been increased. Recovery is fairly rapid after cessation of the noise. A noise-induced permanent threshold shift is an irreversible loss of hearing caused by prolonged exposure to excessive noise. This loss is essentially indistinguishable from the normal hearing loss associated with aging. Permanent hearing loss is generally associated with destruction of the hair cells of the inner ear. Based on EPA (Environmental Protection Agency) criteria, hearing loss is not expected for people living within noise contours below DNL levels of 75 dB (decibels). Further, as stated in the EPA "Levels Document," changes in hearing levels of <5 dB are generally not considered noticeable or significant (EPA, 1974).

E.8 Description of Noise Effects of Considerable Importance

MTR: VR-244 MISSION: TYPE_2 AIRCRAFT: F-16 MONTH: JUN

The following effects of noise exposure produced by the flight operations associated with the proposed action on people, structures, or animals were determined to be of considerable importance in the current environmental assessment.

- 0.0 miles from the MTR Centerline:
  - Sleep Interference of Residential Population
- 0.5 miles from the MTR Centerline:
  - Prevalence of Annoyance Among Population
  - Sleep Interference of Residential Population
- 1.0 miles from the MTR Centerline:
  - Sleep Interference of Residential Population

1.5 miles from the MTR Centerline:

- Sleep Interference of Residential Population

- 2.0 miles from the MTR Centerline:
  - Sleep Interference of Residential Population

E.9 Sleep Interference

Sleep interference is one of the factors contributing to aircraft noise annoyance. Airport nighttime restrictions have been employed to minimize this annoyance. In the case of nighttime operations, an exterior maximum sound level (ALm) of 72 dB (decibels) is identified as an acceptable sleep interference condition for a windows-closed condition. This corresponds to an interior ALm of about 55 dB.

To provide a basis for estimation of the number of people who could be awakened by a specific noise event, data developed by Goldstein and Lukas (1980) were used to develop a relationship between the SEL value and the percent of exposed persons who would be awakened by the noise event. These data indicated that the percent awakened by a specific interior noise level can be expressed by the following equation:

$$\text{Percent Awakened} = 1.1(\text{ASEL}) - 49.5, \qquad \text{(E-1)}$$

where ASEL = the interior A-weighted sound exposure level.

Since noise must penetrate the home to disturb sleep, interior noise levels will be lower than outside levels due to the absorption of sound energy attenuation by the structure. The amount of attenuation provided by the building is dependent on the type of construction and whether windows are open or closed. The Environmental Protection Agency recommends attenuation factors of 17 dB (decibels) for summertime (windows open) residential condition and 27 dB for wintertime (windows closed) conditions. Incorporating the attenuation factors into Equation E-1 gives the following relationships for the percent awakened under summertime and wintertime conditions:

$$\text{Percent Awakened (summer)} = 1.1(\text{ASEL} - 17) \qquad \text{(E-2)}$$
$$- 49.5 = 1.1(\text{ASEL}) - 68.2$$

$$\text{Percent Awakened (winter)} = 1.1(\text{ASEL} - 27) \qquad \text{(E-3)}$$
$$- 49.5 = 1.1(\text{ASEL}) - 79.2$$

E.10 Description of Effects not Considered in Current Environmental Assessment

MTR: VR-244 MISSION: TYPE_2 AIRCRAFT: F-16 MONTH: JUN

The following potential noise effects were not considered in the present analyses.

- 0.0 miles from the MTR Centerline:
  - Reproductive Success or Population Size of an Endangered Species
  - Economic Damage to Livestock
  - Speech Interference of Residential Population
  - Glass Breakage Claims Among Residential Population
  - Effects Comparison Module
- 0.5 miles from the MTR Centerline:
  - Reproductive Success or Population Size of an Endangered Species
  - Economic Damage to Livestock
  - Speech Interference of Residential Population
  - Glass Breakage Claims Among Residential Population
  - Effects Comparison Module
- 1.0 miles from the MTR Centerline:
  - Reproductive Success or Population Size of an Endangered Species
  - Economic Damage to Livestock
  - Speech Interference of Residential Population
  - Glass Breakage Claims Among Residential Population
  - Effects Comparison Module
- 1.5 miles from the MTR Centerline:
  - Reproductive Success or Population Size of an Endangered Species
  - Economic Damage to Livestock
  - Speech Interference of Residential Population
  - Glass Breakage Claims Among Residential Population
  - Effects Comparison Module
- 2.0 miles from the MTR Centerline:
  - Prevalence of Annoyance Among Population
  - Reproductive Success or Population Size of an Endangered Species
  - Economic Damage to Livestock
  - Speech Interference of Residential Population

Glass Breakage Claims Among Residential Population

- Effects Comparison Module

Reasons that these potential effects were not considered included insufficient information for evaluation, insufficient precision of estimation of noise exposure, and lack of generally accepted means of producing quantitative estimates of magnitudes of potential effects.

E.11 References

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Appendix F
DESCRIPTION OF MAP LAYERS FOR SELLS AIRSPACE

Most of the map layers described in the following section were created by hand-digitizing various U.S. Geological Survey maps of the area in the vicinity of the Sells MOA. These were converted into digital line graph or grid cell format for display in ASAN. Other map files were created directly from digital data obtained from other sources (e.g., digital elevation model data prepared by the U.S. Geological Survey) to produce the complete set of map layers listed in the following section of this Appendix.

Maps were digitized at coarse, intermediate, and fine scales. The coarse resolution map covers a rectangular area about 96 miles high by 104 miles wide (area = 9,984 square miles), encompassing the complete Sells airspace. The coordinates of the vertices of the maps digitized to a coarse scale (counterclockwise from the southwestern corner) are shown in Table F-1.

Table F-1: Sells Area Coarse Scale Map.

Sells Area Coarse Scale Map	
VERTEX	LAT/LONG
Southwest	31 degrees 34 minutes / 113 degrees 22 minutes
Southeast	31 degrees 34 minutes / 111 degrees 38 minutes
Northeast	32 degrees 59 minutes / 111 degrees 38 minutes
Northwest	32 degrees 59 minutes / 113 degrees 22 minutes

The intermediate resolution maps cover a rectangular area 18.75 miles from south to north and 25 miles from east to west (area = 469 square miles) that encompasses a completely contained piece of terrain surrounding the town of Sells. The coordinates of vertices in the same format as above are shown in Table F-2.

Table F-2: Sells Area Intermediate Scale Map.

Sells Area Intermediate Scale Map	
VERTEX	LAT/LONG
Southwest	31 degrees 45 minutes / 112 degrees 10 minutes
Southeast	31 degrees 45 minutes / 111 degrees 45 minutes
Northeast	32 degrees 2 minutes / 111 degrees 45 minutes
Northwest	32 degrees 2 minutes / 112 degrees 10 minutes

A secondary area at this scale that is not contained in the coarse scale map is that surrounding the town of Ajo with the coordinates shown in Table F-3.

Table F-3: Ajo Area Intermediate Scale Alternative Map.

Ajo Area Intermediate Scale Alternative Map	
VERTEX	LAT/LONG
Southwest	32 degrees 15 minutes / 113 degrees 0 minutes
Southeast	32 degrees 15 minutes / 112 degrees 34 minutes
Northeast	32 degrees 31 minutes / 112 degrees 34 minutes
Northwest	32 degrees 31 minutes / 113 degrees 0 minutes

Fine resolution - an area 3.75 miles high by 5 miles wide (19 square miles) showing a completely contained piece of terrain surrounding the town of Sells; coordinates of vertices in the same format as above are shown in Table F-4.

Table F-4: Sells Area Fine Scale Map.

Sells Area Fine Scale Map	
VERTEX	LAT/LONG
Southwest	31 degrees 53 minutes / 111 degrees 54 minutes
Southeast	31 degrees 53 minutes / 111 degrees 49 minutes
Northeast	31 degrees 57 minutes / 111 degrees 49 minutes
Northwest	31 degrees 57 minutes / 111 degrees 49 minutes

A secondary area at this scale that is not contained in the coarse scale map is that surrounding the town of Ajo with the coordinates shown in Table F-5.

Table F-5: Ajo Area Fine Scale Alternative Map.

Ajo Area Fine Scale Alternative Map	
VERTEX	LAT/LONG
Southwest	32 degrees 20 minutes / 112 degrees 54 minutes
Southeast	32 degrees 20 minutes / 112 degrees 49 minutes
Northeast	32 degrees 24 minutes / 112 degrees 49 minutes
Northwest	32 degrees 24 minutes / 112 degrees 54 minutes

The three primary maps (i.e., the coarse scale and the intermediate and fine scale maps that surround the town of Sells) are fully nested to display software zoom capability. The intermediate resolution maps that contain the town of Ajo do not overlap the fine resolution Sells area.

Note that the aspect ratio of the x and y dimensions of the above areas are optimized for the available pixels, in the ratio of 768 (high):1024 (wide) to yield uniform (i.e., square) cells of constant resolution from south to north and from east to west.

LAYER: WATER

CONTENTS: Natural water features

FORMAT: Contains water features digitized on the following layers:

- intermittent washes
- spring
- lake
- textual names of each intermittent wash
- text string for "springs"
- textual name of lake

An intermittent wash may have one of 14 names- Quilotosa, Sauceda, Tenmile, Gunsight, Growler, Cherioni, Hickiwan, San Simon, Chukut Kuk, Vamori, San Luis, Sells, Pia Oik, and Siovi Shuatak.

The only lake in the study area is Menagers Lake.

Natural springs occur in two places in the study area denoted by the text string "spring."

LAYER: WILDLIFE AREAS

CONTENTS: Protected wildlife areas and game distributions

FORMAT: Contains separate layers for each species and density:

- Muledeer with very sparse density
- Muledeer with sparse density
- Pronghorn antelope with very sparse density
- text for muledeer with very sparse density
- text for muledeer with sparse density
- text for pronghorn antelope with very sparse density

Data are from Arizona Game & Fish Department: Digital Cartography Center.

The muledeer are distributed across the study area in two densities:

- very sparse = .25 to .50 animals estimated per square mile.
- sparse = .50 to 1.0 animals estimated per square mile.

The pronghorn antelope are distributed across the study area in one main density:

- very sparse = 0 to .10 animals estimated per square mile.

LAYER: THREATENED AND ENDANGERED SPECIES

CONTENTS: Areas identifying threatened and endangered species

FORMAT: Contains separate layers for each species and density:

- Yuma clapper rail with sparse density
- Yuma clapper rail with low density
- Big horn sheep with low density
- Big horn sheep with sparse density
- text for clapper rail with sparse density
- text for clapper rail with low density
- text for big horn sheep with low density
- text for big horn sheep with sparse density

Data are from Arizona Game & Fish Department: Non-Game Branch.

The bighorn sheep are an important state managed species which has not been placed on the Federal Endangered Species List yet. For demo purposes this species will be considered a threatened species. This species occurs in two densities:

- low = .50 to 2.0 animals estimated per square mile.
- sparse = 1.0 to .50 animals estimated per square mile.

The Yuma clapper rail are found on the Federal Endangered Species List. This species occurs in two densities:

- low = 1.0 to 1.5 animals estimated per square mile.
- sparse = .50 to 1.0 animals estimated per square mile.

LAYER: TRANSPORTATION

CONTENTS: Vectors representing transportation routes such as railroads, roads, highways, and dirt roads

FORMAT: Separate layers for each type of transportation and text:

- railroads
- roads
- highways
- dirt roads
- interstate & state route numbers
- railroad name

The Tucson Cornelia & Gila Bend railroad is the only railroad in the study area.

One interstate (route 8) and two state routes (85 & 86) occur in the study area.

LAYER: AIRPORT

CONTENTS: Air transportation facilities

FORMAT: Line segments and schematically drawn figures showing air transportation facilities such as the following:

- airports
- auxiliary airfields
- text for airport name & towers

COMMENTS:

LAYER: MOA

CONTENTS: Military operating area boundary

FORMAT: Vectors identifying the boundary lines of the Sells MOAs:

- Sells 1 MOA boundary
- Sells 1 MOA name
- Sells Low MOA boundary
- Sells Low MOA name

There are two MOAs in the study area. Both exclude the restricted areas R-2304 & R-2305.

Table F-6: Military Operating Areas.

Military Operating Areas		
MOA Name	*Altitude*	*Time of Use*
Sells 1	10,000	0600-1900 M-F
Sells Low	3,000 AGL to but not incl 10,000	0600-1900 M-F

Sells Low MOA overlies the Papago Indian Reservation.

LAYER: MRA

CONTENTS: Military restricted airspace

FORMAT: Vectors identifying boundaries of restricted airspace areas within the Sells MOA:

- MRA R2305 boundary
- MRA R2304 boundary
- MRA R2305 name
- MRA R2304 name

Both MRAs are located near Gila Bend, AZ.

LAYER: MTRs

CONTENTS: Military training routes

FORMAT: Vectors identifying ground tracks of MTRs each on a separate layer:

- VR 223
- VR 238
- VR 243
- VR 244
- VR 246
- VR 259
- VR 260
- VR 263
- VR 1219

All MTRs are visual routes with corridors ranging from 2 NM to 10 NM in width.

LAYER: LAND USE AREAS

CONTENTS: Land use zoning

FORMAT: Contains boundary areas associated with the following land uses:

- agricultural
- recreational
- residential
- text for agricultural
- text for recreational
- text for residential

LAYER: RECREATIONAL FEATURES

CONTENTS: Recreational facilities

FORMAT: Contains different text symbols for each type of recreational feature:

- (all recreational features)
- picnic grounds (digitized as: =)
- cabins (digitized as: #)
- campgrounds (digitized as: ^)

LAYER: ARCHAEOLOGICAL SITES

CONTENTS: Archaeological sites

FORMAT: Contains circular regions corresponding to the following archaeological features:

- historic ranch
- prehistoric house
- prehistoric town-village
- historic ruins

Descriptive data were taken from the AZSITE database at the Arizona State Museum. The locations of the archaeological sites were placed in the geodatabase for demo purposes which do not correspond with the actual AZSITE locations.

Historic Ranch- located near Childs, AZ in geodatabase; historic period from the Anglo culture.

Prehistoric House- located near Cowlic, AZ in geodatabase; prehistoric period from an unknown culture.

Prehistoric Town- located near Wahak Hotrontk, AZ in geodatabase; prehistoric period from the Hohokam culture.

Historic Ruins- located near Itak, AZ in geodatabase; historic period from the Piman culture.

LAYER: STRUCTURAL FEATURES

CONTENTS: Distribution of structures as points

FORMAT: Contains text symbols for each type of structural feature:

- all structural features are on layer #19 (in Cadvance)
- residential single-story (digitized as: .)
- residential multi-story (digitized as: [ )
- public health service (digitized as: >)
- church (digitized as: +)
- school (digitized as: *)

LAYER: AGRICULTURAL LAND USE

CONTENTS: Ranching and farming areas

FORMAT: Contains the following agricultural areas on separate layers:

- farming
- ranching
- text for farming
- text for ranching

LAYER: SEASONAL LIVESTOCK/GRAZING AREAS

CONTENTS: seasonal areas of use

FORMAT: contains boundary areas on separate layers for each season

- grazing area-dry season
- grazing area-wet season
- text for dry-season grazing
- text for wet-season grazing

LAYER: DOMESTIC LIVESTOCK

CONTENTS: Distribution of livestock

FORMAT: Contains boundary areas for domestic livestock:

- domestic livestock areas
- text for domestic livestock

The following animals are considered domestic livestock:

- sheep
- cattle
- horses

LAYER: INDIAN LANDS

CONTENTS: Boundary line

FORMAT: A vector designating the boundary lines of the Papago Indian Reservation:

- Indian reservation boundary line (Cadvance)
- Indian reservation name

LAYER: NATIONAL MONUMENT

CONTENTS: Boundary line

FORMAT: A vector identifying the boundary line of the Organ Pipe National Monument:

- National Monument land
- National Monument name

LAYER: CENSUS TRACT

CONTENTS: Boundary line

FORMAT: A vector identifying the boundary line of the three census tracts in the area with associated text identifying the census tract numbers:

- census tract 50
- census tract 49
- census tract 48
- census tract numbers

There are 12,574 people living in the study area. Approximately half (6,959) are Papago Indians.

Population distribution per census tract:

tract #50 = 5,189 people
tract #49 = 789 people
tract #48 = 6,596 people

LAYER: COUNTY

CONTENTS: County boundary lines

FORMAT: A vector identifying the boundary line of the three counties with associated text identifying the county names on separate layers:

- Pima county boundary
- Pinal county boundary
- Maricopa county boundary
- Pima county name
- Pinal county name
- Maricopa county name

LAYER: LEGISLATIVE

CONTENTS: Legislative district boundary lines

FORMAT: A vector identifying the boundary line of the two identified state legislative districts:

- legislative district boundary
- legislative district numbers

LAYER: CITY NAMES

CONTENTS: Names of cities

FORMAT: A single layer listing all of the city names in the study area

City names include:

Sells, Chiawuli Tak, Ali Chukson, Ali Molina, Artesa, Topawa, Cowlic, Gu Oidak, Ajo, Gibson, Childs, Why, Lukeville, Papago Farms, Wahak Hotrontk and Itak.

LAYER: NOISE CONTOURS (Correct Scale)

CONTENTS: Noise contours from actual data

FORMAT: Vectors representing noise contours (for 65 dB, 70 dB & 80 dB) calculated from F-16s on VR244:

- Contour boundaries for VR244
- Text labels for noise exposure levels

LAYER: NOISE CONTOURS (Expanded Scale)

CONTENTS: Noise contours from fabricated data

FORMAT: Vectors representing noise contours for 55 dB, 70 dB, 80 dB & 90 dB:

- Contour boundaries
- Text labeling dB levels

This map was fabricated to demonstrate noise contours at the fine scale surrounding the Ajo area.

F.1 Final Set of Map Layers Available for ASAN Demonstration

This section lists the map layers (Table F-7) available for display and manipulation in the vicinity of the Sells MOA. ASAN can of course also display and manipulate any other digital line graph or grid cell maps that conform to GRASS conventions.

- c: coarse map
- ma: medium scale- Ajo
- ms: medium scale- Sells
- fa: fine scale- Ajo
- fs: fine scale- Sells

Table F-7: Available Map Layers.

Available Map Layers		
Description	*Layer #*	*Map Scale*
OUTLINE	LAYER 1	
SELLS LOW MOA BOUNDARY	LAYER 2	c
15MIN QUADS	LAYER 3	c
CITY NAMES (text)	LAYER 4	
INDIAN RES NAME (text)	LAYER 5	
INDIAN RES BOUNDARY	LAYER 6	c
LEGISLATIVE BOUNDARY	LAYER 7	c
NAT PARK BOUNDARY	LAYER 8	c
RR	LAYER 9	c, ma
ROADS	LAYER 10	c, ma, ms, fa, fs
AIRPORT/FIELD	LAYER 11	ma
STREAMS	LAYER 12	c,ma
ZOOM AREAS	LAYER 13	c
HIGHWAY	LAYER 14	c, ma, ms
DIRT ROADS	LAYER 15	c
STREAM NAMES (text)	LAYER 16	
LEGISLAT DIST NUM (text)	LAYER 17	
AIRPORT NAME (text)	LAYER 18	
STRUCTURAL FEATURES	LAYER 19	fa, fs
CENSUS TRACT 50	LAYER 20	fa
PIMA COUNTY (text)	LAYER 21	
STREET NAMES (text)	LAYER 22	
CENSUS TRACT NUM (text)	LAYER 23	
NAT PARK NAME (text)	LAYER 24	
SELLS LOW MOA (text)	LAYER 25	

Table F-7: continued.

Available Map Layers		
Description	*Layer #*	*Map Scale*
FARMING AREAS	LAYER 26	c
RANCHING AREAS	LAYER 27	c, ms
LAKE	LAYER 28	c
SPRINGS	LAYER 29	ma
MULEDEER-VERY SPARSE	LAYER 30	ma
MULEDEER-SPARSE	LAYER 31	c
YUMA CLAPRAIL-SPARSE	LAYER 32	ma
YUMA CLAPRAIL-LOW	LAYER 33	c
PRONGHORN ANTELOPE-V.SPARSE	LAYER 34	c
AGRICULTURAL AREAS	LAYER 35	c
RECREATIONAL AREAS	LAYER 36	c
RESIDENTIAL AREAS	LAYER 37	c
RR NAME (text)	LAYER 38	
HWY NUMBER (text)	LAYER 39	
MULDEER-VS (text)	LAYER 40	
MULDEER-S (text)	LAYER 41	
PIMA BOUNDARY	LAYER 42	c
PINAL BOUNDARY	LAYER 43	c
MARICOPA BOUNDARY	LAYER 44	c
PINAL COUNTY (text)	LAYER 45	
MARICOPA COUNTY (text)	LAYER 46	
SPRING (text)	LAYER 47	
SELLS 1 MOA (text)	LAYER 48	
SELLS 1 MOA BOUNDARY	LAYER 49	c
R2305 BOUNDARY	LAYER 50	c
R2304 BOUNDARY	LAYER 51	c

Table F-7: continued.

Available Map Layers		
Description	*Layer #*	*Map Scale*
R2305 (text)	LAYER 52	
R2304 (text)	LAYER 53	
CENSUS TRACT 49	LAYER 54	c
CENSUS TRACT 48	LAYER 55	c
PRONGHORN ANT-VS (text)	LAYER 56	
YUMA CLAPRAIL-S (text)	LAYER 57	
MENAGERS LAKE (text)	LAYER 58	
HISTORIC RANCH	LAYER 59	ma
PREHISTORIC HOUSE	LAYER 60	ms
PREHISTORIC TOWN	LAYER 61	c
HISTORIC RUINS	LAYER 62	c
YUMA CLAPRAIL-LOW (text)	LAYER 63	
BIG HORN SHEEP-LOW	LAYER 64	c
BIG HORN SHEEP-SPARSE	LAYER 65	ms
VR 223	LAYER 66	c
VR 238	LAYER 67	c
VR 244	LAYER 68	ma
VR 243	LAYER 69	ms
VR 246	LAYER 70	c
VR 259	LAYER 72	ms
VR 260	LAYER 73	ms
VR 263	LAYER 74	ma
VR 1219	LAYER 75	c
BIGHORN SHEEP-LOW (text)	LAYER 76	
BIGHORN SHEEP-SPARSE (text)	LAYER 77	
AGRICULTURAL (text)	LAYER 78	

Table F-7: concluded.

Available Map Layers		
Description	*Layer #*	*Map Scale*
RECREATIONAL (text)	LAYER 79	
RESIDENTIAL (text)	LAYER 80	
FARMING (text)	LAYER 81	
RANCHING (text)	LAYER 82	
RECREATIONAL FEATURES	LAYER 83	fa, fs
REAL NOISE CONTOURS	LAYER 84	ma, ms
DRY SEASON GRAZING	LAYER 85	c
WET SEASON GRAZING	LAYER 86	c
DRY SEASON GRAZING (text)	LAYER 87	
WET SEASON GRAZING (text)	LAYER 88	
dB LEVELS FOR REAL DATA (text)	LAYER 89	
DOMESTIC LIVESTOCK	LAYER 90	c
DOMESTIC LIVESTOCK (text)	LAYER 91	
dB LEVELS FOR EXPANDED SCALE DATA (text)	LAYER 92	
FABRICATED NOISE CONTOURS	LAYER 93	fa

Appendix G
DATABASE DEVELOPMENT

G.1 Citation Index Database Development Procedure

G.1.1 Data Entry Procedures

The Citation Index Database for the prototype version of ASAN is a set of references from the technical literature on the effects of supersonic and subsonic aircraft noise on humans, animals and structures.

A database development procedure was designed to organize the collection and analyses of reports of scientific findings for various uses in the ASAN relational database management system.

Figure G-1 is a block design of the development procedure for this database. Each of the steps outlined in Figure G-1 are discussed in further detail in Section G.1.1.1 below.

G.1.1.1 Description of Database Development

Step 1A: Development of Database Schema (Field Structure)

The first phase of the development process focused on the organization of information in the database. A field structure was designed to tailor the data entry software to meet the specific needs of the ASAN development project.

The database field structure defined the type of information that can be retrieved from the database. Each field is an item of information (such as date of publication) that can be used to identify, store or retrieve some characteristic of individual publications. More than 60 unique fields were identified for the Citation Index Database. A listing of the fields is presented in Table G-1; Section G.1.3 includes additional information about the field structure.

In addition to defining the characteristics of research publications accessible in the database, the field structure also determined how this information was entered and stored in the database. Fields of various lengths and character types were needed to conserve storage space and reduce errors in data entry. For example, the field used to store the date of publication was programmed to accept a 4-digit numeric value. Typographical errors involving implausible dates and/or alphabetic characters were not accepted by the computer program.

Other fields were also programmed to accept only specific types of entries (e.g., a "yes" or "no," a numeric value within a given range or a date). In the event of an unacceptable entry, the program displayed an appropriate warning message (e.g., a display message may read: "Error! Try again.") and additional information was not accepted until the error was corrected. This set of error corrections at the time of data entry insured the consistency of citations and protected the integrity of the database.

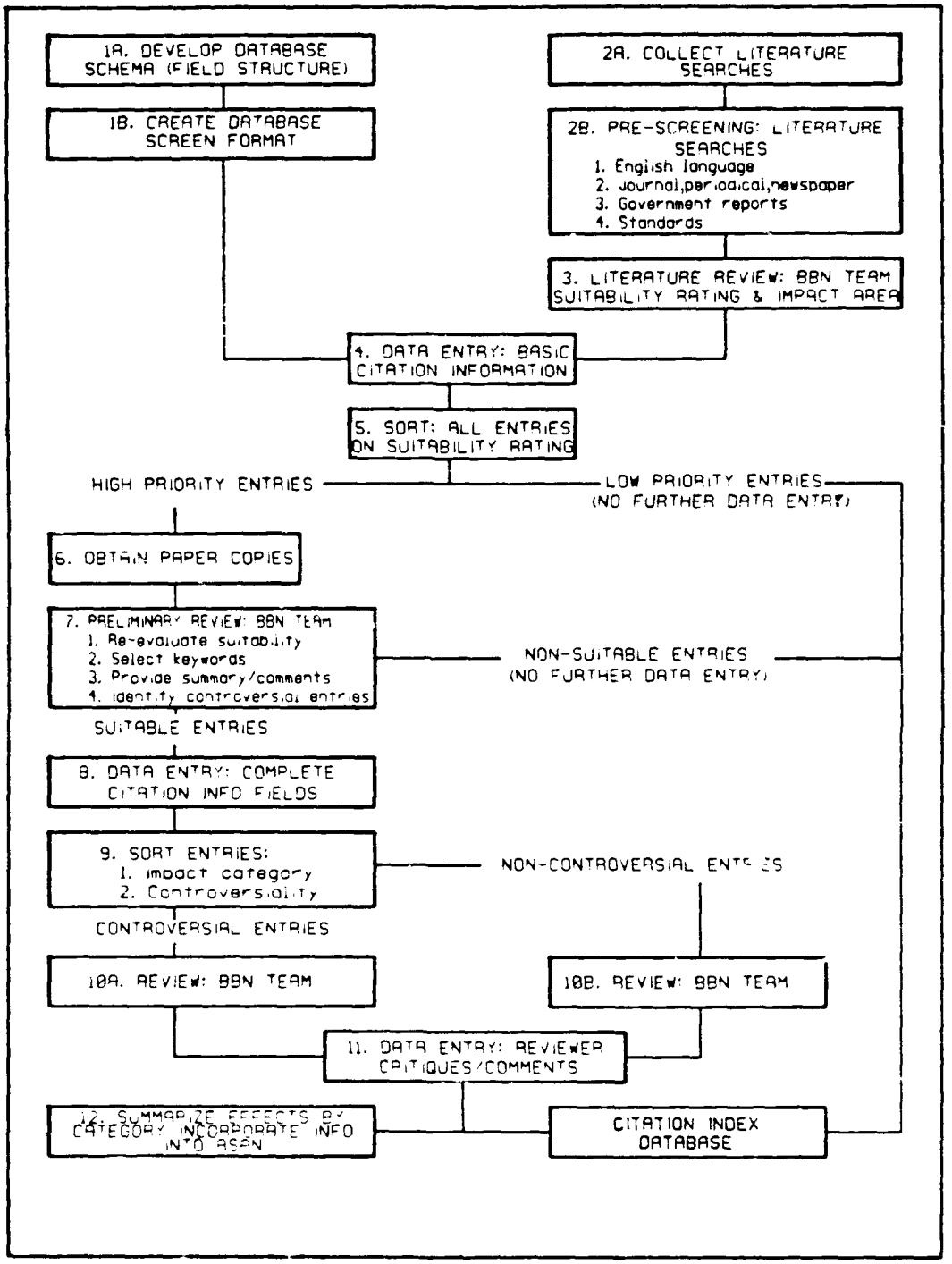

Figure G-1: Development Procedure: Citation Index Database.

The field structure was also used to link the various information items of a single entry together in the database. For example, the entry number field uniquely identifies the given entry, while also linking multiple authors to a single title.

The field structure also organized citations to human, animal, structural and modeling effects in a manner that emphasized their common aspects. More than 40 fields contain information (such as title, author and date of publication) common to all citations, regardless of specific impact category.

Step 1B: Creation of Database Screen Format

Given the database schema developed under Step 1A, the next step was to develop a set of data entry procedures. A computer program was developed to organize the data fields by means of a series of display screens.

The display screens enhanced the efficiency of data entry and reduced data error. For example, the computer program incorporated a search for duplicate entries in the database. When the data enterer typed the title of the publication, the system automatically searched for previously entered publications with the same title. If duplicate titles were found, a list of the titles and authors of the publications were displayed on the screen. The data enterer could then decide whether the current publication was previously entered (in which case, no further data entry was necessary), or whether the current publication was a new entry. For new entries, the data enterer selected the type of publication and the program requested additional information necessary to complete the citation.

A computer program was prepared for each phase of data entry (Steps 4, 8, and 11 in Figure G-1).

Step 2A. Collection of Literature Searches

The primary reference sources for the database were computer-generated literature searches (such as Dialog) and referrals from NSBIT project personnel.

Approximately 8,000 literature search listings were identified in the human impact area. Additional literature searches in other impact categories are expected to be somewhat smaller.

Step 2B: Prescreening of Literature Searches

The following guidelines were used to prescreen the literature search listings for inclusion in the database.

1. The entry had to be directly related to the effects of aircraft noise on humans, animals and/or structures; or, to pertain to procedures for predicting aircraft noise exposure.
2. The entry was one of the following types of publications:
    a. a refereed published journal article,
    b. a government report, standard, or publication,
    c. a published book, or
    d. a magazine or newspaper article.

Table G-1: Citation Index Field Structure.

Citation Reference Fields
- Entry Number
- Date of Entry
- Author(s)
- Date of Publication
- Performing Organization
- Sponsoring Organization
- Article/Book/Report Title
- Journal Title
- Journal Volume Number
- Journal Issue Number
- Journal Page Numbers
- Publisher Name
- Publisher City
- Publisher State
- Publisher Country
- Library Congress Call Number
- Government Contract Number
- Perform. Organization Report Number
- NTIS Number
- ISB Number
- Abstract
- Abstract Language
- Document Language
- Copyright Date
- Copyright Status
- Paper Copy Status
- Number of References
- Acquisition Source
- Document Type
- Data Entered Comments
- Revision History
- Final Data Check

Reviewer Fields
- Prescreener Initials
- Preliminary Reviewer Initials
- Preliminary Reviewer Notes
- Reviewer #1 Initials
- Reviewer #1 Notes
- Reviewer #1 Critique
- Reviewer #2 Initials
- Reviewer #2 Notes
- Reviewer #2 Critique
- Reviewer #3 Initials
- Reviewer #3 Notes
- Reviewer #3 Critique
- Suitability Rating
- Controversiality Rating

Noise Type Fields
- Sonic Boom
- Blast
- Seismic
- Aircraft
- Traffic
- Terrain Effects
- Wind Noise
- Other Noise

Experiment Type Fields
- Field Experiment
- Laboratory Experiment
- Review/Literature Survey
- Proposal Article

Impact Area Fields
- Human Impact Area
- Animal Impact Area
- Structures Impact Area

Human Impact Fields
- Human Annoyance
- Human Physical Health
- Human Psychological Health
- Human Performance
- Human Speech
- Human Sleep

Animal Impact Fields
- Species Classification
- Domestication
- Survival
- Reproduction
- Age/Sex Composition
- Response to Disturbance
- Social Behavior
- Migration
- Feeding
- Maintenance
- Predator-Avoidance
- Physical Health (General)
- Traumatic Incidents
- Audition
- Stress
- Growth
- Predator-Prey Interactions
- Habitat Use
- Distribution
- Abundance

Structure Impact Fields
- Windows
- Interior Walls
- Exterior Walls
- Wall Connections
- Delicate Contents
- Contents (not delicate)
- Archaeological Sites
- Historical Sites
- Other Unconventional
- Avalanche
- Landslide
- Material Mechanical Properties
- Cumulative Effects

3. The entry had to have been published in English.

This prescreening was developed to minimize the number of irrelevant or unsubstantiated citations, as well as the number of citations of limited usefulness (such as foreign language publications) to the end users of the system.

Step 3: Literature Review: BBN Team

Citations which met the prescreening criteria (Step 2B) were forwarded to senior BBN project personnel for further review. These personnel quantified the suitability of individual publications for inclusion in the database on a four-point category scale. The suitability rating was based on the reviewer's previous knowledge of the citation and (when available) the original author's abstract.

Because little information was available for most entries during this phase of the database development, the initial review was provided for preliminary purposes only. The suitability rating did not assess quality or serve as a critique for individual citations.

The four categories for the suitability rating scale are:

1	Based on the abstract (if available) and the reviewer's previous knowledge, the publication is directly applicable to the EIAP goals and is suitable for inclusion in the database.
2	Based on publication title and abstract (if available), the publication may be directly applicable to the EIAP goals and is suitable for inclusion in the database.
3	Based on publication title and abstract (if available), the publication is indirectly or potentially applicable to the EIAP goals and is suitable for inclusion in the database.
4	Based on the abstract (if available) and the reviewer's previous knowledge, the publication is not relevant to the EIAP goals and it is not suitable for inclusion in the database.

Step 4: Data Entry: Basis Citation Information

The first phase of data entry included basic citation information for all literature search entries that were assigned a suitability rating of 1 through 3.

The following list of fields were necessary to complete basic citation information and were completed during the first phase of the data entry process:

1. Title of document

2. Title of journal (if appropriate)
3. Journal volume, issue number, and page numbers
4. Date of publication
5. Document type (book, journal article, technical report, government report, ANSI/ISO standard, or bibliographic listing)
6. NTIS number, ISB number, and Library of Congress call number
7. Performing organization and sponsoring organization
8. Performing organization report number and government contract number
9. Publisher name and address (if appropriate)
10. Impact area (human, animal, structures, modeling)
11. Suitability rating

Step 5: Sort Entries on a Suitability Rating

Once basic citation information was entered into the database, a computerized sorting process was conducted on the basis of the suitability ratings assigned in Step 3. The computer program generated a paper copy of the sorted entries.

Higher priority entries were processed with additional data entry and expert review. Lower priority entries were processed as time and funding allowed.

Step 6: Obtain Paper Copies of Publications

Paper copies of high priority entries were obtained from BBN Laboratories' library, government agencies, or local university and public libraries. If a paper copy of an entry could not be obtained locally, interlibrary loan agreements were made with university libraries to obtain the publication from other sources.

The paper copies were tagged with a unique entry number and filed in numeric order for future reference.

If a paper copy of the entry was not available (e.g., the publication was out of print), an explanatory note was placed in the paper copy files. The computer database was also updated to indicate a missing paper copy.

Step 7: Preliminary Review: BBN Team

The paper copies of high-priority entries (those assigned an initial suitability rating of a "1" or "2") were forwarded to BBN personnel for further review and analysis. Reviews were based on the following guidelines:

1. Reevaluation of Suitability Rating

   The suitability rating assigned in Step 3 was reevaluated based on additional information from the paper copy of the publication. Where necessary, the suitability rating was revised in the computer database.

2. Select Keywords

Appropriate keywords for each entry were developed. The keywords describe the citation type (field study, laboratory experiment, literature review, or research proposal) and the type of noise under investigation (sonic boom, blast, seismic, aircraft [subsonic], traffic, wind, terrain effects or other noise).

Other keywords were developed to describe the effects of specific impact categories. For example, the principal keywords developed for the human area include: annoyance, physical health, psychological health, task performance, speech and sleep. Keywords were also developed for the animal and structural areas.

3. Provide Summary/Comments

If the original author(s)' abstract was incomplete or unavailable, BBN personnel prepared a brief summary of the research publication. Original abstracts that were very lengthy (more than 250 words) were edited for inclusion in the database.

Summaries prepared by BBN staff members were identified as such in the database to indicate revisions of authors' abstracts.

The preliminary reviewer also recorded brief outlines and/or notes to facilitate a full critique of the entry during later phases (Step 10A or 10B) of the expert review process.

4. Identify Controversial Entries

BBN personnel reviewed entries and assigned a controversiality rating based on the following criteria:

1	The publication is highly controversial due to its research approach, methodology or stated conclusions (e.g., "noise kills"). Most researchers would take an opposing position on the given research topic.
2	Some elements of the publication are controversial due to the publication's research approach, methodology or results.
3	The publication is noncontroversial. (Most publications will be assigned this rating.)

Step 8: Data Entry: Complete Database Information

Entries that were judged suitable for inclusion in the database by BBN personnel were updated with complete database information.

Entries that were judged unsuitable remained in the database for purely bibliographic purposes. The data entry completed for these entries in Step 4 (basic citation information) was not deleted; however, no additional information was added.

Step 9: Sort Entries: Impact Category and Controversiality

All entries were sorted a second time by specific impact category (human, animal, structural or modeling) and the controversiality rating assigned in Step 8.

Computer printouts of all information in the database were generated and the information was checked for accuracy.

Once the sorting process was complete, the entries were forwarded to appropriate team experts for further review (Step 10A or 10B).

Step 10A: Review Controversial Entries

Articles rated as "controversial" in Step 7 were provided a special review procedure to help reduce bias in entry selection and to protect the integrity of the database. When three independent reviewers on the team could be identified as capable of reviewing the particular article, such a team was formed for its review. Otherwise, the article was submitted to an outside expert for review.

Reviewers prepared critical analyses of each entry. Specific problems such as inappropriate experimental design, insufficient data, erroneous data analysis and controversial conclusions were identified and summarized. The critical analyses were also supported by references.

Step 10B: Review: BBN Team

Entries that were rated as noncontroversial were reviewed by BBN team experts. The results were summarized with the most significant attributes and conclusions of the study identified. Pertinent data useful to the EIAP was also documented.

Step 11: Data Entry: Final Comments (Controversiality) and Data Error Check

The final data entry process included any additional comments regarding controversiality of entries. A final error check was also provided for completed entries.

Step 12: Summarize Effects by Category

The final step in the database development procedure included a comprehensive summary of all available information for each of the four impact categories (human, animal, structural and modeling). The summaries were presented as "white papers" and included a critical evaluation of all available information for each category.

The summaries are intended to be state-of-the-art knowledge for appropriate topics in each of the impact categories. Final summaries were incorporated into the ASAN software program.

G.1.2 Citation Index Database Implementation and Uses

The Citation Index Database was integrated into the ASAN software as an interactive component of the system.

Environmental planners and other personnel (such as scientists) will be able to access information in the database by means of various search strategies. For example, if the planner wants information about a specific research publication, he can search the database by the title of the work and/or the author(s). On the other hand, if the planner does not have a specific publication in mind, but wants more information about a general impact category or topic, the database can also be searched by means of a collection of keywords.

One of the principal uses of the Citation Index Database will be to support the environmental planner during the public comment stage of the EIAP. Citations which may not be included in an EIS and that are brought to the attention of the planner can be identified and obtained quickly through the basic citation information data. The Air Force assessment of the applicability of the citation will be clear from the suitability rating. Furthermore, for high suitability or controversial citations, the review and analysis summary will provide the planner with information necessary to formulate a response to the inquiries.

G.1.3 Description of Citation Index Database Field Structure

Each of the fields listed in Table G-1 is described in further detail below.

CITATION FIELD: DATE OF ENTRY

dBase Field Type: Character
dBase Field Width: 8
dBase Field Name: ENTRY_DATE

The date of entry is entered in this field. The month, day and year are entered in two-digit numeric characters.

The database program automatically enters the date in this field when the data enterer logs on the computer.

Examples:

06/11/87	June 11, 1987
11/01/87	November 1, 1987

ERROR CHECK:

The date of entry is entered directly from the computer's internal clock/calendar. Therefore, manual data entry errors (such as reversed numbers and incorrect dates) are not possible. The probability of error is very low.

CITATION FIELD: ENTRY NUMBER

dBase Field Type: Character
dBase Field Width: 5
dBase Field Name: ENTRY_NUM

The Entry Number is a numeric code that specifies the order of entry in the database system. The Entry Number is automatically assigned by the database program by means of consecutive number ordering.

The Entry Number is also posted on the upper right corner of the paper copy of the document.

Field Code	*Definition*
X	X represents the numeric code of entry.

Examples:

1	The first entry in the database system is assigned the Entry Number 1.
234	The 234th entry in the database system is assigned the Entry Number 234.
1025	The 1025th entry in the database system is assigned the entry number 1025.

(Commas and decimal places will not be inserted in the Entry Number.)

ERROR CHECK:

The entry number is assigned by the computer program. Also, all copies of the database program have been assigned a unique range of usable entry numbers. Therefore, data entry can be performed at multiple locations and later integrated into one database without the risk of creating duplicate entry numbers and potential loss of data.

CITATION FIELD: AUTHOR(S)

dBase Field Type: Character
dBase Field Width: 40
dBase Field Name: AUTHOR

Authors are listed by their last name, first initial and middle initial. When there is more than one author, the order of entry follows the original authors' designation. If there is no designation, authors are listed in alphabetical order.

If the document was published under a corporate name (without individual authors), the performing organization is listed in both the "AUTHOR" and "PERFORMING ORGANIZATION" fields.

If an author's last name is more than 40 character spaces long, only the first 40 characters are entered.

For documents that have been edited and/or translated, the original author (if known) is listed first.

Examples:

Editor and Author Entry:

Helmholtz, G. A.	(No special abbreviations are needed for original authors.)
Smith, J. (Ed.)	(The (Ed.) abbreviation indicates that the entry is an editor.)

CITATION FIELD: DATE OF PUBLICATION

dBase Field Type: Character
dBase Field Width: 4
dBase Field Name: DATE_PUB

The Date of Publication is the year that the document was copyrighted. If the document is unpublished, it is the year that the document was produced.

If the date of publication is unknown, the data enterer types the code "9999" in this field and the database program will transform the numeric string to the abbreviation "UNKN."

Example:

1985 (This is the date of publication.)

ERROR CHECK:

The database program will accept numeric information only within the range of 1900 through 1987. Typographic errors involving alphabetic characters or implausible dates will not be accepted.

CITATION FIELD: PERFORMING ORGANIZATION

dBase Field Type: Character
dBase Field Width: 40
dBase Field Name: PERFRM_ORG

The Performing Organization indicates any institutional involvement in the preparation of the document.

Example:

BBN Laboratories Incorporated

CITATION FIELD: SPONSORING ORGANIZATION

dBase Field Type: Character
dBase Field Width: 40
dBase Field Name: SPONSR_ORG

The Sponsoring Organization is the source of funding for the entry.

Examples:

U.S. Air Force

National Endowment for Science and Education

CITATION FIELD: ARTICLE, BOOK, REPORT TITLE

dBase Field Type: Character
dBase Field Width: 250
dBase Field Name: TITLE

The Title is the name of the document as designated by the original author.

(If an entry is a chapter of a book, the chapter title is entered in this field and the title of the book is entered in CITATION FIELD: JOURNAL TITLE. For entries of entire books, the title of the book is entered in this field.)

Abbreviations should not be used, except in the following circumstances:

1. The original author used abbreviations.
2. The Title is longer than 250 characters.

Examples:

Noise and Society.	(Quotations and underlining will not be used.)
Human Annoyance.	(For entries that are journal articles, only the title of the article is entered in this field. The title of the journal is entered in a different field.)

CITATION FIELD: JOURNAL TITLE

dBase Field Type: Character
dBase Field Width: 80
dBase Field Name: JOURL_TITL

When the document type is a journal article, the title of the journal is entered in this field.

The database program has been designed to present seven common citation references on the computer screen for data entry selection. To enter one of the titles presented in this list, the data enterer types the corresponding number. The number "8" is selected to enter a unique journal title.

1	Journal of the Acoustical Society of America
2	Acustica
3	Human Factors
4	Journal of Sound and Vibration
5	Noise Control Engineering
6	Journal of Wildlife Management
7	American Institute of Aeronautics and Astronautics Journal
8	Select to enter a new title

ERROR CHECK:

The most common journals used for citation reference can be entered with a single keystroke. This option reduces typographical errors and facilitates data entry.

CITATION FIELD: JOURNAL VOLUME NUMBER

dBase Field Type: Character
dBase Field Width: 4
dBase Field Name: JOURL_VOL

When the entry is a journal article, the journal volume number (if known) is entered in this field.

CITATION FIELD: JOURNAL ISSUE NUMBER

dBase Field Type: Character
dBase Field Width: 4
dBase Field Name: JRL_ISS_NO

When the entry is a journal article, the journal issue number (if known) is entered in this field.

(Usually, the original document will post the journal issue number in parenthesis following the journal volume number.)

CITATION FIELD: JOURNAL PAGE NUMBERS

dBase Field Type: Character
dBase Field Width: 10
dBase Field Name: JOURL_PAGE

When the entry is a journal article, the page numbers of the article are recorded in this field.

The starting page of the article is separated from the ending page by a hyphen ("-").

Example:

123-126 The article begins on page 123 and ends on page 126.

CITATION FIELD: PUBLISHER NAME

dBase Field Type: Character
dBase Field Width: 40
dBase Field Name: PUB_NAME

When the document is a book, the name of the publisher is recorded in this field.

CITATION FIELD: PUBLISHER CITY

dBase Field Type: Character
dBase Field Width: 40
dBase Field Name: PUB_CITY

When the document is a book, the city location of the publisher is recorded in this field.

CITATION FIELD: PUBLISHER STATE

dBase Field Type: Character
dBase Field Width: 2
dBase Field Name: PUB_STATE

When the document is a book, the state address of the publisher is recorded in this field.

ERROR CHECK:

The database program will only accept alphabetic characters in this field. Typographical errors involving numbers will not be accepted.

The database program will request information for this field only when the country where the document was published is the U.S.

CITATION FIELD: PUBLISHER COUNTRY

dBase Field Type: Character
dBase Field Width: 20
dBase Field Name: PUB_CNTRY

When the document is a book, the country where the document was published is entered in this field.

ERROR CHECK:

The database program automatically displays "U.S.A." for this field. The data enterer has the option of changing the data in this field for foreign documents.

CITATION FIELD: LIBRARY OF CONGRESS
CALL NUMBER

dBase Field Type: Character
dBase Field Width: 20
dBase Field Name: LIB_CON_NO

The Library of Congress call number (if available) is stored in this field.

(Usually, the call number is listed near the copyright statements in textbooks and journals.)

CITATION FIELD: GOVERNMENT CONTRACT NUMBER

dBase Field Type: Character
dBase Field Width: 20
dBase Field Name: GOV_CNT_NO

When the entry is a government report, the government contract number is entered in this field.

CITATION FIELD: PERFORMING ORGANIZATION REPORT NUMBER

dBase Field Type: Character
dBase Field Width: 20
dBase Field Name: PO_RPT_NUM

When the document is a technical report, the report number assigned by the performing organization is entered in this field.

CITATION FIELD: NTIS REPORT NUMBER

dBase Field Type: Character
dBase Field Width: 20
dBase Field Name: NTIS_NUMBR

The NTIS number assigned to the document (if any) appears in this field. (If the document does not have an assigned NTIS number, the field is left blank.)

CITATION FIELD: ISB NUMBER

dBase Field Type: Character
dBase Field Width: 20
dBase Field Name: ISB_NUMBER

This field is used to record the International Standard Book Number (ISBN).

Usually, the ISBN is listed near the copyright restriction statement and/or the Library of Congress call number.

Hyphens (-), blank spaces and periods are important components of the ISBN. Therefore, it is imperative that all spacing and symbols are entered correctly. Do not use a lower-case "L" for the number one or an upper-case "O" for a zero when entering numbers into the database.

CITATION FIELD: ABSTRACT

dBase Field Type: Memo
dBase Field Width: 10
dBase Field Name: ABSTRACT

This field contains an abstract or summary of the entry. Wherever possible, the abstract should be entered verbatim from the original author's text.

If the abstract is very lengthy (more than 250 words), abbreviations and some revision may be necessary. If the abstract is not entered as exactly presented by the original author, the entry editor's initials should be included at the end of the abstract. If there are no editor initials at the end of the abstract, it is assumed that the abstract has been entered verbatim from the original author.

CITATION FIELD: ABSTRACT LANGUAGE

dBase Field Type: Character
dBase Field Width: 10
dBase Field Name: ABSTRT_LAN

This field is used to identify the language of the abstract.

Additional information regarding the original document language is entered in the subsequent field.

Data entry in this field is the same as in the field for document language. The database program will present seven languages on the computer screen for data entry selection. To enter one of the languages presented in this list, the data enterer types the corresponding number. The number "8" is selected to when the abstract language is unknown. The number "9" is selected to enter a language that is not presented on the computerized list.

1	English
2	German
3	French
4	Italian
5	Russian
6	Chinese
7	Japanese
8	Document language is unknown
9	Select to enter a unique document language

CITATION FIELD: DOCUMENT LANGUAGE

dBase Field Type: Character
dBase Field Width: 10
dBase Field Name: DOC_LANG

This field is used to identify the language of the document.[1]

For documents that are printed in a foreign language but have an English abstract, the language of the original publication is entered in this field. (The language of the abstract is entered in the preceding field).

The database program has been designed to present seven languages on the computer screen for data entry selection. To enter one of the languages presented in this list, the data enterer types the corresponding number. The number "8" is selected to when the document language is unknown. The number "9" is selected to enter a language that is not presented on the computerized list.

1	English
2	German
3	French
4	Italian
5	Russian
6	Chinese
7	Japanese
8	Document language is unknown
9	Select to enter a unique document language

---

[1]For initial data entry procedures, only English language documents will be included in the database (see Step 2B: Prescreening of Literature Searches). Other languages have been included in the data entry program for possible future use.

CITATION FIELD: COPYRIGHT DATE

dBase Field Type: Date
dBase Field Width: 8
dBase Field Name: CPY_DATE

This field is used to record the date that copyright permission has been processed.

Once copyright permission has been requested, the date of the request is entered in this field. When the copyright holder responds, this field is updated with the date of the response.

ERROR CHECK:

Only plausible numeric values are accepted in this field.

CITATION FIELD: COPYRIGHT STATUS

dBase Field Type: Character
dBase Field Width: 1
dBase Field Name: COPYRIGHT

It will probably be necessary to obtain copyright releases for most of the entries in the database. Paper copies of the copyright releases will be tagged with the publication's unique entry number and filed in numeric order.

The following Entry Codes will be used to indicate current copyright status of the entry:

Field Code	*Definition*
1	No copyright permission is needed for the given entry.
2	A request for copyright permission has been processed. The copyright holder has not responded.
3	Copyright permission has been processed and granted.
9	No action has been taken regarding copyright permission.

CITATION FIELD: HARDCOPY STATUS

dBase Field Type: Character
dBase Field Width: 1
dBase Field Name: HARDCOPY

This field is used to indicate whether or not BBN has a paper copy of the entry.

The following codes will be presented on the data entry screen to indicate the status of paper copy acquisition:

Field Code	*Definition*
1	A paper copy of the entry is needed.
2	A paper copy of the entry is not needed. (For example, the entry has a suitability rating of "4" and a paper copy is unnecessary.)
3	A paper copy of the document has been obtained and is on file.
4	Attempts have been made to acquire a paper copy of the entry. A paper copy is not available.

CITATION FIELD: NUMBER OF REFERENCES

dBase Field Type: Character
dBase Field Width: 4
dBase Field Name: NO_REFRNCE

This field is used to indicate the number of references cited by the original author of the document.

If the entry is one portion of a larger collection (such as one chapter in a book), the number of references should only apply to the portion of the collection that is being used for the entry. As an example, if a chapter of a book is used for a citation index entry, the number of references entered in this field would include only those references related to that chapter and not to the entire book. (Usually each chapter of a book will have its own bibliography immediately following the chapter.)

The database program will accept only numeric values in this field. When the number of references is unknown or not available, the code "9999" should be entered in this field. The database program will transform this code into the character string "UNKN."

Examples:

Field Entry	*Definition*
37	The author has cited 37 references in the bibliography section of the document.
9999	The entry is one chapter of a book that did not list references for each chapter individually.

CITATION FIELD: ACQUISITION

dBase Field Type: Character
dBase Field Width: 1
dBase Field Name: ACQUISTION

This field is used to indicate how the document came to the reviewer's attention for inclusion in the database.

The database program will present the following options for data selection:

1	The document was referred by a BBN team expert.
2	The document was referenced in another database entry.
3	The document was cited in a computerized literature search.

CITATION FIELD: DOCUMENT TYPE

dBase Field Type: Character
dBase Field Width: 1
dBase Field Name: DOCTYPE

The Document Type refers to the type of publication of the entry.

Entries in this field are to be coded in the following manner:

1	Book
2	U.S. Government Report
3	Technical Report
4	Journal Article
5	ISO/ANSI Standard
6	Bibliographic listing
0	Presents listing for all possible citation fields

ERROR CHECK:

All of these codes and definitions are presented on the computer for data selection. Once the data enterer has chosen the document type, the data entry program immediately requests verification of the selection and provides an opportunity for selection revision.

CITATION FIELD: DATA ENTERER COMMENTS

dBase Field Type: Memo
dBase Field Width: 10
dBase Field Name: E_COMMENT

This field is used to record any miscellaneous information related to the entry that has not been recorded in any other fields.

Example:

Book is out of print.

CITATION FIELD: REVISION HISTORY

dBase Field Type: Memo
dBase Field Width: 10
dBase Field Name: REVISION

Once an entry has been completed, it may be necessary eventually to make revisions. This field is used to record the revision history of the entry.

Revision entries are dated and initialed by the person who initiated the entry changes.

CITATION FIELD: FINAL DATA CHECK

dBase Field Type: Logical
dBase Field Width: 1
dBase Field Name: FINAL_CHECK

This field is used to specify whether or not a comprehensive error check has been completed on all data entry fields for a given citation. Once the citation has been screened for typographical errors and completeness of data, the data enterer types a "Y" in this field.

CITATION FIELD: PRESCREENER INITIALS

dBase Field Type: Character
dBase Field Width: 3
dBase Field Name: PSCR_INTL

This field is used to record the identification of the reviewer who assigns the initial suitability rating (Step 3 of the development procedure).

Enterer initials must be alphabetic characters (numbers may not be used) and may not exceed 3 character spaces. The prescreen reviewer's initials must be consistent for all entries.

CITATION FIELD: PRELIMINARY REVIEWER INITIALS

dBase Field Type: Character
dBase Field Width: 3
dBase Field Name: PREV_INITL

This field is used to record the identification of the preliminary reviewer (the person who completes the screening process during Step 7 of the database development procedure.

Reviewer initials must be alphabetic characters (numbers may not be used) and may not exceed 3 character spaces. The reviewer's initials must be consistent for all entries.

CITATION FIELD: PRELIMINARY REVIEWER NOTES

dBase Field Type: Memo
dBase Field Width: 10
dBase Field Name: PREV_NOTES

The preliminary reviewer's notes are recorded in this field. These notes will be used to facilitate final critiques and summaries of the database entries.

```
REVIEWER FIELD:  REVIEWER #1 INITIALS
REVIEWER FIELD:  REVIEWER #2 INITIALS
REVIEWER FIELD:  REVIEWER #3 INITIALS


dBase Field Type:  Character
dBase Field Width:  3
dBase Field Name:  REVIEWER_1
                   REVIEWER_2
                   REVIEWER_3
```

The reviewers for the given entry enter their initials in these fields.

```
REVIEWER FIELD:  REVIEWER #1 NOTES
REVIEWER FIELD:  REVIEWER #2 NOTES
REVIEWER FIELD:  REVIEWER #3 NOTES


dBase Field Type:  Memo
dBase Field Width:  10
dBase Field Name:  R1_NOTES
                   R2_NOTES
                   R3_NOTES
```

These fields are used for any additional notes that the reviewers wish to make regarding the given entry.

```
REVIEWER FIELD:  REVIEWER #1 CRITIQUE
REVIEWER FIELD:  REVIEWER #2 CRITIQUE
REVIEWER FIELD:  REVIEWER #3 CRITIQUE


dBase Field Type:  Memo
dBase Field Width:  10
dBASE Field Name:  CRITQUE_R1
                   CRITQUE_R2
                   CRITQUE_R3
```

Critical analyses of the entry are included in these fields. The critiques include any information that will help the reader understand and analyze the entry.

Examples of Critique Topics:

Reliability and validity of the entry.

General comments regarding methodology, data analysis, etc.

REVIEWER FIELD: SUITABILITY RATING

dBase Field Type: Numeric
dBase Field Width: 1
dBase Field Name: SUITABILITY

The Suitability Rating is a quantitative ranking of the reviewer's rating for the disposition of the entry.

The ranking does not describe the quality or scholarly merit of the entry. Rather, the reviewers will rate the given entry according to its suitability for inclusion in the database.

The rating will be based on a 4-point scale, with "1" representing an entry that is most suitable for inclusion in the database and "4" representing an entry that is not suitable for inclusion in the database.

Suitability Rating Guidelines

1	Based on the abstract (if available) and the reviewer's previous knowledge, the publication is directly applicable to the EIAP goals and should be included in the database.
2	Based on the publication title and abstract (if available), the publication may be directly applicable to the EIAP goals and should be included in the database.
3	Based on the publication title and abstract (if available), the publication is indirectly related to the EIAP goals and should be included in the database.
4	Based on the abstract (if available) and the reviewer's previous knowledge, the publication should not be included in the database.

REVIEWER FIELD: CONTROVERSIALITY RATING

dBase Field Type: Logical
dBase Field Width: 1
dBase Field Name: CONTROVRSL

BBN team experts will rate each entry according to its controversiality in the scientific community.

The following 3-point scale will be used to rate the entries:

1	The entry is highly controversial due to its research approach, methodology or stated conclusions (e.g., "noise kills"). Most researchers would take an opposing position on the given research topic.
2	Some elements of the publication are controversial due to its research approach, methodology or results.
3	The publication is noncontroversial.

NOISE TYPE: Sonic Boom
NOISE TYPE: Aircraft
NOISE TYPE: Traffic
NOISE TYPE: Blast
NOISE TYPE: Seismic
NOISE TYPE: Wind
NOISE TYPE: Terrain Effects
NOISE TYPE: Other

dBase Field Type: Logical
dBase Field Width: 1
dBase Field Name: SONICBM
AIRCRAFT
TRAFFIC
NS_BLAST
NS_SEISMIC
WIND_NSE
NS_TERRAIN
OTHR_NSE

These fields are used to identify the type of noise that the given entry addresses.

```
EXPERIMENT TYPE: Field Experiment
EXPERIMENT TYPE: Laboratory Experiment
EXPERIMENT TYPE: Review/Literature Survey
EXPERIMENT TYPE: Proposal Article


dBase Field Type:  Logical
dBase Field Width:  1
dBase Field Name:  FIELD_EXPT
                   LAB_EXPMNT
                   REVIEW_ART
                   ?ROPOSL_AR
```

These fields are used to describe the experimental method or design of the entry.

The enterer must choose one of the four categories that best describes the given entry.

EXPERIMENT TYPE: Field Experiment is used when the entry describes a field experiment such as a social survey or community response inquiry. Or, a field experiment may be a quasi-experimental design in a natural setting.

EXPERIMENT TYPE: Laboratory Experiment is used when the entry describes a traditional laboratory experiment. (In this case, the experimenter will probably have strict control over the manipulated variables of the experiment.)

EXPERIMENT TYPE: Review/Literature Survey is used to describe a review article or literature survey of the current research status of a given topic.

EXPERIMENT TYPE: Proposal Article is used when the focus of the entry is a particular theoretical orientation without experimental testing of the theory.

```
IMPACT AREA FIELD:  Human
IMPACT AREA FIELD:  Animal
IMPACT AREA FIELD:  Structures


dBase Field Type:  Logical
dBase Field Width:  1
dBase Field Name:  HUMAN_AREA
                   ANIML_AREA
                   STRUC_AREA
```

These fields are used to describe the major area of impact of the given entry. If necessary, more than one major impact area can be designed for a single database citation.

```
HUMAN IMPACT FIELDS:  Annoyance
                      Physical Health
                      Psychological Health
                      Task Interference
                      Speech
                      Sleep


dBase Field Type:  Logical
dBase Field Width:  1
dBase Field Name:  H_ANNOYANC
                   H_PHYSICAL
                   H_PSYCHLGY
                   H_PERFRMNC
                   H_SPEECH
                   H_SLEEP
```

When the given entry focuses on the human effects of noise (as coded in Impact Area Field: Human), these fields are used for further description of the specific types of human effects.

ANIMAL IMPACT FIELDS: Species Classification
Domestication
Survival
Reproduction
Age/Sex Composition
Response to Disturbance
Social Behavior
Migration
Feeding
Maintenance
Predator Avoidance
Physical Health (general)
Traumatic Incidents
Audition
Stress
Growth
Predator-Prey Interactions
Habitat Use
Distribution
Abundance

dBase Field Type: Logical
dBase Field Width: 1
dBase Field Name:

ANML_ID	AL_PRAV
AL_DOME	AL_GENE
AL_SURV	AL_TRAU
AL_REPR	AL_AUDI
AL_AASC	AL_STRE
AL_RESP	AL_GROW
AL_SOCI	AL_PRPR
AL_MIGR	AL_HABI
AL_FEED	AL_DIST
AL_MAIN	AL_ABUN

When the given entry focuses on the animal effects of noise (as coded in Impact Area Field: Animal), these fields are used for further description of the specific types of animal effects.

STRUCTURE IMPACT FIELDS: Windows
Interior Walls
Exterior Walls
Wall Connections
Delicate Contents
Contents (not delicate)
Archaeological Sites
Historical Sites
Other Unconventional
Avalanche
Landslide
Material Mechanical Properties
Cumulative Effects

dBase Field Type: Logical
dBase Field Width: 1
dBase Field Name:

S_WINDOW	S_ARCHAEO
S_INWALLS	S_HISTORIC
S_EXWALLS	S_OTHCONVN
S_WALLCON	S_AVALANCH
S_DELICAT	S_LANDSLID
S_CONTENT	S_MECHAN
S_CUMEFFCT	

When the given entry focuses on the effects of noise on structures (as coded in Impact Area Field: Structure), these fields are used for further description of the specific types of structural effects.

G.2 Point-of-Contact Database Development Procedure

The Point-of-Contact Database is a directory of government agencies, civilian organizations and individuals who may need to be contacted during the Environmental Impact Assessment Process. The structural organization of this database is similar to a telephone "rolodex" system. Each entry lists the name, address, telephone number, and (where appropriate) governmental and/or organizational affiliation of the contact.

Figure G-2 presents a flowchart of the development procedure for this database. Each of the steps outlined in Figure G-2 is discussed in further detail below.

Step 1A: Development of Preliminary Database Schema (Field Structure)

The preliminary stages of database development focused on the organizational structure of the database. A computerized field structure was developed to tailor the data entry software to meet the specific needs of the ASAN development project.

During the preliminary stages of database development, the field structure served as an outline for the type of information that was entered, stored and retrieved from the database.

Step 1B: Review of Existing Databases and Directories

Databases that were already operational (such as the Interagency/Intergovernmental Coordination for Environmental Planning [IICEP] program available through the Environmental Technical Information System [ETIS]) were reviewed during the preliminary stages of database development. The review process served two functions. First, the organizational structures of the databases were analyzed for potential contributions to the current database field structure.

Second, these systems were searched for potential sources of contact information. It was found that a common limitation of contact source databases is that the information is quickly outdated. Furthermore, the maintenance of such databases is often sporadic and inconsistent because of time and budget constraints.

The database review process led to the conclusion that most of the information stored in existing databases was outdated; as a result, very few contact sources were integrated into the current database system.

Step 2: Revision of Database Field Structure

Once the database review process was completed, the Point-of-Contact database field structure was revised. A complete listing of the information fields is presented in Table G-2. As illustrated, the database required twenty unique information fields. In addition to geographic location information (such as mailing address and regional area), the database also included attribution fields that identified special functions of the contact. For example, government agencies were identified by their particular function (such as land use) and regional area of jurisdiction (such as city, county, state or federal involvement).

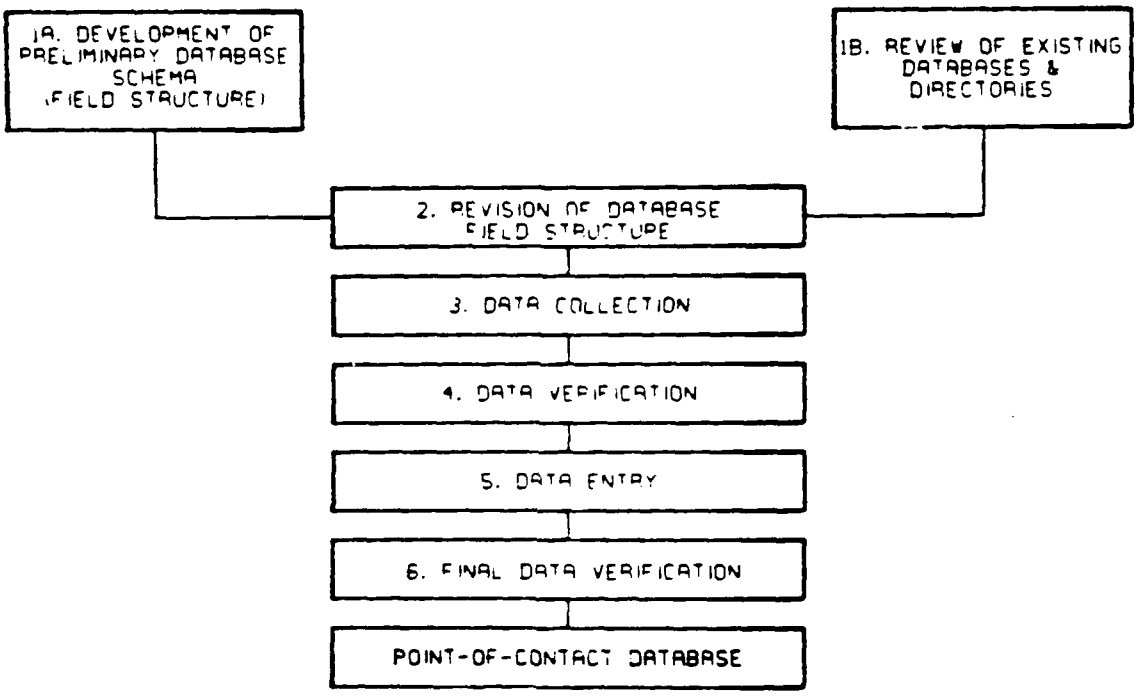

Figure G-2: Development Procedure: Point-of-Contact Database.

Step 3: Data Collection

Step 3 of the development procedure focused on the collection of contact sources for the database. The emphasis of the database collection was to demonstrate this approach for the Sells MOA in Arizona, which was selected as the demonstration site for ASAN. Directories of federal, state and county agencies were collected and reviewed for contact sources that were potentially useful to the EIAP. Local telephone directories of the Sells demonstration area were also collected for additional information.

Step 4: Data Verification/Update

Once the contact listings were collected, the information was reviewed for accuracy. Although the data collection process was designed to search for the most recent information available, data accuracy was often restricted by the lack of maintenance of original contact sources (as previously discussed in Step 1B).

During this stage of the development procedure, data verification consisted primarily of cross-checking the various contact sources for inconsistent data. For example, governmental agencies that were listed in more than one contact directory were reviewed to insure that both sources listed the same information for the given contact.

Step 5: Data Entry

Relevant contact information collected in Step 4 was entered into the computer data system.

Step 6: Final Data Verification/Update

Once all contact sources were entered in the database, a computerized listing of the information was printed and manually checked for accuracy. All entries in the database were scanned for typographical errors; individual entries were corrected as necessary. In addition, a group of contact entries was randomly selected from the database for additional verification. These contacts were telephoned for verbal confirmation of data accuracy.

Table G-2: Point-of-Contact Field Structures.

1. Last Name
2. First Name
3. Title
4. Agency/Department
5. Office
6. Street address/division
7. Post Office Box
8. Miscellaneous Address
9. City/Base
10. State
11. Zip Code/Extension
12. Mail Code
13. Telephone Number
14. Affiliation
15. Major Attribute
16. Minor Attribute
17. Scope of Authority
18. Data Enterer/Editor Initials
19. Date of Entry
20. Date of Most Recent Edit

G.3 Legislative Database Development Procedure

The Legislative Database has been designed as a planning tool for the review of noise assessment laws and regulations that are relevant to the EIAP. Figure G-3 presents a flowchart of the development procedure for this database. Each of the steps outlined in the flowchart is described in further detail below.

Step 1: Development of Database Schema

The first stage of the database development procedure is the organization of a computerized field structure to define the types of information for data entry, storage and retrieval. The database field structure also tailors the data entry software to meet the specific needs of the ASAN project.

Step 2: Data Collection

The second step in the database development procedure is to collect relevant information for inclusion on the database. Existing databases (such as the Environmental Technical Information System) were reviewed as potential information sources. For the demonstration site of Sells, Arizona, no state, county or city noise standards were found.

Step 3: Data Entry

Once relevant legislative documentation had been obtained, it was entered into the computer database.

Step 4: Data Verification/Update

The computerized data were verified for accuracy. Individual entries were scanned for typographical errors and corrected as necessary. Data that pertained directly to legislative statutes were also reviewed for recent amendments and revisions.

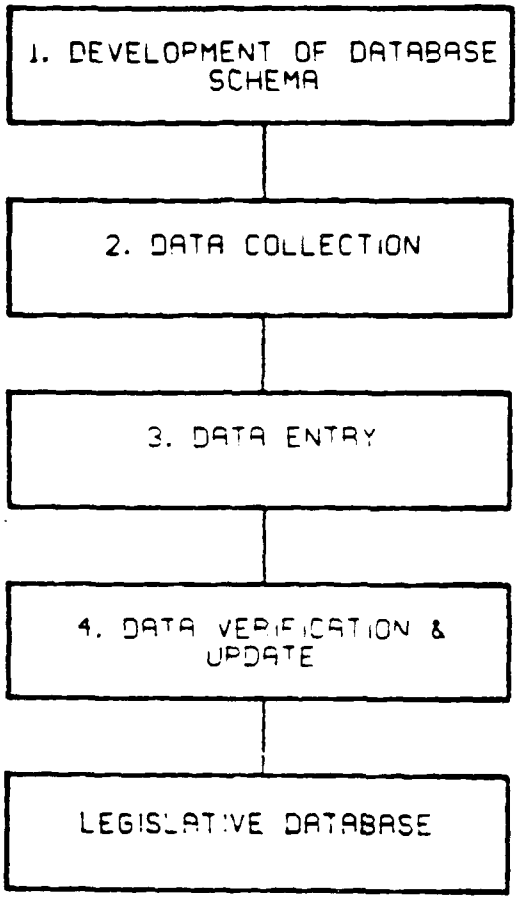

Figure G-3: Development Procedure: Legislative Database.

Appendices containing Screen Description Files and Program Listings may be found in Volume IV of this report.