The CEDRA Corporation's

COMMAND OF THE MONTH

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FEATURED COMMAND

Additional Aliquot
Parts Commands

Application Description

In last month's issue of Command of the Month we discussed the process of creating polygon features which were defined in terms of Aliquot descriptions. Specifically, the [Aliquot Polygon] command, within the CEDRA-Aliquot-Tools toolbar, was discussed.

In addition to simply creating polygon features one can envision additional applications which require the processing of Aliquot descriptions.

As an example, mentioned to us by an agency was an application where parcels, which were described in terms of Aliquot descriptions, were to have a specific attribute populated with a value. Additionally, this value could be entered explicitly by the user, in an interactive mode, or read in via an ASCII based file.

The CEDRA Solution

To facilitate this particular application, the user can activate the CEDRA-Aliquot-Tools toolbar, see Figure 1. The tools contained in this toolbar are available only for ArcGIS® users. Specifically, the top three commands within the choice list shown in Figure 1 are the commands that we will be discussing in this issue of Command of the Month.

Select Section Features - Overview

The [Select Section Features] command provides the user the ability to select the feature or features within the active layer that are assigned a specific section value.

Figure 1
CEDRA-Aliquot-Tools Toolbar

If no layer is active or if more than one layer is active, the error message shown in Figures 2 or 3 will appear depending upon the exact situation.

A section value can be defined in terms of a single attribute or two attributes. In selecting the feature(s) in the active layer, the command queries the appropriate attribute(s), within the active layer, using data specified by the user.

Command Of The Month bulletin

This month's issue discusses the additional commands, available in the CEDRA-Aliquot-Tools toolbar, for processing Aliquot Parts.

Once a query has been made, the command remains active so that the user is able to select features in another section, if so desired. In addition, the user is able to clear the previous selection or keep the selection, thereby providing the user the ability to add to the previous selection set.

Select Section Features - Operation

1. Activate or select in the Table of Contents the layer to be processed.

**Figure 2 - No Active Layer
Error Message**

**Figure 3 - More than One Active
Layer Error Message**

2. Once the command has determined the layer to be processed, the user is prompted for the attribute(s) which identify the section value. Note that this is not the section value to be searched for, but rather, the attributes (fields) in the layer which comprise the section value.

    If the section value is defined in terms of a single attribute, the user should respond in a manner similar to that shown in Figure 4. That is, the topmost data field should contain the name of the attribute which holds the section values.
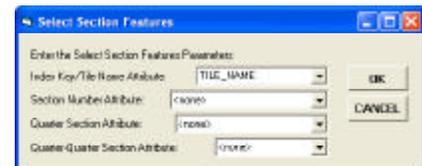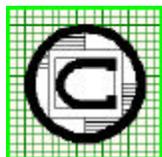

**Figure 4 - Example of Section Value
defined by a Single Attribute**

If the section value is defined in terms of two attributes, the user should respond in a manner similar to that shown in Figure 5.
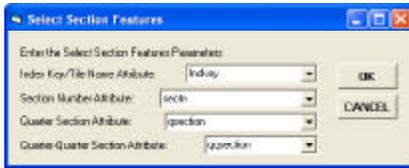

Figure 5 - Example of Section Value defined by Two Attributes

In this case the top two data fields need to be specified with the appropriate field names. The bottom two data fields are not used by this command but are used by the [Read Lease Nominations] and the [Enter Lease Nominations] commands.

If the attribute is not to be defined, the <none> option should be selected for the parameter.

Beginning at the top of the dialog box, the user is able to control the following:

Data Line 1 - Index Key/Tile Name

This is the attribute that contains the index key value or the tile name value. In the case where the section value is described in terms of a single attribute, this is the attribute containing the section value. In the case where the section value is comprised of two attributes, this is the first of the two attributes.

Data Line 2 - Section Number

This is the attribute that contains the section number value. In the case where the section value is comprised of two attributes, this the second of the two attributes.

Data Line 3 - Quarter Section

Not used by this command, but denotes the attribute which contains the quarter section values.

Data Line 4 - Quarter-Quarter Section

Not used by this command, but denotes the attribute which contains the quarter-quarter section values.

After entering the appropriate value(s), click at the:
● *Cancel* button to terminate the command, or the
● *OK* button to continue with the processing.

3. If the OK button is selected, the command prompts the user for the section value to be found.

To facilitate the specification of the section value to be found, the user can prepare one or two summary tables, depending on whether the section value is comprised of one or two attributes. If the command detects the presence of the summary table(s), the command will present a choice list of section values. If the summary table(s) are not present, the user will need to explicitly enter the section value.

If the section value is comprised of one attribute, the user can use native ArcMap functionality to summarize the layer on the attribute containing the section values to create a table called IndexKey. The name of the table must be IndexKey. Figure 6 contains an example of the IndexKey table for a layer whose

section value is comprised of a single attribute. From Figure 6 it can be seen that the section value is stored in the TILE_NAME attribute.

When the IndexKey table exists, the dialog box shown in Figure 9 will be displayed much faster than if the table does not exist. This becomes very obvious when the active layer contains a large number of features, since the command will need to summarize the active layer, on the appropriate field, if the IndexKey table is not present.

If the section value is comprised of two attributes, the user can use native ArcMap functionality to summarize the layer on the attributes containing the section values to create two tables called IndexKey and SectionNum. The names of the tables must be IndexKey and SectionNum. Figures 7 and 8 contain examples of the IndexKey and SectionNum tables for a layer whose section value is comprised of two attributes. From Figures 7 and 8 it can be seen that the Indkey and sectn attributes comprise the section value.

To select the features which match a section value, the command queries the active layer on the appropriate attribute(s). For Figures 7 and 8 the Indkey and sectn attributes would be queried, while for Figure 6, the attribute would be TILE_NAME.

Figure 6 - Example of IndexKey table for Section Value defined by a Single Attribute

Figure 7 - Example of IndexKey table for Section Value defined by Two Attributes

Figure 8 - Example of SectionNum table for Section Value defined by Two Attributes

When the section value is comprised of two attributes the presence, or lack thereof, of the summary tables will effect the look of the multi-input dialog box that is presented when querying for the section value.

Shown in Figure 9 is the multi-input dialog box that appears when the section value is comprised of a single attribute. The presence of the IndexKey table for this case will only effect the speed in which the dialog box is displayed.
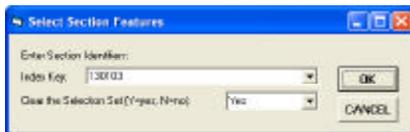

Figure 9 - Prompt for Section Value to be searched (One Attribute Case)

Shown in Figures 10 and 11 are the multi-input dialog boxes which appear when the section value is comprised of two attributes. Figure 10 appears when the summary tables

Figure 10 - Prompt for Section Value to be searched when Summary Tables are not present (Two Attributes Case)

Figure 11 - Prompt for Section Value to be searched when Summary Tables are present (Two Attributes Case)

have not been created, while Figure 11 appears when the summary tables *have* been created.

In the case where the section value is comprised of two attributes, when the summary tables *are not* present and the user enters the section value manually, the first attribute value of the section value is defined by concatenating the Prefix, Town and Range parameters. If the <none> option is entered for the Prefix parameter, the Prefix parameter is omitted from the concatenation. The result of this concatenation and the Section parameter value, which acts as the second attribute value, are used in querying the active layer to determine a section value match.

3. Enter the appropriate value(s), click at the:
   ● *Cancel* button to terminate the command, or the
   ● *OK* button to process the data that has been specified.

If the OK button is selected, the command queries the active layer for those features assigned the specified section value. If a selection exists, the features are highlighted and displayed on the map.

Depending upon the setting of the Clear the Selection Set parameter, the command will either add to or replace the current selection set. Selecting the Yes option will replace the current selection set, while No results in the current selection set being added to.

4. Repeat Step 3 until the *Cancel* button is selected.

Once the Cancel button has been selected, the command will display in the status bar area the total number of selected features in the active layer.

Read Lease Nominations - Overview

The [Read Lease Nominations] command provides the user the ability to process an ASCII based file storing in a user-specified attribute a value read from the ASCII file for one or more features, which are identified in terms of an Aliquot description. The features which are modified are those which reside in the active layer.

If no layer is active or if more than one layer is active, the error message shown in Figures 2 or 3 will appear depending upon the exact situation.

Shown in Table 1 is an example of an ASCII based file which this command can process. Each data line within the file is comprised of four groups of data:

a. The index key. For example: MT20T0130N0370E.

```
MT20T0140N0330E  002  SSENE,NESW,S2SW,SE   MTM 79010-H9
MT20T0260N0590E  003  SWNE   MTM 79010-VP
MT20T0130N0370E  003  SWNE,S2SW   MTM 80010-VP
MT20T0160N0440E  006  13, 14   MTM 60010-VP
MT20T0140N0330E  010  NE,N2NW,S2SW   MTM 79010-H9
MT20T0140N0330E  012  N2   MTM 79010-H9
MT20T0140N0330E  014  N2NE,NW,S2SE   MTM 79010-H9
MT20T0140N0330E  028  E2NE,W2W2,SESW,SESE   MTM 79010-H9
MT20T0140N0330E  032  W2NW,SWSW   MTM 79010-H9
```

Table 1 - Example of ASCII file processed by the Read Lease Nominations Command

b.   The section number. For example: 003.

c.   The features to be modified. For example: SWNE,S2SW.

d.   The value to be assigned to the feature(s) identified in Group C. For example: MTM 80010-VP.

Each group of data is separated from the other by at least one space (blank character). The features to be modified (Data Group c) are identified in terms of an Aliquot description and are delineated by a comma. There is no limit to the number of features that can appear in this data group. The value to be assigned to the feature(s) can be comprised of one or more individual words. In Table 1, the value to be assigned is comprised of two words.

Read Lease Nominations - Operation

1.   Activate or select in the Table of Contents the layer to be processed.

2.   Select the command and enter the appropriate value(s) for the parameters shown in Figure 12, click at the:
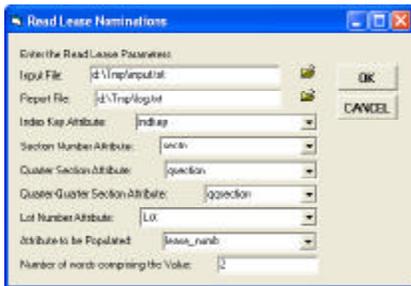
Figure 12 - Read Lease Nominations
Multi-Input Dialog Box

● *Cancel* button to terminate the command, or the
● *OK* button to process the ASCII based file.

Beginning at the top of the dialog box, the user is able to control the following:

Data Line 1 - Input File

The ASCII based file to be processed. Selecting the file folder icon on the right side of the param-

eter enables the user to pick the file using a file navigation dialog box.

Data Line 2 - Report File

The name of the report or log file to be created. This file will contain a list of the features which were modified. Shown in Table 2 are excerpts of the file that is created. Selecting the file folder icon on the right side of the parameter enables the user to specify the name of the report file using a file navigation dialog box. Specifying an existing file results in the command prompting the user if the existing file is to be overwritten or not.

Note that in the report file, the command echoes the data line read in

from the ASCII file and identifies the data groups which were parsed from the data line. Below this information is a listing of the features which were modified.

Data Line 3 - Index Key

This is the attribute that contains the index key value or the tile name value.

Data Line 4 - Section Number

This is the attribute that contains the section number value.

Data Line 5 - Quarter Section

This is the attribute that contains the quarter section value.

```
                  Read Lease Nominations

Index Key Attribute:                    lndkey
Section Number Attribute:               sectn
Quarter Section Attribute:              qsection
Quarter-Quarter Section Attribute:  qqsection
Lot Number Attribute:                   Lot
Attribute to be Populated:              lease_numb
Layer to be Populated:                  TEST_LAYER
Input File:                             D:\Tmp\test01.txt

Line 0003:  MT20T0130N0370E  003  SWNE,S2SW  MTM  80010-VP

                Index Key Value:      MT20T0130N0370E
                Section Number Value: 003
                Value to be Stored:   MTM 80010-VP
                Process the Features: SWNE S2SW

            16 features found.

            OID: 1548 modified as per SWNE
            OID: 1595 modified as per S2SW
            OID: 1596 modified as per S2SW

Line 0004:  MT20T0160N0440E  006  13, 14  MTM  60010-VP

                Index Key Value:      MT20T0160N0440E
                Section Number Value: 006
                Value to be Stored:   MTM 60010-VP
                Process the Features: 13 14

            20 features found.

            OID: 20271 modified as per 13
            OID: 20272 modified as per 14

   Started: 02:15:34 PM 8 Sep 2007
   Stopped: 02:15:40 PM 8 Sep 2007
```

Table 2 - Example of the Report file created by the
Read Lease Nominations Command

Data Line 6 - Quarter-Quarter Section

This is the attribute that contains the quarter-quarter section value.

Data Line 7 - Lot Number

This is the attribute that contains the lot number value.

Data Line 8 - Attribute to be Populated

This is the attribute that is to contain the value read in from the ASCII file.

Data Line 9 - Number of Words

This is the number of words which comprise the value to be assigned to the feature(s). This value must be greater than zero and denotes the number of right-most words in a data line that comprise the value to be assigned.

Once the command finishes its processing a message stating the number of data lines read in and the name of the report file which was created will appear in the status bar area.

As a data line is read from the input file, the command determines the contents of the various Data Groups (a, b, c and d). The Index Key and Section Number attributes, as specified in Figure 12, are used to determine a match with the contents of Data Groups a and b. That is to say, the command queries the active layer on the Index Key and Section Number attributes using the values read in for Data Groups a and b to determine the *pool of features* which could be modified.

The contents of Data Group c determines the specific feature(s) that are to be modified.

When the *pool of features* equals 16, the quadrant identifiers shown in Figures 16(a) through 16(h) are used to determine which features are to be modified. In addition to the quadrant identi-

fiers, the user can enter a numeric value to designate a feature for modification. In this case, the Lot Number attribute is used to identify the feature.

For example, rather than specifying NESW or SWSE, the user could enter 14. In this case, in order for the feature to be modified, the Lot Number attribute value for this feature would have to equal 14, L 14 or LOT 14.

In processing the Lot Number attribute, the command applies the L and the LOT prefixes, in addition to the numeric value, in order to try to make a match. As another example, if the Data Group c value was 13, the active layer could contain a feature whose Lot Number attribute value was equal to 13, L 13 or LOT 13. All three values would constitute a match. Note that this method is used regardless of the number of the *pool of features*.

When the *pool of features* is not equal to 16, the command uses the Section Number, Quarter-Quarter Section and Lot Number attributes, as specified in Figure 12, to determine which specific features are to be modified. That is to say, the command queries the active layer for an attribute match with one of the following attributes: Section Number, Quarter-Quarter Section and Lot Number in order to determine the feature to be modified.

Within the report file will be a listing of the features which were modified along with the Data Group c value which resulted in the feature being modified.

Enter Lease Nominations - Overview

The [Enter Lease Nominations] command provides similar functionality to the [Read Lease Nominations] command with the exception that the user enters the data via a multi-input dialog box.

Enter Lease Nominations - Operation

1.   Activate or select in the Table of Contents the layer to be processed.

2.   Select the command and enter the appropriate value(s) for the parameters shown in Figure 13, click at the:
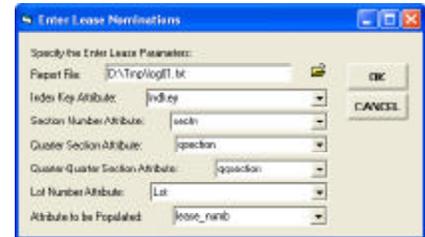

Figure 13 - Enter Lease Nominations Attribute Specification Multi-Input Dialog Box

● *Cancel* button to terminate the command, or the
● *OK* button to continue with the processing.

Beginning at the top of the dialog box, the user is able to control the following:

Data Line 1 - Report File

The name of the report or log file to be created. This file will contain a list of the features which were modified. Shown in Table 3 are excerpts of the file that is created. Selecting the file folder icon on the right side of the parameter enables the user to specify the name of the report file using a file navigation dialog box. Specifying an existing file results in the command prompting the user if the existing file is to be overwritten or not.

Note that in the report file, the command echoes the data line entered by the user and identifies the data groups which were parsed from the user-specified data. Below this information is a listing of the features which were modified.

Data Line 2 - Index Key

This is the attribute that contains the index key value or the tile name value. In the case where the section value is comprised of two attributes, this is the first of the two attributes.

```
                    Enter Lease Nominations

Index Key Attribute:                    lndkey
Section Number Attribute:               sectn
Quarter Section Attribute:              qsection
Quarter-Quarter Section  Attribute:  qqsection
Lot Number Attribute:                   Lot
Attribute to be Populated:              lease_numb
Layer to be Populated:                  TEST_LAYER

Line  0003:  MT20T0130N0370E  003  SWNE,S2SW  MTM  80010-VP

              Index Key Value:       MT20T0130N0370E
              Section Number Value: 003
              Value to be Stored:    MTM  80010-VP
              Process the Features: SWNE S2SW

            16 features found.

              OID: 1548 modified as per SWNE
              OID: 1595 modified as per S2SW
              OID: 1596 modified as per S2SW

Line  0004:  MT20T0160N0440E  006  13, 14  MTM  60010-VP

              Index Key Value:       MT20T0160N0440E
              Section Number Value: 006
              Value to be Stored:    MTM  60010-VP
              Process the Features: 13 14

            20 features found.

              OID: 20271 modified as per 13
              OID: 20272 modified as per 14

  Started:  03:25:34  PM  10  Sep  2007
  Stopped:  03:25:40  PM  10  Sep  2007
```

**Table 3 - Example of the Report file created by the
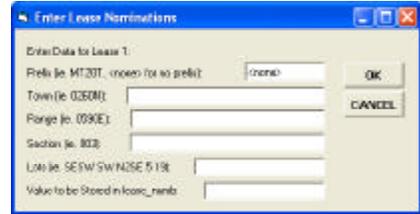Enter Lease Nominations Command**

Figure 14 - Enter Lease Nominations
Multi-Input Dialog Box
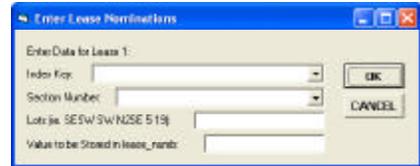Summary Tables not Present

Figure 15 - Enter Lease Nominations
Multi-Input Dialog Box
Summary Tables Present

● *Cancel* button to terminate the command, or the

● *OK* button to process the specified data.

If the OK button is selected, the command queries the active layer for those features assigned the specified section value. If a selection exists, the features satisfying the Lot parameter values are assigned the value entered in the Value to be Stored parameter. A message stating the number of features which were modified will appear in the status bar area.

In the case where the summary tables are not present and the user enters the section value manually, see Figure 14, the first attribute value of the section value is defined by concatenating the Prefix, Town and Range parameters. If the <none> option is entered for the Prefix parameter, the Prefix parameter is omitted from the concatenation. The result of this concatenation and the Section parameter value, which acts as the second attribute value, are used in querying the active layer to determine a section value match.

In the case where the summary tables are present, see Figure 15, the two

Data Line 3 - Section Number

This is the attribute that contains the section number value. In the case where the section value is comprised of two attributes, this the second of the two attributes.

Data Line 4 - Quarter Section

This is the attribute that contains the quarter section value.

Data Line 5 - Quarter-Quarter Section

This is the attribute that contains the quarter-quarter section value.

Data Line 6 - Lot Number

This is the attribute that contains the lot number value.

Data Line 7 - Attribute to be Populated

This is the attribute that is to contain the value read in from the ASCII file.

3. If the summary tables *are not* present the multi-input dialog box of Figure 14 will be displayed. If the summary tables *are* present the multi-input dialog box of Figure 15 will be presented. Enter the appropriate value(s) for the parameters, click at the:

attribute values comprising the section value are specified by selecting the appropriate values from the choice lists for the Index Key and Section Number parameters.

In addition to the section value, the user is able to control the following:

Data Line - Lots

The Aliquot descriptions for the features to be modified. If multiple descriptions are to be entered, a comma must separate each entry. Any of the Aliquot descriptions shown in Figures 16(a) through 16(h) can be entered for this parameter.

Data Line - Value to be Stored

The value to be stored in the specified attribute for the features found matching the entry for the Lots parameter entered above.

If the OK button is selected, the command will process the information entered by the user and display in the status bar area the number of features which were modified.

4.   Repeat Step 3 until the *Cancel* button is selected.

Once the Cancel button has been selected, a message stating the number of data lines entered by the user and the name of the report file which was created will appear in the status bar area.

Notes

a.   Shown in Figures 16(a) through 16(h) are pictorial representations of the available quadrant identifiers that can be entered for the Lots parameter in Figures 14 and 15. The Lots parameter is the second from the bottom parameter in these Figures. These quadrant identifiers can also appear in the Group C data group as processed by the [Read Lease Nominations] command.
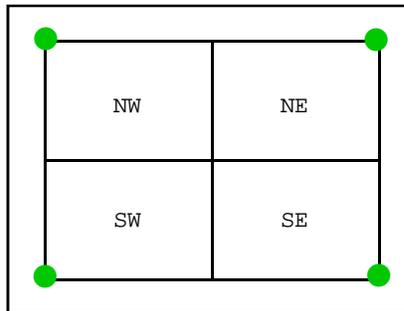

Figure 16(a) - Default 4 Quadrants in a Quadrilateral

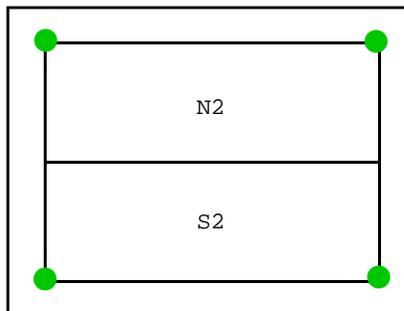
Figure 16(b) - Default N and S halves in a Quadrilateral

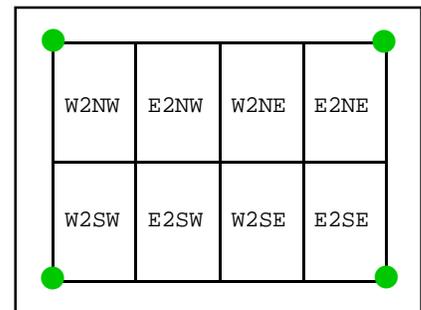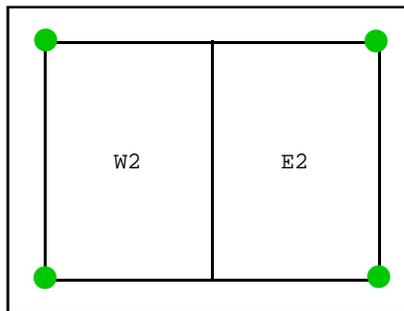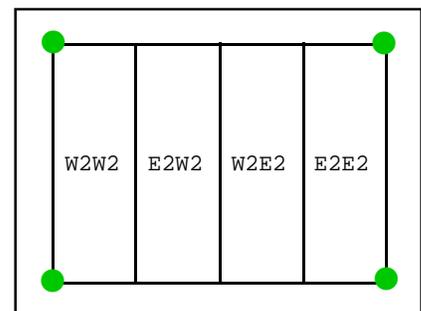
Figure 16(c) - Default E and W halves in a Quadrilateral

Figure 16(d) - Default 16 Lots in a Quadrilateral

Figure 16(e) - Default N and S Half Quarters in a Quadrilateral

Figure 16(f) - Default E and W Half Quarters in a Quadrilateral

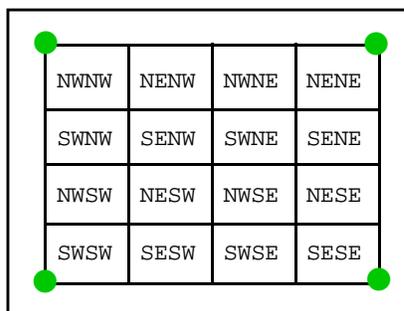**Figure 16(g) - Default E and W Half Sections in a Quadrilateral**
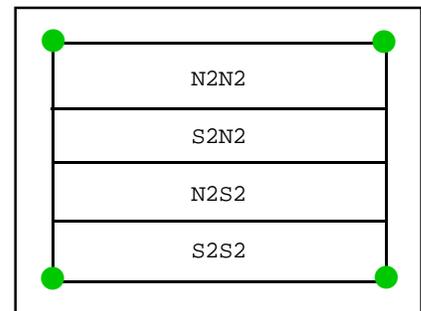

Figure 16(h) - Default N and S Half Sections in a Quadrilateral

b. Should the user wish to undo the feature modification performed by the [Read Lease Nominations] and the [Enter Lease Nominations] commands, the {Edit} [Undo] command can be selected to reverse or undo the feature modification.

c. The [Select Section Features] command can process a section value that is comprised of one or two attributes. The [Read Lease Nominations] and the [Enter Lease Nominations] commands operate on the basis that the section value is comprised two attributes.

d. The [Select Section Features], [Read Lease Nominations] and the [Enter Lease Nominations] commands share common global variables. What this means is that when one of these commands is used, the names of the attributes (fields) which were specified will be transferred to the other commands. For example, when the Index Key or Section Number attribute is specified in one command, the other two commands, when invoked, will recognize these attribute names. In so doing, the user does not need to redefine data which is common to all three commands.

Summary

The [Read Lease Nominations] and the [Enter Lease Nominations] commands address the application that was mentioned to us. Obviously, there are probably other applications out there which require the processing of Aliquot descriptions. Those who have a suggestion for additional Aliquot description processing should feel free to contact us.

Note that the CEDRA-Aliquot-Tools toolbar has recently been added to the software. So that, users wishing this new functionality should inquire about getting an upgrade to their existing software.

If you have a request for Command Of The Month, feel free to phone, fax or e-mail your request to The CEDRA Corporation.