APPENDIX C

DATA MANAGEMENT QA/QC PROCEDURES

STANDARD OPERATING PROCEDURE FOR QUALITY ASSURANCE (QA) OF PARSONS WORK VARIANCE (WVN) 15, 18 AND 32 OF PAST CONTRACTOR OE DATA AT THE FORMER FORT ORD

1.0 PURPOSE

This Standard Operation Procedure (SOP) describes the procedures to be followed to QA the Quality Controlled (QC) databases and GIS layers received as deliverables from Parsons for Work Variance 15, 18 and 32.

2.0 SCOPE

The goal of this QA process is to establish a data confidence and integrity level that is acceptable for the anticipated use of the data sets. This data confidence level will be achieved through the QA procedures written here and will determine a "Pass" or "No Pass" decision of the USACE QA. In addition to the data integrity it is important to ensure that all applicable information has been extracted from prior contract OE related investigations.

3.0 RESPONSIBILITIES AND REQUIREMENTS

The following is an overview of the personnel, hardware/software, and deliverables to be received for the QA process.

3.1 Personnel

- **USACE GIS/Database** - Assesses all non-OE Item related issues for correctness, makes decisions, and signs QA record for each discrepancy listed.
- **USACE OE Specialist** - Assesses OE Item nomenclature for correctness and for unique values, makes decisions, and signs QA record for each listed OE item related discrepancy.

3.2 Hardware/Software

The following minimum hardware/software is needed during the review process:

- High-end computers for GIS analysis and viewing.
- 8.5 X 11 Paper Printer
- Microsoft Office 2000 with Access, Excel and Word to evaluate both database versions, spreadsheet and report document(s).
- ESRI ArcView to evaluate all GIS layers in conjunction with the QC Database.
- ESRI ArcCatalog to view metadata files.
- AutoDesk AutoCAD Map 2000 to view all related CAD drawings.

3.3 Deliverables to be Received

- **QC Past Contractor Data in Original Database Structure (if one exists)**

- **QC Past Contractor Data in New OE Database Structure**

- **Discrepancy Report**

  Each discrepancy found between field sheets (which after QC will match the database) and all Final reports, GIS layers and other data sources.

- **List of Titles and Versions of All Documents Reviewed (i.e. Final AAR, Summary Reports, Final Sampling Reports, etc.)**

- **A Copy of Each Document Reviewed**

  The discrepancy report should have specific references to the document and page, GIS layer, or any other information to assist in finding the discrepancy source information, so that the USACE can make determinations to each discrepancy resolution.

- **Associated Historical GIS Layers with Metadata, FGDC Compliant and Delivered in ArcCatalog .xml Format**

  Metadata to include drawings GIS layers came from, and any and all additional derived information about the layer including information from the USA CAD Drawing Database.

- **Spreadsheet of Drawing Files Reviewed for CAD Extraction But Did Not Have Relevant Data to Extract to GIS Layer**

4.0 PROCEDURES

The procedures described below will vary depending on specific data errors encountered. Data is being reviewed for all anticipated, possible errors.

4.0.1 "Pass" "No Pass" QA. If >1% of record number QA'd i.e. more than 1 instance out of 100 records QA'd in other words a 30,000 record database, 10% randomly selected and QA'd = 3,000 records, 1% of 3,000 = 30 then no more than 30 instances of Gross Error are allowed for the entire QC data set deliverable are found in Gross Error, the database is unacceptable and will "Not Pass" QA. It will then be determined by the USACE whether or not to resubmit the database, any or all of the deliverables to the QC process. Gross Errors = data integrity significantly reduced, this determination is subjective and will be determined by the USACE on a case-by-case basis. For example, possible Gross Errors can be made through typing errors i.e. instead of OE-13B, Oe-13b is acceptable as long as it does not interfere with GIS and database query or can be batch corrected. Instead of OE-13B, OE-18B is NOT acceptable, data gaps from original sources not added value fields such as Data Source, and not if properly documented that data source is missing, failure to list discrepancy, and duplication of data records. An Instance is judged by the action taken or not taken to incur gross error. One duplicate record is one instance,

but seven duplicate records are seven gross errors. The USACE will determine gross error instances on a case-by-case basis.

4.1 Overview

- USACE GIS/Database individual(s) query OE Item Nomenclature ID based on sum of Quantity to determine all unique values.
- Query Results are given to USACE OE Specialist who assesses the OE Item nomenclature for correctness and unique values as compared to the Fort Ord Master OE Item Pick List values. All changes to each nomenclature is documented for historical archive by Parsons, and all unique values as compared to the Fort Ord Master OE Item Pick List values are given to Parsons for incorporation to the Fort Ord Master OE Item Pick List. All categories for new unique values are to be populated by Parsons and then QA'd by USACE OE Specialist.
- USACE OE Specialist reviews each listed OE Item related discrepancy, then checks this discrepancy against cited data source and documents a resolution for each. All discrepancy resolutions are then incorporated into the database.
- USACE GIS/Database individual(s) check OE Item Nomenclature ID based on sum of Quantity Query result against duplicate coordinates (Northing or Easting field) query, if both are duplicates, then crosscheck with sources/documentation to confirm no duplicate entries.
- USACE GIS/Database individual(s) execute Duplicate Grid ID query in tblgrid_ops table. Compare results with tblgrid_ops table fields such as Date, Instrument, Team #, and Anomaly to determine possible duplicate entries. Check results with sources/documentation to assure no duplicate entries.
- USACE GIS/Database individual(s) check all fields between old Database structure and New Database Structure to determine any data loss or loss of data integrity.
- USACE GIS/Database individual(s) check all extracted GIS layers against documented CAD drawings for any error incurred during data conversion. For example, assure properly closed polygons, assure no dangles or overshoots, no missing relevant CAD labeled data as attributes, assure attribution is correct against the drawing or from another source or is a cited discrepancy, and assure no duplication between extracted GIS layers.
- USACE GIS/Database individual(s) check all documented CAD drawings against all relevant or suspected relevant past contractor drawings to assure all relevant CAD drawings were reviewed.
- USACE GIS/Database individual(s) check all extracted GIS layer metadata for accuracy against documented CAD layers. Metadata should have all documented and derived data to give the viewer all available information to assess the features and compare them against "known good" GIS features.
- USACE GIS/Database individual(s) check all extracted GIS layers against Fort Ord Master GIS Coverages to assure no duplication or conflicts spatially or within the metadata. Conflicts should already be documented by discrepancy.
- USACE GIS/Database individual(s) on screen plot OE Items from Northing and Easting fields of the OE Items Encountered table and check against GIS layers such as OE Sites, Boundary, Master Grid, etc. assure OE items are associated/x, y plotted with correct OE site and/or Grid, i.e. an item plotted off-site is subject to Gross Error, an item plotted with

State Plane Coordinates that did not originally have recorded coordinates must be documented that coordinates were assigned based on source. OE items with no valid Northing and Easting should be associated with a Grid feature and/or database grid record, if not, then it should be associated with an OE Site feature or OE Site database record.

- USACE GIS/Database individual(s) assure synchronization of unique ID nomenclature of Master Grids GIS layer and delivered CAD extracted grid features with Grid IDs in both tblgrid Table and tblGrid_ops Table as well as all grid aliases. Individual must be able to perform a SQL Connect in ArcView and join all grids features to Grid Ids and query based on grid attributes including attributes in tblgrid_ops table. All grids that spatially match the Master Grids should have an alias in the tblgrid_alias table, if data is available from the data source(s). The Master Grid Ids should be populated in the tblgrid_ops table and should match the Ids in the Master Grids GIS layer. All CAD extracted grid features that do not spatially match the Master Grids should have their unique Ids in the tbl_grid table and the tblgrid_ops table. These grids should only have an alias if they spatially match the grid feature(s) and were assigned another name by a prior OE contractor. If the GIS Grid feature Ids and the Grid Ids in the database do not match they should be documented as a discrepancy with cited source.
- USACE GIS/Database individual(s) randomly select 10% of records from the tblgrid_ops table that have OE encountered to QA check against collected data sources/documents. All other tables will be reviewed dictated on the individual's confidence level of data integrity. This QA check is a 1 to 1 check from data source to database to assure there are no Gross Errors which may include: typing errors (i.e. OE-13B. instead of Oe-13b is acceptable as long as it does not interfere with GIS and database query or can be batch corrected. OE-13B instead of OE-18B is not acceptable, data gaps from original sources not added value fields such as data source, and not if properly documented that data source is missing, failure to list discrepancy and duplication of data records.
- USACE GIS/Database individual(s) review each listed non-OE item related discrepancy against cited data source(s). Document resolution for each discrepancy and return to Parsons for incorporation into data set. All discrepancy resolutions will be entered by Parsons to assure all data creation and changes are made at a central location.
- USACE GIS/Database individual(s) and USACE OE Specialist to initial steps on checklist performed and sign that all QA procedures have been successfully executed and that each person will QA review discrepancy resolutions incorporated by Parsons.
- After the database has passed these QA procedures and all changes have been incorporated, the database is considered complete (with the exception of an event such as: missing data sources surface and then need to be QA/QC reviewed and incorporated).
- USACE GIS/Database individual(s) links database to the GIS and compares information against the final after action report (AAR). The AAR is not to be assumed 100% accurate. The comparison is used only to identify additional records to review. OE and UXO listings are compared and the differences are investigated separately. Grid operations are compared with the Operations section in the AAR and differences are investigated.

QUALITY CONTROL REVIEW PROCEDURES FOR OE DATA COLLECTED UNDER PREVIOUS CONTRACTS

1.0 PURPOSE

This document describes the procedures to be followed to conduct QC review of prior OE data collected. Standard methods will ensure a thorough review of data completeness and correctness. Complete documentation will allow the USACE to validate the quality of the review process and the final OE database.

2.0 SCOPE

This procedure applies to the review, evaluation, and correction of OE-related data sets collected under prior contracts. The review process is intended to:

- identify and fix data gaps.
- correct input errors.
- standardize site and grid name aliases and OE item descriptions.
- rectify and convert local coordinates to State Plane coordinates.
- associate current Master Grid ID's with prior grid operations.
- incorporate reviewed and corrected data into a QC/QA-complete OE database to improve conformity and data integrity.

3.0 RESPONSIBILITIES AND REQUIREMENTS

The following is an overview of the personnel, hardware/software, and source data requirements for the review process.

3.1 Personnel

- **Task Manager** (Parsons Program Manager) - Oversees tasking and scheduling.
- **GIS Specialist** (Parsons GIS Manager) - GIS QC (e.g., local-to-State Plane coordinate conversion) and project management support.
- **Database Specialist** (Parsons Database Manager) - Plans and implements project procedures detailed in Section 4. Database QC based on in-depth knowledge of prior and current OE database structures, data, After Action Reports, and the Revised Archives Search Report.
- **Data Entry/Reviewers** (Parsons Database Support Personnel) - Personnel trained to review 100% of initial OE-related data sets and document corrections in accordance with this procedure.

- **Ordnance Specialists**

- Parsons – Perform initial review of records and recommend corrections to ordnance nomenclature, condition and disposition.
- USACE-SPK – Provide final ordnance QA.

3.2 Hardware/Software

The following hardware/software is needed during the review process:

- Computers with Microsoft Office to review existing digital data and key-in hard copy data.
- Microsoft SQL 2000 to incorporate the final data into the new OE Project database structure.
- Printers for hardcopy verification and documentation of field data collected.

3.3 Source Data

There are a number of digital and hard copy data sources available for review. Final versions of After Action Reports will be used.

- **USA/CMS Data**

  Digital – Field data in PDF format from USA; USA data in Access tables.
  After Action Reports - Includes field grid records and team journals.

- **UXB Data**

  Digital – Excel spreadsheets of OE-related data derived from UXB After Action Reports produced by Harding.
  Original Documentation Reports – Hard copy field data.
  After Action Reports

- **HFA Data**

  Digital – No prior HFA digital data is available.
  After Action Report – General summary OE information is available in the HFA "OEW Sampling and OEW Removal Action FT. ORD FINAL REPORT", December 1, 1994 (Vol. I), September 24, 1994 (Vol. II-III).

- **Archives Search Report**

  The "Revised Archives Search Report, Former Fort Ord, California" (Draft), 1997, provides a useful overview of OE activities at Fort Ord and includes OE-related information not found in any other data source. The Archives Search Report includes the Risk Assessment Code (RAC) sheets prepared by USACE safety specialists for sites where no further OE work was required.

- **Other Summary Reports**

Other summary reports (e.g., the Engineering Evaluation/Cost Analyses) will not be used. These documents lack the detailed data source information necessary to maintain database integrity.

4.0 PROCEDURES

The procedures described below will vary depending on available data sources. Sites are being reviewed in accordance with current priorities.

4.1 Outline of QC Steps

1. Determine data needs and gaps.
2. Initial digital review of local coordinates and grid sheets received.
3. Confirm grid sheets received and rectify remaining data gaps.
4. Coordinate conversion (local coordinates to State Plane).
5. Compare field grid records with database grid records.
6. Compare field OE data with database OE encountered records.
7. Compare demolition records with database OE encountered records.
8. 10% OE item review.
9. Ordnance QC/OE nomenclature conversion.
10. Post-process Operations Type, Operations Class
11. GIS QC
12. Document discrepancies and changes.
13. Transfer QC-complete data into OE database structure.
14. Parsons QC-QC.
15. USACE QA.
16. Transfer QC/QA-complete data into SQL Server.

4.2 Detailed Procedures

Step 1. Determine data needs and gaps.

<u>Existing Digital Data (USA/CMS)</u>

After site review priorities are established (e.g., Parker Flats), identify digital records for which no grid sheet exists.

- Identify records that have not been compared with a grid sheet by selecting records with no value in the DATA_SOURCE_TYPE field.
- Filter down to the records for the site(s) of interest. Export results into an Excel spreadsheet. Include site, grid number and work date information to help obtain correct grid sheet(s).

- Compare these records with available grid sheets. For records with a corresponding grid sheet, make the appropriate entry in the DATA_SOURCE_TYPE field (e.g., Hardcopy, PDF). When data gaps, i.e., digital records without a corresponding grid sheet, are identified, check alternate sources for the grid sheets such as different versions of after action reports.
- For records for which no grid sheet available, enter "No Data" in the DATA_SOURCE_TYPE field.
- As a rule, grid sheets have been assessed and proven to be the most reliable data source. Whenever possible use grid sheets to review data.

Data sources include:

- Grid sheet data from the After Action Reports most recently produced by USA (CMS) in PDF format.
- After Action reports.

New Digital Data (UXB)

UXB grid sheet information exists in hardcopy format only. This information must be keyed in manually.

Step 2. Initial digital review of local coordinates and grid sheets received.

Existing Digital Data

Checking local coordinates as part of the initial digital review expedites QC of the State Plane coordinate conversion.

- Compare the local coordinates from the grid sheet to the existing digital OE record's local coordinates.
- If the locals do not agree, make corrections and document the discrepancy in the MOD_NOTES field. In the same record, update the DATA_SOURCE_TYPE field.
- With digital grid sheet data, start at the beginning of the PDF file and go page by page instead of by digital record order. This method identifies missed grid sheets. Missed grid sheets should be documented as a data gap (see Step 1).

Grid-based location

Accurate local coordinate information for UXB OE items is not available. In the UXB "Original Documentation" reports OE items are displayed on 20x20 grids with 5'cells. The origin of these grids varies from grid to grid and is not clearly labeled. Due to the resulting uncertainty of local coordinate values for UXB OE items local coordinates will not be reviewed for these items.

- A comment in the REVIEW_COMMENTS field will indicate that the location of these items is accurate to the grid only and that these items should be displayed graphically via

the grid polygon, not as individual point features.

Step 3. Confirm grid sheets received and rectify remaining data gaps.

Existing Digital Data

- After initial local coordinate reviews are completed for new grid sheets received in PDF or hard copy format, select records with "No Data" entered in the DATA_SOURCE_TYPE field.
- Export these records into a spreadsheet. Save this spreadsheet as an updated list of records that are missing grid sheets.
- After exhausting all local option for locating missing grid sheets, support can be requested from USA Environmental, Inc. to research missing grid sheets that might be available at their Tampa, FL offices.

Step 4. Master Grid System/Coordinate conversion (local coordinates to State Plane).

- For grids corresponding to the Master Grid System use ArcView GIS to overlay the Master Grid System coverage and grids extracted during the CAD conversion process to identify Master Grid System Grid ID for grid operations records.
- For OE items with no State Plane Coordinate values, southwest corner values for sample/removal grids must be captured prior to coordinate conversion.
- QC of southwest corner values will consist of displaying "event" themes based on the southwest corner coordinates in ArcView GIS on top of sample/removal grid themes.
- Locations and ID's of southwest corners will be compared with the grid corners and ID's to ensure accuracy.
- Convert OE item local coordinates to California State Plane Zone IV (NAD 83), based on southwest corner of sample/removal grids.
- In ArcView GIS display OE items together with grids. OE item points should fall within the correct grid. Points falling outside the correct grid must be researched and fixed or indicated as a discrepancy (see Step 9).

Step 5. Compare field grid records with database grid records.

Compare the field grid sheets with the database grid operation records. This step will be performed for both existing and new digital data.

- Check every grid operations record for a given site against the corresponding grid operations information on the field grid sheet.

- Correct discrepancies between the information contained on the grid sheets and the database records. Add a comment to the "Mod_Notes" field to document these corrections.

- Post-process Survey Instrument value, based on the timeframe the work was performed:
  - Schonstedt GA-52C: used through October 1994
  - Schonstedt GA-52CX: used starting October 1994 and exclusively after October 1994
  - Schonstedt GA-72CV: used September-October 1994

- Many missing grid sheets are located during Steps 2 and 3. Identify and document remaining missing grid sheets (see Step 3).

Step 6. Compare field OE data with database OE encountered records.

Compare field grid sheets with the database OE-related data. This step will be performed for both existing and new digital data.

- Check every OE encountered record for a given site against the corresponding OE information on the field grid sheet.
  - Depth: The methods used to document the depth of items found on the surface varied over time and by contractor. The depth of items found on the surface was often not recorded on the grid sheet. Sometimes the depth was recorded as "0" or as "surface". To standardize these different cases the depth of all items recorded as either blank, "0" or "surface" will be entered as "0". A Mod_note will be added where appropriate. The following comment will be added to the Field Description for the "Depth" field in the tblOE_Encountered: "Methods used to document depth of items found on surface varied over time and by contractor. Depth of 0 in database indicates item was found on surface."
  - Frag: Fragments recorded on grid sheets without local coordinates are post-processed to local coordinates 50/50. Quantity values for fragments are moved to the Weight field.
- Correct discrepancies between the information contained on the grid sheets and the database records. Add a comment to the "Mod_Notes" field to document these corrections.
- Identify and document additional missing grid sheets (see Step 3).
- For Grid Stats/Sites Stats data, capture items on the "Grid Sampling Sequence Data" sheet described either as "frag" or as a specific OE items as a separate OE record, even if the item appears to be scrap.

Step 7. Compare demolition records with database OE encountered records

Compare demolition records included with the USA "Final Closure Report" against OE encountered records that indicate demolition was required. Include an entry in the

Review_Comments field for OE items without a corresponding demolition record indicating that final description, disposition, and condition cannot be confirmed.

Step 8. 10% OE item review.

Compare a random sample of 10% of OE items with field grid records, emphasizing coordinates, quantity, depth, nomenclature and condition. If discrepancies are found they will be corrected and noted. If the total number of discrepancies noted exceeds 1% of the total data elements checked, the process will be repeated until the number of discrepancies observed is less than 1%.

The acceptable number of discrepancies is based on the number of data elements being reviewed—5 per record (local coordinates, quantity, depth, nomenclature, initial condition). The acceptable discrepancy rate is 1 per 100 data elements, or 1 per 20 records.

Step 9. Ordnance QC/Nomenclature Converesion (performed by OE specialists)

Perform initial QC review of records.

- Recommend corrections to OE-related data elements.
- Standardize OE item descriptions by converting Original OE nomenclature to OE model selected from the OE Master Pick List (tblOE_Models).
    - OE nomenclature conversions will be transferred to the "iOEModelIDFinal" field of the tblOE_Encountered.
    - Prior contract OE items not found on the Master Pick List, either because they are now classified OE scrap or non-OE, or the original OE nomenclature was incomplete or unclear, will not be converted. The nomenclature for these items will remain in the "vchOriginalNomenclature" field, with the text "(model unknown)" or "(OE scrap)" appended.

Step 10. Post-process Operations Type, Operations Class

The Operations Class and Operations Type values are post-processed in the working database Grid Ops table based on the WAD_Number field. The following table is used to assist in the post-processing:

Cost Code	Op Class	Op Type
C	VEG	Manual Cut
D	UXO	1FT
E	UXO	4FT
F	UXO	Sampling
G	UXO	SS/GS
H	VEG	Manual Cut
I	UXO	Surface
K	GEO	DigEx
L	UXO	Reacquisition

Team leader comments are also used when necessary.

Step 11. GIS QC

The GIS QC process is documented in the Parsons "Standard Operating Procedure for CAD

Conversion Process."

Step 12. Document discrepancies and changes.

Discrepancies between field records, database records and data contained in after action reports will be documented in the final project database.

- For records with a discrepancy, the Discrepancy field is marked "true".
- Discrepancies are described in the Review_Comments field. Amplifying information will be included such as a reference to review document and page or GIS layer to assist in resolving the discrepancy during the QA process.

Step 13. Input QC-complete data into OE database structure.

QC-complete data will be input from working databases to the final OE database structure. This process serves as a QC of the final OE database structure, identifying where new fields not currently in the new database structure are required to capture information available in prior contract data.

Step 14: Parsons QC-QC

After the working prior contract database is QC'd and converted to the new OE database structure, the following QC steps will be performed to ensure the quality of the overall QC effort.

- Unique OE Nomenclature list: Query the working database to produce a listing of distinct Ordnance nomenclature.

  Indicates items with similar nomenclature, possibly caused by typos in spacing, commas, other minor differences in nomenclature. This list is reviewed by Parsons UXO QC to verify correct ordnance nomenclature.

- Unique OE Item list: Query the working database to produce a listing of distinct OE items.

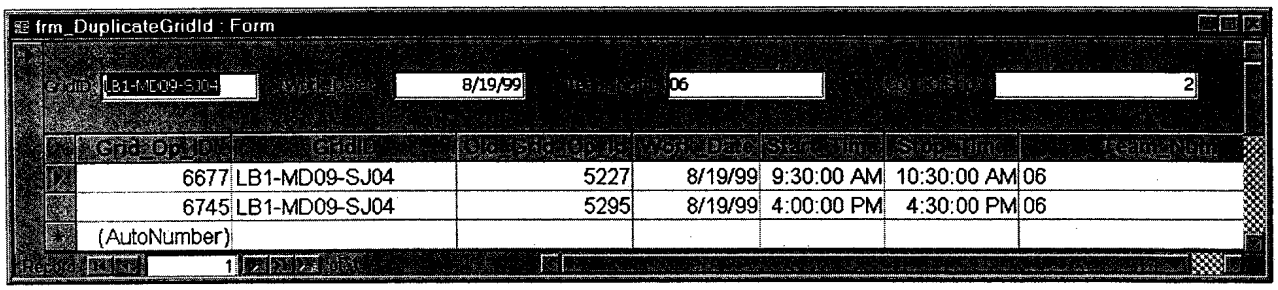
  Indicates multiple items found in same grid, same location (X/Y), depth, date, etc. A query chooses the OE item, work date, local coordinates and depth from tblOE_Encountered and groups them. A count of greater than 1 indicates a possible duplicate record and further QC is required.

- Duplicate GridID query. Indicates multiple entries of same grid record.

  A query is built on the tblGrid and tblGrids_Ops_Lnk to get GridID with the operation information grouped by operation type, work date and team number. A count of greater than

1 indicates a possible duplicate record.

A form is created to view the detail of these records. Possible causes are records with different work times in the same day or multi-grids.



- Check to ensure no data losses, additions during conversion to new OE Database structure.

One-to-One Record Matching between GridOps tables and OE tables

The INDEX field value in the old GridOps table is transferred into the new GridOps table named Old_Grid_Op_Id as a reference. This linkage is used for the comparison. The new GridOps table might have fewer records than the working version because of multi-grid operations. A query picks out the records weren't transferred from old table to the new one.

This query must be run for each type of grid operation: Demo Ops, Security Ops, Veg Removal, etc.

The INDEX field value in the working OE table is transferred into the new OE table named OE_Item_ID as a reference. This linkage is used for the comparison. The record count in both tables must be the same. A query picks out the records weren't transferred from old table to the new one.

One-to-One Field Matching: Performed after One-to-One Record Matching is completed.

An Access procedure performs the one-to-one field comparison (see Figure 1 below). Minor changes to table names and field names are required for each different data set.

All these QC steps, as well as Discrepancy Report generation, can be performed using the Access form developed to support the QC-QC (see Figure 1 below).

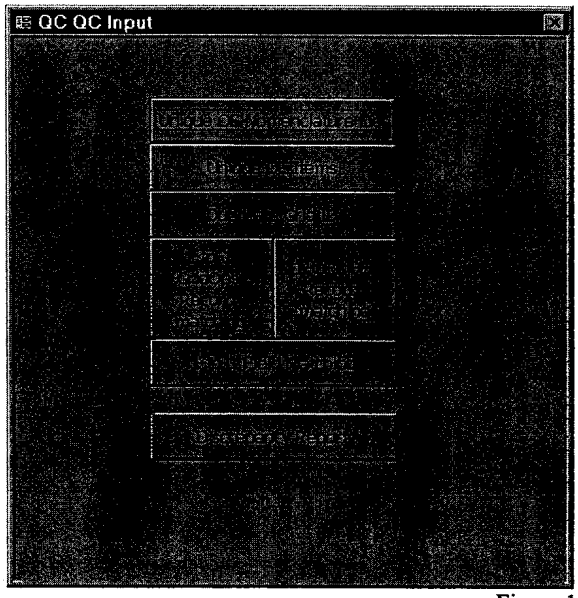


Figure 1

Step 15. USACE-SPK QA

QC-complete data in the new OE database format and in the working database format will be forwarded to the USACE-SPK for QA.

- Documentation supporting the digital data will include a listing of review sources and a discrepancy report.

- The review source listing will include title, and version of documents used in the review (After Action Reports, summary reports, etc.) as well as documents excluded from the review and why.
- The QA process will cover database structure and content as well as ordnance QA.
- The discrepancy report will be reviewed and resolved by the appropriate personnel.
- Required changes to the database will be returned to Parsons.
- Corrections will be made, documented in the MOD_NOTES field, and paperwork kept in the permanent record.

Step 16. Transfer QC/QA Complete Data into SQL 2000.

After USACE QA the QA Complete Checklist will be returned to Parsons. After final acceptance, data will be transferred into the SQL 2000 database.

5.0 DELIVERABLES

QC review deliverables will be provided to USACE-SPK for QA on a schedule based on current priorities.

5.1 Deliverables List

1. Working Database (Access Format)
2. OE Database (Access Format)
3. Discrepancy Report: Maintained as a query in the Access database.
4. Digital or paper copies of all reviewed field data.
5. CAD Conversion GIS Data

ATTACHMENT 1. QC REVIEW OF PRIOR CONTRACT OE DATA CHECKLIST