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DRAFT
DATA MANAGEMENT PLAN

FOR THE

TROY ASBESTOS PROPERTY EVALUATION PROJECT

Troy Operable Unit of the Libby Asbestos Superfund Site

March 2008

Prepared for:

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
Remediation Division
P.O. Box 200901
Helena, Montana 59620

Contract Number 407026
Contract Task Order Number 3

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REVIEWS AND APPROVALS

Tetra Tech EM Inc. Project Manager: _____ Date: _____
J. Edward Surbrugg

DEQ Project Officer: _____ Date: _____
Catherine LeCours

DISTRIBUTION LIST

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ACRONYMS AND ABBREVIATIONS

AD	Address number designation
AHERA	Asbestos Hazard Emergency Response Act
amsl	Above mean sea level
ASTM	ASTM International (formerly the American Society for Testing and Materials)
BD	Building number designation
CAMA	Computer Assisted Mass Appraisal
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
COC	Chain of Custody
DEQ	Montana Department of Environmental Quality
DMP	Data Management Plan
DVD	Digital Versatile Disk
EDD	Electronic data deliverable
EPA	U.S. Environmental Protection Agency
ERT	Emergency Response Team
ESRI	Environmental Systems Research Institute
GIS	Geographic Information System
GPS	Global Positioning System
ISO	International Organization for Standardization
LA	Libby amphibole
ND	Non-detect
NIOSH	National Institute for Occupational Safety and Health
OU	Operable Unit
PCM	Phase Contrast Microscopy
PDA	Personal Digital Assistant
PDF	Portable data format
PDI	Planning and Design Inspection
PLM	Polarized light microscopy
POC	Point of contact form
%	Percent
QA	Quality assurance/Quality control
QC	Quality control

ACRONYMS AND ABBREVIATIONS
(Continued)

s/cm^2	Structures per square centimeter
SOP	Standard operating procedure
TAPE	Troy Asbestos Property Evaluation
TEM	Transmission Electron Microscopy
Tetra Tech	Tetra Tech EM Inc.
TR	Tape record
TT	Troy Tape sample number designation
UA	Use Area number designation
VCI	Vermiculite-containing insulation
VE	Visual examination
WebEOC	Web Emergency Operation Center

1.0 INTRODUCTION

Tetra Tech EM Inc. (Tetra Tech) received Task Order No. 3 from the Montana Department of Environmental Quality, Remediation Division (DEQ), under DEQ Contract No. 407026. The purpose of this task order is to complete a Troy Asbestos Property Evaluation (TAPE) Data Management Plan (DMP) for the Troy Operable Unit (OU) of the Libby Asbestos Superfund Site. The United States Environmental Protection Agency (EPA) is the lead agency for the Libby Asbestos Superfund Site. The DEQ is the lead agency for the Troy OU through a Cooperative Agreement with the EPA. The EPA requested that DEQ lead the Troy OU for efficient resource allocation.

The TAPE DMP describes the management of data associated with field and property inspections, sample collection, and analytical results. The TAPE DMP summarizes data management and verification procedures, as well as data flow. The data will be used to identify if and where asbestos is present within the Troy OU and the concentrations and quantity, if present. This information will be used at a later date to support cleanup decisions.

1.1 PROJECT BACKGROUND

Troy, Montana, is located 18 miles northwest of Libby, Montana. From the 1920s until 1990, a vermiculite mine and associated processing facilities operated at Libby. While it was in operation, the vermiculite mine in Libby may have produced 80 percent (%) of the world's supply of vermiculite.

The vermiculite deposit is contaminated with a form of amphibole asbestos, referred to as Libby amphibole (LA). Asbestos is a known carcinogen and is associated with a multitude of respiratory health effects, including asbestosis, lung cancer, and mesothelioma. For decades, vermiculite ore and waste materials were ubiquitous in the Libby community while the mine operated and after its closure. The vermiculite was used throughout Libby and surrounding vicinity as insulation in buildings and as a soil amendment in gardens and flowerbeds.

1.2 TROY SITE INFORMATION

The Troy OU, or study area, is located in the Kootenai River valley at elevations ranging from 1,850 feet above mean sea level (amsl) at the northern end of the OU to 2,500 feet amsl on the mountain slopes surrounding the valley. The Troy OU is approximately 8 miles long and up to 1.8 miles wide. Topography of the Troy OU consists of relatively flat river valley terraces on both sides of the Kootenai River. Approximately 54.7 % of the properties in the study area are residential, 27.8 % are undeveloped, 12.1 % are commercial, and 3.6 % are agricultural. To date, 1,226 individual land parcels have been

identified within the Troy study area. Land parcels consist of individual taxable lots and more than one lot may be occupied by a single residence or commercial enterprise.

1.3 PURPOSE OF THE DATA MANAGEMENT PLAN

The purpose of this DMP is to define (1) the methodology of TAPE field data and documentation review, (2) roles and procedures for managing TAPE and Geographic Information System (GIS) data, and (3) data verification and validation. The DMP also explains how the various aspects of data management are used to create the comprehensive database which includes all parcel, sample, and analytical data.

A comprehensive data management program has been designed to ensure that (1) multiple information sources will result in similar data sets and (2) data management practices will be adequate for the types of data manipulation required for the TAPE project. All site team members will follow these protocols to ensure results using the same unit of measure, analytical methods, and reporting forms.

In general, the process used to determine whether or not a property contains vermiculite is: (1) all land parcels within the OU boundary are identified and compiled in a geographic database; (2) site inspections are completed and soil and dust samples are collected, and (3) the data are entered into a database. This document describes the design, development, maintenance, intended uses, and quality assurance and quality control of the spatial database, the field data, and the sample database (Scribe). The spatial database and verification procedures for spatial data are described in Section 2.0. The spatial database includes the parcel (property) database and the global positioning system (GPS) data. The GPS data are collected during the site inspection but are included in the spatial database. Section 3.0 describes the management and verification procedures for field data including the field forms, logbooks, sketches, and photographs. Section 4.0 describes the management and validation of analytical data.

Tables and figures in this document follow their first reference in the text. Appendix A contains guidance for review of logbook and photograph log entries, Appendix B contains data management procedures including the steps involved in sample data management, and Appendix C contains data verification and validation procedures.

1.4 PROJECT STAFF ROLES AND RESPONSIBILITIES

Table 1 presents the responsibilities and contact information for key personnel involved in TAPE data management. An organization chart is provided on Figure 1.

TABLE 1
STAFF ROLES AND RESPONSIBILITIES

Name	Organization	Role	Responsibilities	Contact Information
Catherine LeCours	DEQ	Project Officer	• Monitors performance of the contractor • Reviews and approves QA/QC measures • Consults with the EPA and Volpe • Reviews and approves all work plans • Provides coordination with ESAT and EPA • Provides primary interface with the Troy community and disseminates project information to the public	Montana Department of Environmental Quality PO Box 200901 Helena, MT 59620-0901 clecours@mt.gov (406) 841-5040 (406) 431-1630 (cell)
J. Edward Surbrugg/ Katy Norris	Tetra Tech	TAPE Project Managers	• Responsible for implementing all activities called out in the task order • Supervises preparation of work plan and approves document • Monitors and directs field activities to ensure compliance with work plan requirements • Provides coordination with DEQ Project Officer • Disseminates project information to interested parties and Troy property owners and direct questions to DEQ • Reviews and approves Data Management Plan. • Reviews and approves QAPPs.	Tetra Tech, Helena, MT 7 West 6th Avenue Helena, MT 59601 edward.surbrugg@ttemi.com kathryn.norris@ttemi.com (406) 442-5588
Randy Dorian	Tetra Tech	Scribe Database Coordinator and Sample Database Coordinator	• Responsible for managing all TAPE data and incorporating data into Scribe database • Customizes Scribe database based on EPA requirements • Imports laboratory electronic data deliverables into Scribe database • Works with GIS Manager to export data to PDA and Scribe • Supports periodic QA/QC reviews and data checks of Scribe database • Conducts Category 1 global and relational queries • Develops ad-hoc data queries • Generates tabular reports from Scribe • Prepares database documentation, such as data dictionaries and entity relationship diagrams • Works with all project staff to ensure data is accurate • Responsible for PDA preparation and data acquisition associated with field inspections. Uploads field data to Scribe database on daily basis, and performs quality control on field data (field season only)	Tetra Tech 950 17th Street, 22nd Floor Denver, CO 80202 randy.dorian@ttemi.com (303) 312-8832

TABLE 1
(Continued)

Name	Organization	Role	1.0 RESPONSIBILITIES	Contact Information
Candy Friday	Tetra Tech	Analytical Data Validation Analyst	• Responsible for required data validation on soil and dust samples • Oversees staff chemists assisting in data validation • Writes data summary reports • Works with Scribe Database Administrator to ensure validation results are entered into database and that results have been received for all samples collected	Tetra Tech 2901 Wilcrest Drive, Suite 410 Houston, Texas 77042 candy.friday@ttemi.com (832) 251-5166)
Ed Madej	Tetra Tech	Parcel Database and Geographic Information System Manager	• Responsible for developing, monitoring, and maintaining project database and property maps • Responds to requests from TAPE project manager, field team leader, or community involvement coordinator to provide copies of property maps to field teams and project staff • Works with EPA data and graphic managers to generate needed reports and maps	Tetra Tech, Helena, MT 7 West 6th Avenue Helena, MT 59601 edward.madej@ttemi.com (406) 442-5588
Michelle Carlson	Tetra Tech	Community Involvement Coordinator (CIC)	• Interfaces with public and acts as liaison between public and project staff • Receives property access agreements and schedules TAPE inspections • Keeps track of scheduled inspections and property information/issues in WebEOC • Coordinates with GIS, TAPE/Scribe database, and scanned data archive personnel on parcel updates or changes • Oversees DEQ Troy Information office	DEQ Troy Information Center P.O. Box 1170 303 N. Third St. Troy, MT 59935 michelle.carlson@ttemi.com (406) 295-9238
Mark Stockwell	Tetra Tech	Field Team Leader and Data Verification Analyst	• Responsible for directing and coordinating day-to-day field activities conducted by Tetra Tech field team members • Verifies that field sampling and measurement procedures follow work plan • Provides DEQ Project Officer and TAPE project manager with regular reports on status of field activities • Disseminates project information to interested parties and Troy property owners and direct questions to TAPE project manager or DEQ	Tetra Tech, Sandpoint, ID 324 Larchwood Drive Sandpoint, ID 83860 mark.stockwell@ttemi.com (208) 263-4524

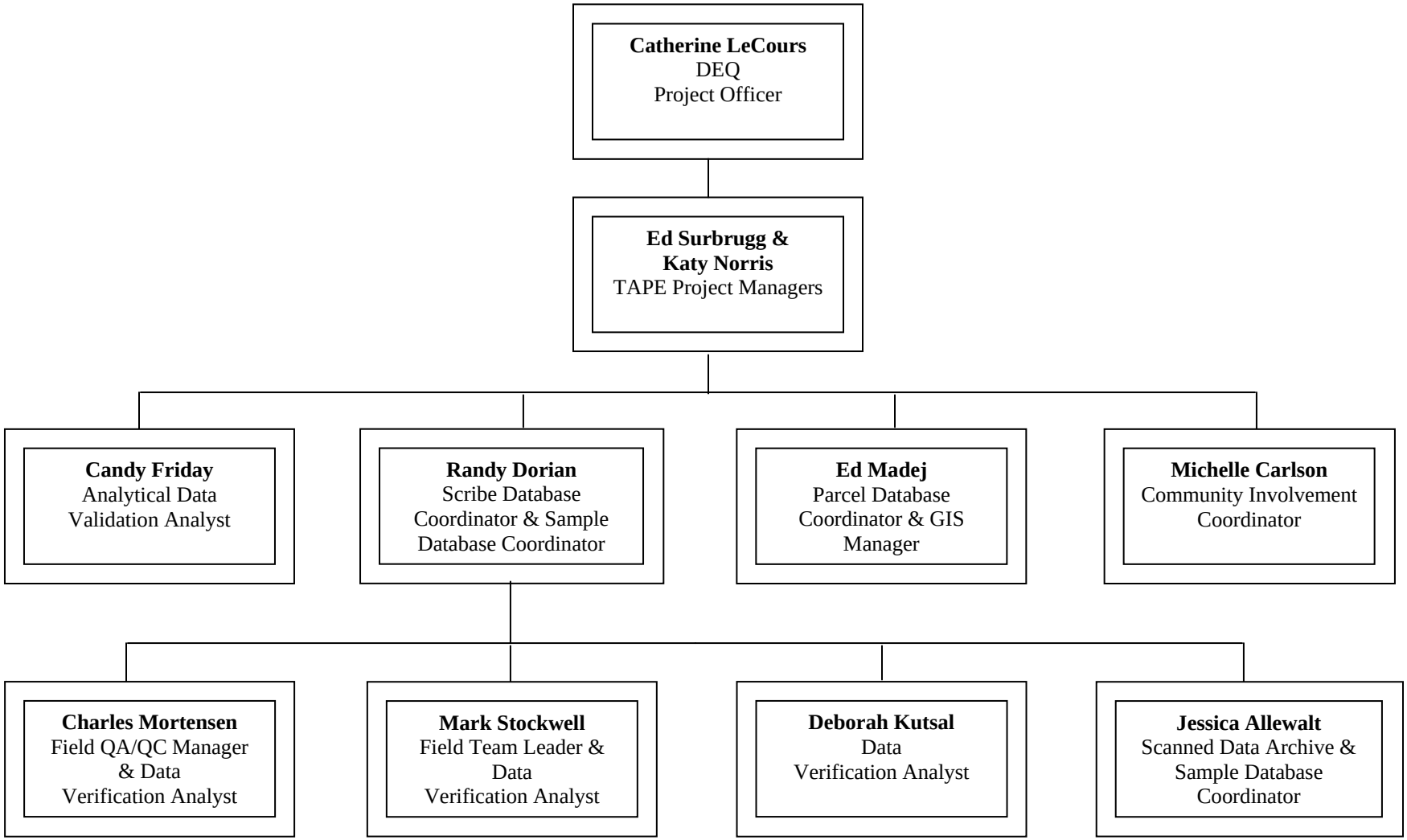
TABLE 1
(Continued)

Name	Organization	Role	Responsibilities	Contact Information
Charles Mortensen	Tetra Tech	Field QA/QC Manager and Data Verification Analyst	• Conducts field audits for QA/QC • Verifies that field sampling and measurement procedures follow work plan • Provides Category 2 data verification reviews of all field forms, sketches, photographs and Scribe data. • Completes verification checklist and inserts correction comments to scanned archives of field documents. • Documents how data discrepancies are resolved in a modification tracking (ModTrack) form	Tetra Tech 321 S. Boyer Avenue Sandpoint, Idaho 83864 charles.mortensen@ttemi.com (208) 255-1315
Deborah Kutsal	Tetra Tech	Data Verification Analyst	• Provides Category 2 data verification reviews of all field forms, sketches, photographs and Scribe data. • Completes verification checklist and inserts correction comments to scanned archives of field documents. • Documents how data discrepancies are resolved in a modification tracking (ModTrack) form	Tetra Tech 1235 N. Post Street, Suite 101 Spokane, WA 99201 deborah.kutsal@ttemi.com (509) 232-4314
Jessica Allewalt	Tetra Tech	Scanned Data Archive and Sample Database Coordinator	• Oversees scanned data archive; verifies archives are not missing scanned field forms or photographs. • Provides Data Verification Analysts with archive information to complete verifications • Coordinates parcel combination and division changes with GIS Coordinator and CIC • May perform data verification analyst duties (see above) • Responsible for PDA preparation and data acquisition associated with field inspections. Uploads field data to Scribe database on daily basis, and performs quality control on field data on a daily basis (field season only)	Tetra Tech 7 West 6th Avenue Helena, MT 59601 jessica.allewalt@ttemi.com (406) 442-5588

Notes:

DEQ	Montana Dept. of Environmental Quality	EPA	U.S. Environmental Protection Agency
ESAT	EPA Environmental Services Assistance Team	GIS	Geographic Information System
TAPE	Troy Asbestos Property Evaluations	PDA	Personal Digital Assistant
Tetra Tech	Tetra Tech EM Inc.	QA/QC	Quality Assurance/Quality Control

FIGURE 1
TAPE ORGANIZATION CHART



2.0 PARCEL DATABASE AND GPS DATA

The data management system is comprised of all aspects of data used during the TAPE. This section discusses geographical data associated with the TAPE. Parcel information and GIS data are acquired prior to the start of fieldwork. These data are used to populate handheld computers, referred to as personal digital assistants (PDA), which are used in the field to record interviews, inspection data, and sample collection information. Acquisition and assembly of the parcel database is described in Section 2.1. GPS data is described in Section 2.2. Verification of the parcel database is discussed in Section 2.3.

2.1 PARCEL DATA

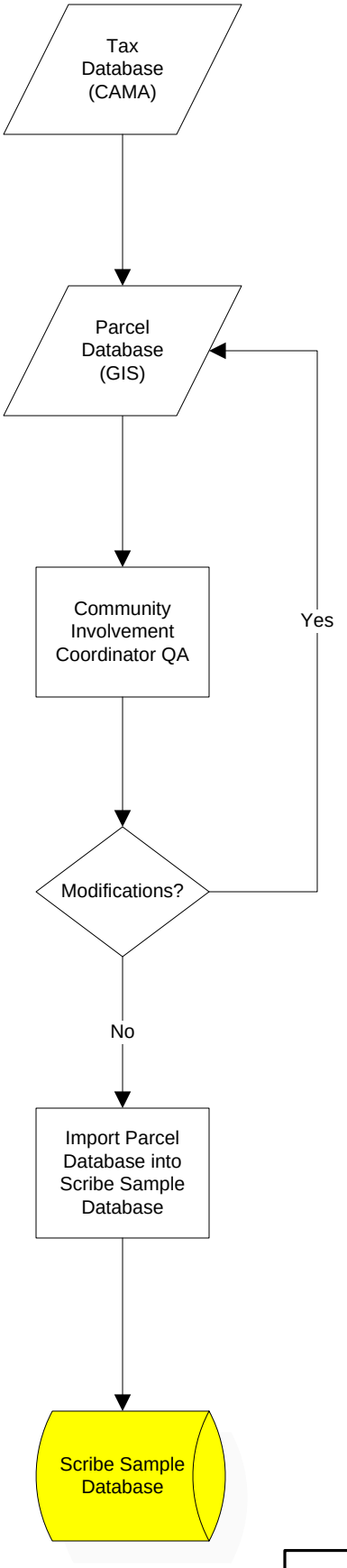
2.1.1 Parcel Data Assembly Process

No digital parcel data for western Lincoln County, Montana were available when the Troy project started in late 2005. As a result, copies of paper parcel maps (property ownership) from Lincoln county offices in Libby were obtained in fall 2005. In winter 2006, the paper parcel maps were scanned and the parcel boundaries digitized in ArcGIS 9X. The digitized parcels were then combined with the Montana Department of Revenue CAMA (Computer Assisted Mass Appraisal) database for Lincoln County.

At that time, the resulting geodatabase had 1,176 mapped parcels within the Troy study area (OU), of which 1,092 were successfully matched with ownership records in the state's CAMA database. Unique two-letter, six-digit address numbers (AD numbers) were assigned to each parcel to track the parcel. This geodatabase was imported into the Scribe database (so that data could be tied to each parcel) and used for the mailing list for property access agreements in April 2007.

The state of Montana Department of Revenue released a major revision of the CAMA database for Lincoln County in May 2007, and again in January 2008. These revisions, along with updates from landowners in Troy that are posted to the Troy Call Log on Web Emergency Operations Center (WebEOC), were used to update the current parcel list. [WebEOC is a software program utilized by the Troy Community Involvement Coordinator (CIC) to track landowner information, communication with landowners, and parcels that are scheduled for inspection or have already been inspected.]

The current parcel list (01/24/08 edition) has 1,226 parcels within the Troy study area, all of which have corresponding ownership records in the state's CAMA database. A flow diagram of the assembly and disposition of the parcel database is shown in Figure 2.



TROY ASBESTOS PROPERTY EVALUATION

FIGURE 2
PARCEL DATABASE
FLOW DIAGRAM

Montana Department of Environmental Quality

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2.1.2 Parcel Combination and Division Process

Properties in the TAPE parcel database are expected to change over time as properties are legally combined or subdivided. Each time there is an update to the CAMA database, it is likely parcels will have changed. If parcels have been legally combined, then AD numbers must be removed from the parcel database. This involves making sure any data associated with those parcels are reassigned to the AD number chosen to represent the combined, new parcel. When a parcel is subdivided, a new (unique) AD number must be assigned, and if any data is associated with the subdivided parcel, it must be reassigned to the new AD number as well. This process involves the GIS coordinator, the CIC, the Scanned Data Archive coordinator, and the Scribe Database Coordinator. See "Protocol for the Combination and Division of Parcels" in Appendix B for a complete explanation of the process used for parcel changes.

2.1.3 Reference Parcels

Parcel property boundaries may not always be correct in the Lincoln County tax database (CAMA). As field teams are sent out to inspect parcels, they may encounter adjacent properties owned by the same person that show up in the parcel database as separate properties, but actually have a structure or major use area (e.g. house, driveway, etc) straddling both pieces of land. Due to the presence of the building or important use area on both parcels, they cannot be individually sold. In these cases, the landowners have not yet legally combined the two parcels, and the field teams must designate one of the parcels as a reference parcel. The process is for the lower of the two AD numbers to be used for all data collected on the properties, and then have the higher AD number reference the lower one in the Scribe database and scanned data archive.

2.2 GPS DATA

2.2.1 GPS Data Process

During the field inspection seasons, field teams gather GPS points for use areas (UA) such as lawns, gravel driveways, gardens, or flowerbeds. UA are exterior locations on a property where soil samples are collected to test for the presence of vermiculite. Field teams gathered GPS points for the various UA on the parcels using Trimble GeoExplorer XT PDA in the Environmental Systems Research Institute (ESRI) GIS software, ArcPad. The captured point shapefiles on the PDA are downloaded in Troy by the Sample Database Coordinator twice a day. There is one shapefile generated for each field session, which can contain multiple UA points covering several parcels. The digital files are compressed in a WinZip archive named by date, PDA number, and time of day, and uploaded onto the internal TAPE web portal.

The PDA Zip files are downloaded in Helena by the Parcel Database Coordinator/GIS Data Manager and archived in the Troy GIS directory. Although the PDA Zip files have unique names, the shapefiles within the Zip archives do not. The PDA Zip files are individually moved into their own directory with the PDA file's unique name. The archives are unzipped and the UA shapefiles are renamed to reflect the PDA files unique name with type of feature, date, PDA number and time, such as TroyUseAreaPoint_20070625_PDA7am.shp**.**

In ArcGIS 9X, all of the shapefiles for one complete month are loaded into an ArcMap document (mxd file). Using the Append command, all of the individual files from each PDA session are combined into a single point shapefile, one for each month of the field season.

The shapefile's attribute table has five field names, ID, AD_NUMBER, UA_number, UNCX (uncorrected x coordinate) and UNCY (uncorrected y coordinate). The x and y coordinates are recorded as meters in the Montana State Plane NAD83 Coordinate System. Two more text fields are added, NOTES and NOTES2.

The shapefile for each month is compared geographically with the boundaries of the Troy study area. Any UA points that appear far outside the study area are noted as such in the NOTES field.

The shapefile's attribute table is examined, and any record that contains a valid AD_NUMBER, UA_NUMBER, and both X and Y coordinates is assigned a "GOOD" in the NOTES field. The records for these points are assumed to be complete.

Sometimes the ArcPad software on the PDA will fail to record an X and Y value in the attribute table, but will still capture the point in the geography portion of the shapefile. These points have their UNCXs and UNCYs calculated by the GIS software, and recorded as "NO X AND Y ADDED IN GPS, ADDED IN GIS" in the NOTES field.

Some points lack an AD_NUMBER in the record in the shapefile's attribute table. These points may be mistakes, or may be recorded in the field logbooks but not on the PDA. Using the Identity command in ArcGIS 9.X, the AD Numbers from the master parcel layer are combined with these GPS points. The update is noted as "AD NUMBER PLOTTED FROM PARCEL MAP" in the NOTES field. Points that are collected as tests in the field are recorded as "TEST PARCEL" and refer to records with UAs equal to UA-288888 or UA-299999.

After the above processes are run, the use area shapefile's attribute table is exported to an MS Excel file and emailed to the Database Manager, where it is uploaded into the Scribe database.

For the summer 2007 field season, 1,212 UA points were captured by the GPS units for 314 unique parcels.

2.3 PARCEL DATABASE VERIFICATION

The following sections describe the steps involved in verifying parcel database information.

2.3.1 Parcel Database Quality Control Steps

Step 1 – Parcel owners with changes to their property records (usually their tax record) call or visit the DEQ Troy Information Office, and their changes are noted in the Troy Call Log in WebEOC by the CIC. This is checked by the Parcel Database Coordinator and GIS Manager once a week and the changes entered to the master parcel layer in ArcGIS. The type of change is noted in the NOTES field in the master parcel GIS layer.

Step 2 – The Montana state CAMA database is checked once a month by the GIS Manager for major revisions for Lincoln County and the changes entered to the master parcel layer in ArcGIS. An updated parcel database is given to the Scribe Database Administrator and incorporated into Scribe with each CAMA revision.

Step 3 – During the field season, a new, updated master parcel layer is uploaded on the Troy web portal by the Parcel Database Coordinator and GIS Manager once every two weeks and downloaded to the PDA by the Sample Database Coordinator.

2.3.2 GPS Data Quality Control Steps

Step 1 - Compressed PDA Zip files are downloaded from the Troy web portal once a week by the GIS Manager. After downloading, the number and names of files are compared to the original list on the TAPE web portal to ensure all have been recorded.

Step 2 - The individual PDA Zip files are assigned to their own unique directory, unzipped, and the resulting shapefiles renamed with feature type, date, PDA number and time of day in the file name. This list of files is compared again to the original list on the TAPE web portal.

Step 3 - The individual UA point records are combined into one larger point shapefile by month, where their geographic location is checked in relation to the Troy study area boundary, and the completeness of their attributes are examined and noted.

Step 4 - The UA point shapefile's attribute table is exported to an MS Excel table once a week by the GIS Manager and emailed to the Scribe Database Administrator to be uploaded into Scribe.

Step 5 - The UA point shapefile is added to a base map in an ArcGIS 9X map document once a month, which is sent on a CDROM to the DEQ Troy Information Office once a month, to be used by the CIC and Sample Database Coordinator in both ArcGIS 9X and ArcReader.

3.0 FIELD DATA

The following subsections describe the collection, management, and review of the field data, including field forms and photographs (Section 3.1), PDA data (Section 3.2), Scribe sample database (Section 3.3), and field data verification processes (Section 3.4). A flow diagram of the acquisition and management of field data is shown on Figure 3.

3.1 FIELD FORMS AND PHOTOGRAPHS

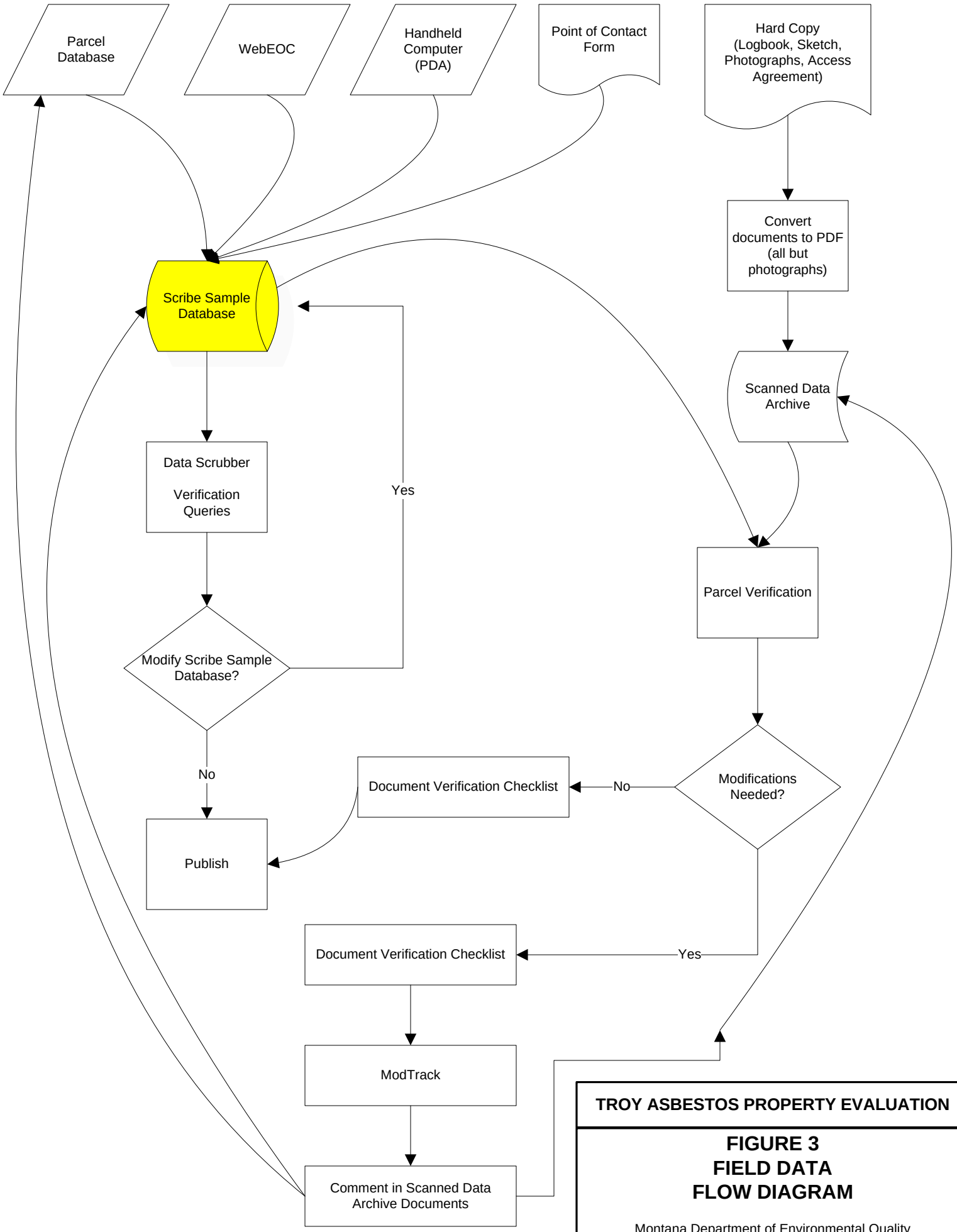
The following sections discuss the various field forms and documents with respect to the data management system.

3.1.1 Access Agreements

Signed access agreements are required prior to any field activities on a subject property. The majority of the access agreements are mailed to parcel owners prior to the field season. The signed agreements are returned to the DEQ Troy Information Office and the CIC then schedules inspections with those property owners that have returned agreements. Other access agreements are returned directly to the DEQ Troy Information Office and an appointment is made for an inspection. Some landowners provide verbal approval and schedule an inspection over the phone. In this case, the field team obtains a signature immediately prior to conducting the inspection. The original, signed access agreements are maintained in file folders for each parcel (AD number) in the DEQ Troy Information Office. The original agreements are also scanned and included in the scanned data archive for each property (archive is maintained in the Tetra Tech Helena office).

3.1.2 Logbooks

Information pertaining to the field inspection is recorded in the TAPE field logbooks. Each logbook issued to a field team is numbered with the prefix TR (TAPE Record) to keep logbooks separate. Each field team maintains a field logbook for recording the date and time of each property inspection; the names of the people who allowed property access and completed the interview; the property identification and building designations; and the number and type of samples collected at the property, including sample numbers and any other pertinent information. As discussed in Section 2.1.1, all parcels are assigned a unique two-letter six-digit AD number to identify each property in the OU. Once a field team arrives at a scheduled parcel (AD number), they assign building (BD) numbers, UA numbers, and sample (TT) numbers. Dust samples are interior samples only (associated with BD numbers) and soil samples are both interior (dirt floors) and exterior (associated with UA numbers). These numbers are the core of



TROY ASBESTOS PROPERTY EVALUATION

FIGURE 3
FIELD DATA
FLOW DIAGRAM

Montana Department of Environmental Quality

TETRA TECH

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the field data and each assigned number must be recorded in the logbook, as well as any sampling information that pertains to them. Additional pertinent information required for logbook entries is described in Appendix A.

A new page is started in the field logbook for each property. The field logbook serves as an independent (backup) record for all activities conducted and samples collected at a property in the event that data on the PDA are lost or corrupted. The field logbook is also used to record additional observations that relate to potential remedial action at a property, such as locations, quantities and types of visual vermiculite, as well as any suspect asbestos-containing material that is not vermiculite-containing insulation (VCI) or LA. The field logbooks are scanned into a portable data format (PDF) file and stored as part of the scanned data archive for each property. The hardcopy original logbooks are stored in the DEQ Troy Information Office.

3.1.3 Property Sketches

Information is also recorded on individual property sketches. A property sketch is made for each property to show the location of primary and secondary buildings and use areas. As best identified by the property owner, property boundary lines are also be shown on the property sketch. The property sketch also documents the approximate area of buildings and use areas, as well as the location of any fences, large trees, or other potential obstructions to possible future remediation. Property sketches also show the locations of any observed VCI and LA-containing material and the location of soil and dust samples. They are prepared on 8- by 11-inch graphing paper and are mandatory for each property inspected. Additional exterior drawings are made, as necessary, to depict complex UA or other property details. Interior building drawings are optional. Original hard copy property sketches are maintained in the file folders in the DEQ Troy Information Office. Property sketches are also scanned as a PDF file and stored in the scanned data archive for the parcel. More detailed guidance on what should be included on property sketches is included in Appendix A.

3.1.4 Point-of-Contact Forms

Point-of-contact (POC) forms are required for all occupied properties regardless of whether they are owner occupied, tenant occupied, or employee occupied. POC forms include the AD number, BD number, date completed, names and birth dates of the occupants, telephone numbers, mailing address, and physical address. Hard copy POC forms are maintained in the project files; scanned POC forms are maintained in the scanned data archive for the property.

3.1.5 Photographs

The field teams collect photographs during the TAPE inspections to document certain features of a parcel for future reference and to potentially assist in development of a remedial action plan for the property. The property owners are asked for permission before any photographs are taken, other than photographs taken from the public right-of-way. All photographs are taken using digital cameras and a description of each photograph is recorded in the logbook. The photographs are downloaded the same day as the inspection at the Troy field office and saved into a specific directory for field photographs. The images are retrieved from the directory by the Sample Database Coordinator and placed with the other scanned documents (access agreement, logbook, property sketch, and POC form) for the parcel in the scanned data archive folder. Additional pertinent information required for photograph log entries is provided in Appendix A.

3.1.6 Field Data/Information Archiving

Field forms and photographs, along with any other information generated during the inspection process, are archived in two ways. Original copies of field forms and other documents are filed based on AD number in the DEQ Troy Information Office. The CIC is responsible for archiving these documents. As stated in the above sections, this includes access agreements, logbooks, POC forms, and other documents that may be associated with a parcel. The second type of archiving is electronic. Scanned copies of field forms and data are stored (based on AD number) on a directory in the Tetra Tech office in Helena, Montana and is referred to as the scanned data archive.

3.2 PERSONAL DIGITAL ASSISTANTS

To minimize paperwork and data entry errors, field teams use Trimble GeoXT handheld computers, or PDA, to record information obtained during property inspections. Each field team is provided with a PDA for data and GPS point acquisition.

3.2.1 Personal Digital Assistant Setup and Modifications

The geographic software ArcPad is loaded onto each of the Trimble GeoXT PDA units to support parcel GIS layers and the acquisition of GPS points. The Troy parcel database is managed in ArcGIS and in Scribe; this information is exported as ArcPad files and loaded onto the PDA. In addition, the aerial photographs of the Troy OU are uploaded onto the PDA so that the parcel database layer can be overlaid on the aerial images. A compact Access database containing the required data fields is also loaded onto the PDA for data entry during inspections. A small portion of the Access database is populated by the

shapefiles from the parcel database, but the remaining data associated with inspections is hand-entered into the Access forms. Changes to electronic forms on the PDA are requested by the field teams when they feel it would make data entry more efficient or if the changes would better suit the goals of TAPE project. These suggestions are discussed with the Field Team manager and DEQ Project Officer before the Scribe Database Coordinator makes the changes to the Access database file. If changes are made, the updated Access database is loaded onto the PDA. Additional information on configuring the PDA and downloading data from the PDA to Scribe can be found in Appendix B.

3.2.2 Data Collection

Field data are entered into the PDA during the time of inspection. Field team members power on the PDA, select the Troy parcel map from an ArcPad list and navigate to the correct parcel (AD-number) on the aerial photo (parcel map is overlaid on the aerial photograph). A double-click of the screen opens the link to an Access database (TapeSampling.mdb) where field data is entered into electronic forms. Field teams record all data into the PDA including parcel information (AD number and any reference parcels), information gathered about the property during the interview (age of buildings, historical use, persons living on the premises, past or present, etc.) location and building information (number of primary and secondary buildings, how many attics, what types of buildings – sheds, garages, homes, etc.), soil and dust sample information (number of aliquots, location of samples, etc), and the presence or absence of visual vermiculite anywhere on the parcel (interior and exterior). The electronic forms are organized so that data entry parallels inspection activities; i.e. interview information first, followed by dust sampling information, followed by exterior sampling information. Certain screens alert field team members of missing critical data and will not allow data entry to move forward until this information is entered. Once all data entry has occurred, the PDA is powered down and taken to the next parcel or back to the Sample Database Coordinator in the DEQ Troy Information Office for incorporation into the Scribe database. On occasion, field teams may enter erroneous information for a parcel into the PDA. In order to correct the mistake, field teams must fill out a Data Modification Form detailing the error and how it can be resolved. This form is given to the Sample Database Coordinator after the parcel has been inspected and before the PDA data has been uploaded into Scribe (to ensure the error is resolved before uploading into Scribe). The Sample Database Coordinator is responsible for correcting error outlined on the Data Modification Form. The original form goes into the file folder with the other field paperwork and a scanned copy is made to insert into the scanned data archive for the property.

3.2.3 Data Upload to Scribe Database

When a parcel inspection has been completed, the field team gives the PDA to the Sample Database Coordinator. The Sample Database Coordinator then reviews the data to ensure that the correct AD number was used and that BD, UA, and TT numbers correlate to the logbook, property sketch and POC form. The Sample Database Coordinator also resolves any errors recorded on a Data Modification Form (if present). Field data from the PDA is then imported directly to EPA's Scribe database where it is processed and distributed to users. Appendix B contains a copy of the "Sample Database Coordinator Management Steps", the "Sample Database Coordinator Checklist", and the "Sample Coordinator Scribe User Guide", which outline the roles, responsibilities, and steps taken to extract data from the PDA for entry into the Scribe database.

3.3 SCRIBE SAMPLE DATABASE

Scribe is a database containing data from the Libby Asbestos Superfund Site and the TAPE project. Scribe is a software tool that was developed by the EPA's Environmental Response Team (ERT) to manage environmental data. It was designed to capture sampling, observational, and monitoring data and is capable of importing electronic data including analytical lab results and sampling location data such as GPS (http://www.ertsupport.org/scribe_home.htm). During the field season, the Sample Database Coordinator is responsible for importing data from the PDA into Scribe at the end of each field day. Scribe is capable of generating Chain of Custody (COC) information, which the Sample Database Coordinator is also responsible for at the end of the field day. COCs are created for all soil and dust samples collected each field day. Scribe automatically assigns a number to the COC so it can be tracked in the database. COCs are reviewed by the field teams that collected the samples, signed and dated, and then placed with the samples in a bin in the Troy field office. The Scribe Database Administrator works with the Sample Database Coordinator to ensure data is imported correctly and is responsible for generating queries to evaluate the quality of the data.

Multiple users can use Scribe to view data. Scribe.NET is a method of storing and sharing Scribe projects between various desktop clients. Scribe projects are "published" from the Scribe desktop client so that other users can "subscribe" to the published projects (http://www.ertsupport.org/scribe_home.htm). For the TAPE project, the Sample Database Coordinator and the Scribe Database Administrator "publish" the Scribe database so that everyone involved (DEQ Project Officer, Tetra Tech staff, and field team members) may "subscribe" and view TAPE data.

3.4 FIELD DATA VERIFICATION

Field documentation includes all data compiled and recorded in field forms, on PDA, and in photographs taken during property assessments conducted during the TAPE. Access agreements, logbook entries, property sketches, and POC forms are scanned as PDF files and, together with digital photographs, are compiled in the scanned data archive. The master scanned data archive is maintained in Tetra Tech's Helena, Montana, office. Verifiers are provided a copy of this archive on digital versatile disks (DVD).

All information entered on PDA in the field is downloaded to the Scribe database. An Access database, referred to as TAPE_Scribe_QAQC.mdb, was created from Scribe to arrange the information from the PDA into a user-friendly format for the verification process (see Appendix C for an example). Verification of field documentation is done to ensure, to the greatest extent possible, that all necessary information is entered completely and accurately into logbooks and PDA; that photographs are correctly and adequately cataloged; and that no discrepancies exist amongst these various media, as documented in the Scribe database and scanned data archive for each property.

Resolution of field data issues is done to rectify inaccuracies and discrepancies, so that the final record for each property is as accurate and complete as possible. In most cases, resolution requires the correction of discrepancies by updating the Scribe database or by adding comments to scanned field documents such as logbook entries and property sketches. In some cases, it may be necessary to consult with field crews or conduct follow-up site visits to obtain missing information and rectify discrepancies.

The verification process is two-tiered, referred to as the Category 1 and the Category 2. These verification tiers are primarily designed to eliminate false determinations of VCI from the record, as well as to ensure a high level of accuracy of the information recorded in the Scribe database and scanned data archives.

The scope and steps of Category 1 and Category 2 verification procedures and resolution are described in Sections 3.4.1 and 3.4.2, respectively. A table outlining the types of verification queries that are performed can be found in Appendix C.

3.4.1 Category 1 Verification and Resolution

Category 1 data verification is conducted on 100 % of the data generated during the TAPE. The process involves two general types of data queries; global queries and relational queries. Global queries are conducted first; followed by relational queries.

Global queries are done sequentially, so that the broader-based discrepancies are eliminated first. Example global query topics include:

- Blank fields identified in the Scribe database
- Missing TT or UA numbers identified in the Scribe database
- Obvious errors, such as a primary residence listed as being 50 square feet

The Scribe Database Administrator runs global queries and designates a team member to resolve any discrepancies found. The team member documents how the discrepancies are resolved in a modification tracking (ModTrack) form. This form is an Excel spreadsheet that allows the verifier to record and track the necessary changes by identifying specific items requiring resolution and the corresponding modification. The Scribe Database Administrator is responsible for making corrections to the database as recorded in ModTrack.

Relational queries are conducted after the global queries have been run and any issues from the global queries have been resolved. Relational queries are also completed on 100 % of field data for all properties investigated. Similar to the global query process, relational queries are completed sequentially with discrepancies being resolved before moving onto subsequent queries. Example relational queries include:

- If the value in the database for "DOES THE INTERIOR HAVE VERMICULITE ATTIC INSULATION?" is "y*es*," then the value in the database for "DID THE INTERIOR EVER HAVE VERMICULITE ATTIC INSULATION?" should be "yes" or *"NA."*
- If the value in the database for "DOES THE INTERIOR HAVE VERMICULITE ATTIC INSULATION?" is "*No Attic,"* then the value in the database for "EXTENT OF FINISHING IN THE ATTIC AREA?" should be "*No Attic"* or *"NA."*

The Scribe Database Administrator maintains a list of relational query topics called the data verification checklist queries, which is provided in Appendix C. The Scribe Database Administrator designates a team member to document the needed data corrections in ModTrack and is then responsible for making corrections to the database as indicated in the ModTrack table.

Additional data issues are anticipated to arise while researching the property files during the Category 1 data verification process. In such cases, the team member documents the additional issue(s) in the property file, but only makes corrections for topics discovered during the Category 1 verification process.

3.4.2 Category 2 Verification and Resolution

Category 2 data verification is completed on approximately 25 % of the properties inspected. The properties are randomly selected from the entire Scribe database; including properties reviewed during the Category 1 verification process.

The exceptions to this rule are properties that meet the following cleanup criteria: (1) visible vermiculite identified in the attic or living spaces, (2) visible vermiculite identified in an exterior specific use area, (3) dust results equal to or greater than 5,000 structures per square centimeters (s/cm^2), or (4) soil sample results indicating the presence of LA at 1 % or greater. Category 2 field data verification will not be conducted on these properties until the Planning and Design Inspection (PDI) stage.

Category 2 data verification is conducted on all information that can be crosschecked amongst the Scribe database and various documents contained in the scanned data archives. Typical information subject to verification includes:

- Presence of access agreement form
- Presence of POC form
- Property, building, use area, and sample identification
- Property, building, and use area descriptions
- Date and time entries
- Field personnel initials
- Square footages of buildings and use areas
- Photograph descriptions and designations
- VCI-related information
- COC information

Verification requires access to Tetra Tech's internal TAPE web portal, the Scribe database, the scanned data archives, and the TAPE_Scribe_QAQC.mdb forms such that all data is available for review.

The essential steps of verification and resolution include:

- Review and verification of data
- Documentation of verification findings

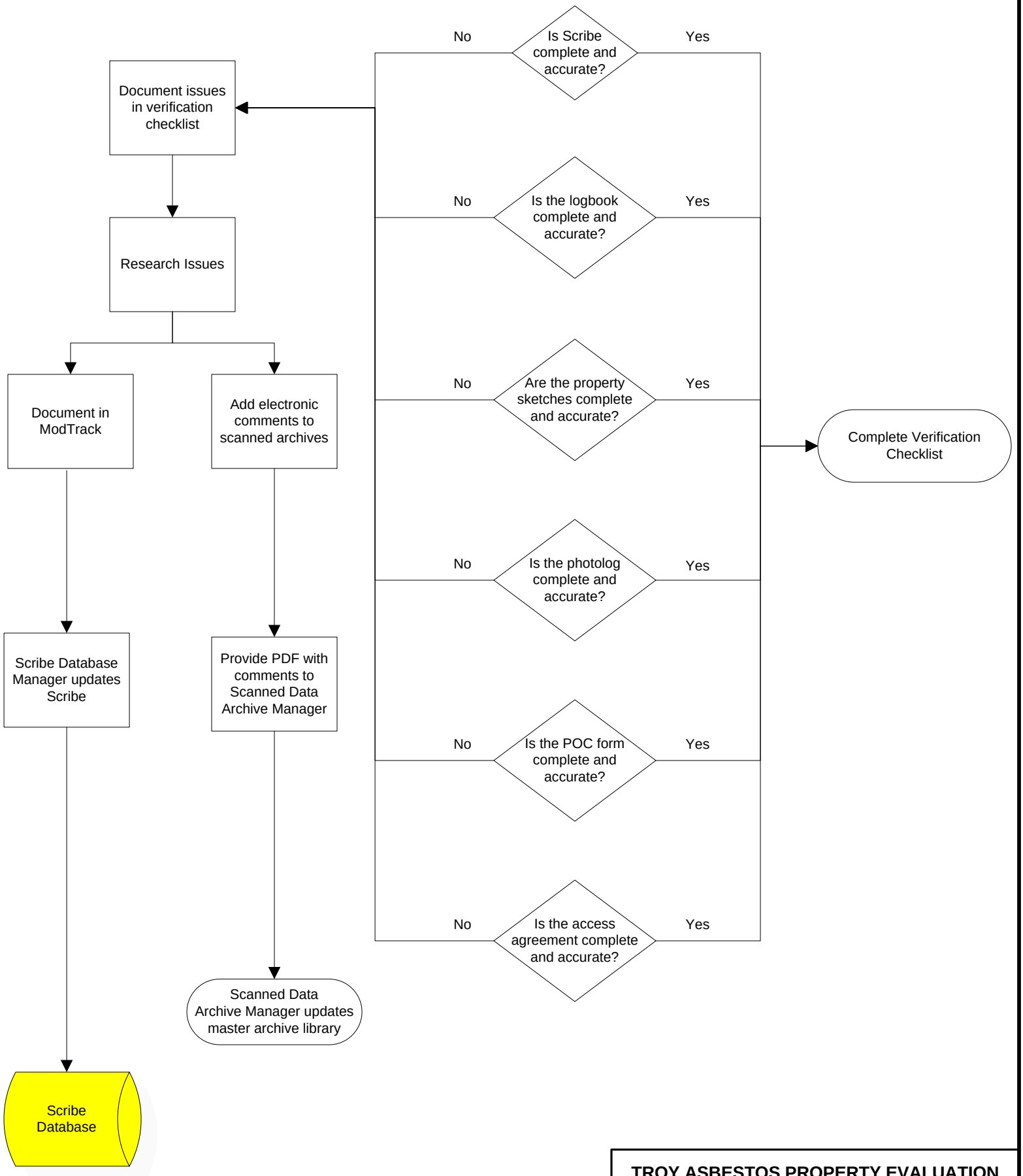
- Resolution of issues

Upon review and verification of all data presented in the various media, the verifier records the findings for each property by initially recording the following information in the verification checklist on the internal Tetra Tech TAPE web portal:

- Property identification (assigned parcel number)
- Name of verifier
- Start and end date of verification
- Issues – these are the items identified as requiring resolution
- Issue resolution date – to be completed upon addressing issues and documenting modifications
- Availability of scanned documents (access agreement, POC, photographs, property sketches, and logbook entries)

Each verifier records changes to be made in Scribe in a ModTrack form, allows the verifier to record and track the necessary changes. Resolution of issues identified through verification may require modifications to the Scribe database as well as to scanned data archives. Modifications in Scribe are performed by the Scribe Database Administrator based on the information presented in the ModTrack forms. Modifications to the scanned data archives are done by adding electronic comments to the affected PDF files such that the original document is not altered, but the modifications are clearly indicated in comments that can be viewed electronically or in printed form. Verification personnel will make these modifications directly to the affected PDF documents and coordinate updates to the master archive with the Scanned Data Archive Coordinator. A flow chart outlining the procedures for Category 2 field data verification and resolution is presented on Figure 4.

In addition to ensuring the accuracy and completeness of the record pertaining to the properties subjected to Category 2 verification, the verification team also tracks critical errors that could affect remediation decisions. Critical errors discovered during Category 2 verification are documented in ModTrack using the correct table name and field name. Table 2 presents guidelines for tracking critical errors. The purposes of tracking critical errors are to (1) ensure that there are no false positive or negative determinations as to which properties require remediation, (2) ensure that all critical information pertaining to remediation is correct, (3) provide an analysis of the percentage of errors, such that the overall percentage of properties being evaluated under category 2 verification can be adjusted, if necessary, and (4) provide information that can be used to adjust field documentation procedures in the future, if necessary.



TROY ASBESTOS PROPERTY EVALUATION

FIGURE 4
CATEGORY 2 VERIFICATION FLOW DIAGRAM

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TABLE 2
CRITICAL FIELD DATA ERRORS
GUIDELINES FOR CATEGORY 2 VERIFICATION

PDA Form	Error Item	Table Name	Field Name	Number of Potential Errors
Parcel Inspection	------			0
Primary Building	Has attic VCI	Location	HasInteriorAtticInsulation	1
	Ever had attic VCI	Location	HadInteriorAtticInsulation	1
	Purchase VCI	Location	VermiculitePurchasedAtStore	1
	VCI used in home	Location	VermiculiteUsedAroundHome	1
	VCI additives	Location	VermiculiteAdditives	1
	Building Number	Location	Location	1
Secondary Building	Has attic VCI	Location	HasInteriorAtticInsulation	1
	Ever had attic VCI	Location	HadInteriorAtticInsulation	1
	Building Number	Location	Location	1
Use Area	Land use area category	Location	LocationZone	1
	Land use area description	Location	LocationDescription	1
	VCI visible	Location	VV_High, VV_Intermediate, VV_Low, VV_None*	1
	VCI description	Location	VV_Desc	1
	Use Area Number	Location	Location	1
Sample (Dust and Soil)	QC Type	Samples	SampleType	1
	Matrix	Samples	Matrix	1
	Sample ID	Samples	Samp_No	1
Dust Sample	Visual VCI in interior living space	SamplesAir	LocationOfIndoorVermiculite	1
				18

* Visible VCI is determined from 3 fields (any value in VV_High, VV_Intermediate, or VV_Low). Any errors associated with VCI Visible will only be counted as one (1) error, even though there might be multiple entries in ModTrack.

4.0 ANALYTICAL DATA

The following sections describe the acquisition and management of the analytical data, including dust and soil sample data (Section 4.1) and the analytical verification and validation of data (Section 4.2). A flow diagram of the acquisition and management of analytical data is shown on Figure 5.

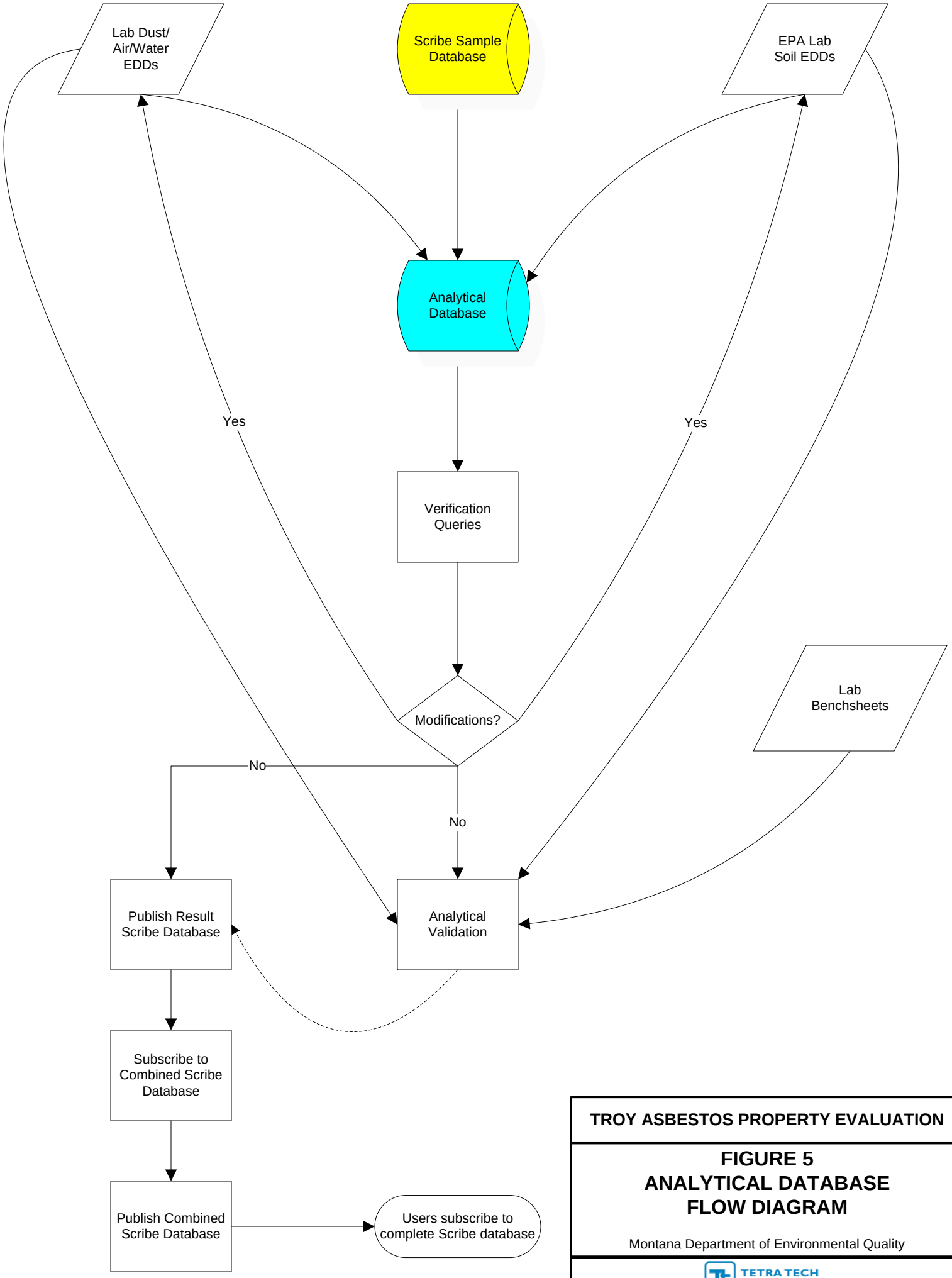
4.1 DUST AND SOIL SAMPLE DATA

Analytical data are received from the laboratory in two formats: (1) hardcopy receipt documentation and laboratory benchsheets in PDF; and (2) electronic data deliverables (EDD) in Excel worksheet format. As discussed in Section 3.2, field data generated during a property inspection is collected in PDAs by entering the data into forms that are linked to an Access database. These data, which provide all of the information pertaining to the samples submitted to the laboratory for analysis, are reviewed by the Sample Database Coordinator and imported into Scribe. Once the dust and soil data has been received from the laboratory, electronic copies of the analytical data are imported into Scribe by the Scribe Database Coordinator using a specific set of load procedures (see "Troy Analytical Load Instructions" in Appendix B). This allows sampling information to be linked to analytical results. The load procedures followed by the Scribe Database Coordinator have various "checks" built into it in order to prevent mistakes from being incorporated into the Scribe database. For example, the load process will alert the user if the sample category (e.g. "dust sample) doesn't match the sample units (e.g. µg/L instead of s/cm^2) or if the volume of dust collected for a blank sample says something other than 0 cm^2. This process also allows the Scribe Database Coordinator to alert the laboratory to these mistakes so that they can be fixed.

4.2 ANALYTICAL DATA VERIFICATION AND VALIDATION

As mentioned above, analytical data are received from the laboratory in both hardcopy and electronic form. Verification addresses the consistency of data reported between the two laboratory data formats and the final Scribe database. Validation addresses the reliability of each sample result reported in the EDD, benchsheets, and Scribe database based on the requirements of the analytical methods. Validation also addresses the consistency of identification of structures and results by laboratory and analyst. The following sections provide additional discussion on each topic.

Note that the verification and validation processes will be conducted as described in the following sections for dust and soil samples results. Other matrices, including air and decontamination water, may



TROY ASBESTOS PROPERTY EVALUATION

FIGURE 5
ANALYTICAL DATABASE
FLOW DIAGRAM

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be review at this level or at another level as deemed appropriate for decision-making for this project. However, the discussion in this DMP is limited to the primary matrices of concern (soil and dust).

4.2.1 Analytical Data Verification

Analytical data verification includes a three-step process to ensure that data are consistently reported between the laboratory benchsheets, EDD, and the final Scribe database. Each of the verification steps are discussed below.

> **Step 1** – When analytical data are received from the laboratories, two data formats are delivered (EDD and benchsheets). The first step of verification includes a one-to-one check of data deliverables against sample IDs collected (TT numbers). The Scribe database contains the field sample collection data for every TT number assigned and submitted for laboratory analysis. These sample IDs are matched to their associated laboratory deliverables (EDD and benchsheets) for 100 % of the dataset. This ensures that all samples collected in the field have corresponding analytical results in the database for reporting.
>
> **Step 2** – After initial verification of field IDs (TT numbers) to analytical data deliverables is complete, 10 % of the analytical results in the database is selected at random for further verification and validation. Validation is discussed in Section 4.4.2. The second step of analytical data verification requires that the data reported on the laboratory benchsheets match both the laboratory EDD and the Scribe database for each result. Verification that all reported results (within the 10 % list) are exactly the same between all three data formats (benchsheets, EDD, and Scribe database).
>
> **Step 3** – After both previous analytical data verification steps and the validation process are complete, issues are identified and submitted to the laboratory for response. Based on the laboratory responses, corrected benchsheets and EDDs may be required. The final step of data verification requires that the affected benchsheets and EDDs are appropriately corrected, and that the EDDs have been properly replaced in the Scribe database.

The Scribe Database Administrator is responsible for Step 1 of the analytical data verification process; as data in both formats are received from the analytical laboratories and EDDs are provided to the database administrator for importation.

The Analytical Data Validation Analyst is responsible for Steps 2 and 3 of the data verification process; and will be conducted concurrently with the data validation discussed in Section 4.2.2.

4.2.2 Analytical Data Validation

Analytical data validation, while closely associated with the verification steps described in Section 4.2.1, is the mechanism to ensure that the decisions made at the laboratory bench are consistent with the analytical method requirements and consistent between different laboratories and analysts. Through the

verification steps described in Section 4.2.1, the validation further ensures that the decisions and results are correctly reported. On a quarterly basis, a data validation summary report will be submitted. A final validation summary report will be included in the final report for the TAPE project. Figure 6 presents the flow of analytical data through validation.

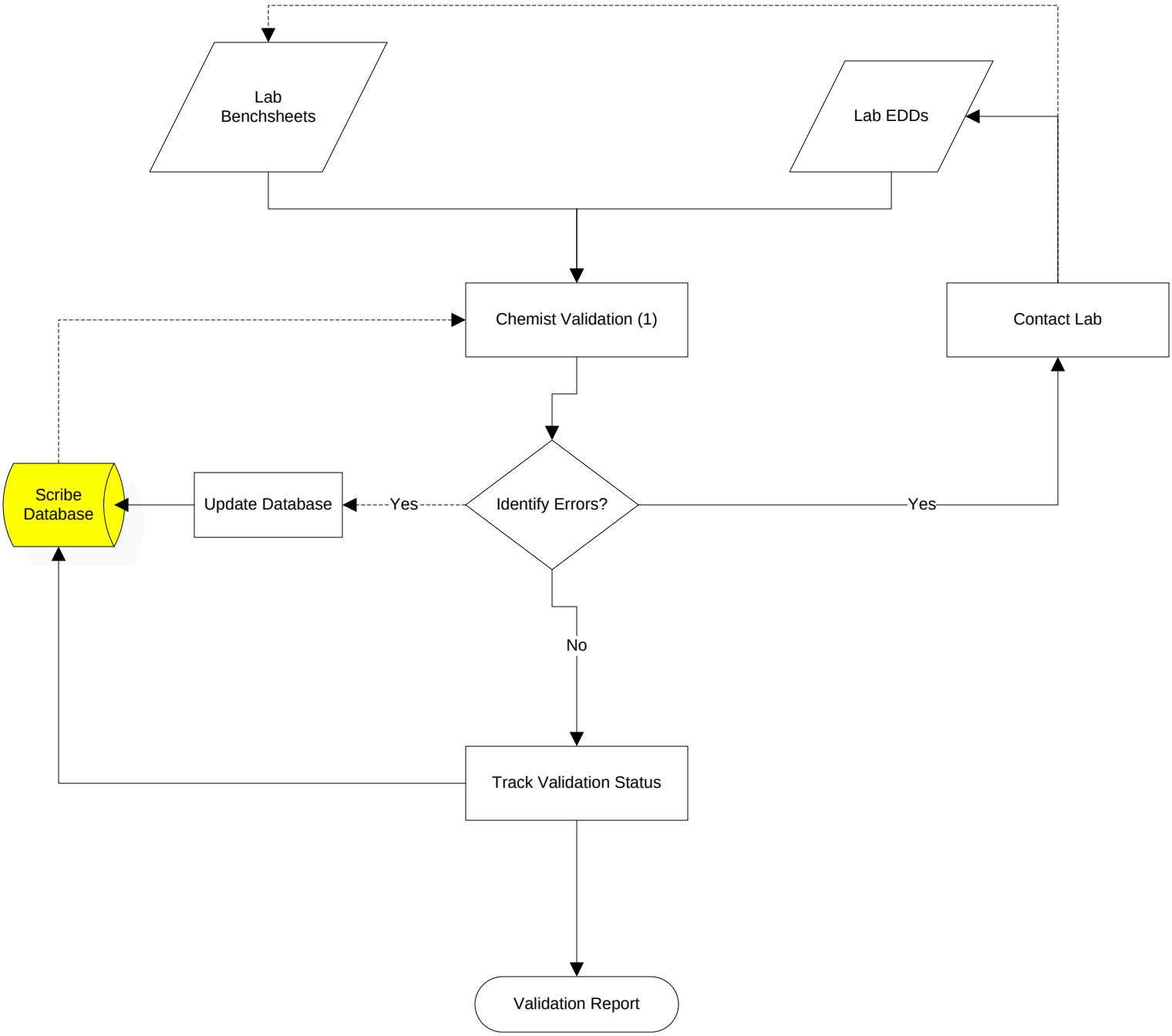
Field samples are collected and submitted for analysis according to sample type using the following analytical methods:

- SOIL - Polarized light microscopy (PLM), Visual Examination (VE) – EPA test method "Method for Determination of Asbestos in Bulk Building Materials" (EPA 1993) with modifications for preparation and methodology for soil samples according to the standard operating procedure (SOP) "Analysis of Asbestos Fibers in Soil by Polarized Light Microscopy" (SRC-Libby-03, Revision 1, April 20, 2004).
- DUST - Transmission electron microscopy (TEM) – ASTM International (ASTM) Method D5755-03 "Standard Test Method for Microvacuum Sampling and Indirect Analysis of Dust by Transmission Electron Microscopy for Asbestos Structure Number Surface Loading."
- AIR - TEM – Asbestos Hazardous Emergency Response Act (AHERA) "Interim Transmission Electron Microscopy Analytical Methods" 40CFR Part 763 Appendix A to Sub Part E with project-specific modification.
- AIR or DUST - TEM – International Organization for Standardization (ISO) Method 10312 "Ambient air – Determination of Asbestos Fibers – Direct-transfer Transmission Electron Microscopy Method" First Edition, May 1, 1995.
- WORKER AIR - Phase contrast microscopy (PCM) – National Institute for Occupational Safety and Health (NIOSH) Method 7400 "Asbestos and Other Fibers by PCM" Issue 2, August 15, 1994.

Data validation is conducted primarily for dust and soil samples (TEM and PLM methods) according to currently approved practices and is conducted by the Analytical Data Validation Analyst. Details regarding the validation process are provided in the following sections. Should validation of other methods and matrices be warranted, the validation will be conducted based on requirements of the specific analytical method and the intended use of the results (for example health and safety of workers).

4.2.2.1 TEM Analysis Data Validation

The verification and validation of TEM data is conducted according to the SOP "Standard Operating Procedure for TEM Data Review and Data Entry Verification" EPA-Libby-09 Revision 0, December 7, 2006. This SOP includes the validation of both the TEM ASTM and TEM ISO methods.



Notes:
(1) Lab Benchsheets are validated against applicable Standard Operating Procedures and Methods. EDDs are validated against the handwritten laboratory benchsheets.

TROY ASBESTOS PROPERTY EVALUATION

FIGURE 6
ANALYTICAL DATA VALIDATION FLOW DIAGRAM

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According to the TEM validation SOP (cited above), 10 % of the dust samples are selected for validation. The SOP details the criteria for selecting the samples and is conducted in a manner that ensures representation across different laboratories. The ideal selection would be to obtain representation of non-detect and detects across the analysts within a given laboratory.

The validation of TEM results includes a consistency review of reported results with the appropriate method counting rules and sensitivity requirements. The Analytical Data Validation Analyst completes a validation worksheet (Excel format) and record any inconsistencies, errors, and omissions discovered during the review process and provide those to the laboratory coordinator. The laboratory coordinator will notify the laboratory and changes will be made to any and all deliverables. Upon receipt of the corrected EDDs and benchsheets, the data are replaced in the Scribe database and verified as discussed in Section 4.2.1.

4.2.2.2 PLM Analysis Data Validation

While no formal validation SOP is available for PLM analysis of soils, guidelines have been established and will be used for conducting the verification and validation of soil results. Ten percent of all PLM soil results will be selected for validation. Criteria are not as specific for PLM as for TEM analysis.

PLM validation includes the three analytical data verification steps in Section 4.2.1 and specific reviews as follows:

- Results reported as non-detect (ND), trace (Tr or <1 %), or detect (% level) have been consistently reported on benchsheets and EDD
- If detections are observed, review includes the correct bin assignment and optical properties to be identified.

The Analytical Data Validation Analyst will complete a validation worksheet (Excel format) and record any inconsistencies, errors, and omissions discovered during the review process and provide those to the laboratory coordinator. The laboratory coordinator will notify the laboratory and changes will be made to any and all deliverables. Upon receipt of the corrected EDDs and benchsheets, the data will be replaced in the Scribe database and verified as discussed in Section 4.2.1.

TAPE LOGBOOK, PROPERTY SKETCH, AND PHOTOGRAPH LOG GUIDANCE

Logbook Guidelines:

- The top of each logbook page must have the following items: (1) date, (2) property number (AD number), (3) logbook number (TR number), (4) reference parcel number, if applicable, and 5) team initials. Additional useful information to include at the top of each page includes: 1) team number, 2) PDA number, and 3) physical address of property if known.

- Logbooks are the main back-up documents and must be able to answer questions about missing information in the Personal Digital Assistants (PDA). They must have detail about the nature and extent of visible vermiculite inside buildings and on the property, not just the attics and crawl spaces.

- Logbook authors must make sure that each use area (UA number) or building (BD number) logbook entry has a square footage and description listed (i.e. common use area, or primary building), and each sample number (TT number) entry includes sampling information such as the number of aliquots, sample depth, sample time, where collected (first floor, basement, flower pot, etc) presence or absence of visible vermiculite, reasons for variation, etc.

- The logbook authors must provide details when writing narrative descriptions about buildings or use areas on the property. For example, narrative entries should provide the BD number or UA number associated with the description. If there are multiple BD or UA on the property, the reader should be able to distinguish from the log notes which BD or UA is being described.

- Logbook narrative entries should also discuss inspection findings in an attic, crawl space, interior living space, secondary building, or UA. Narrative entries should indicate if visible vermiculite is observed in any buildings or use areas.

- The logbook should contain a “Photograph Log” at the top of the second page of the logbook entry for a given parcel. Photographs for a given property are numbered starting with 1, regardless of whether there are photographs on the camera from a property inspected previously. Field teams should be careful to note which photographs belong with which property if more than one parcel is inspected using the same camera. Photograph logs should include descriptions of each photograph to ensure reader understands the significance of each. The team members must make sure each photograph description is accurate and informative. For example, describing a photograph as merely an “Attic” is not sufficient; rather, the description should be along the lines of “BD-200116, view of fiberglass insulation in the attic – no visible VCI”. Also, a description of the building should be described (i.e. “brown shed on northeast corner of property”).

- The logbook authors must sign and print their names at the bottom of each page that is not fully completed. Only one diagonal line is needed to cross off the unused section of the page.

- Additional log book requirements include:

  - Logbooks are pre-numbered before distributing to field teams
  - Logbook pages have been pre-numbered
  - No pages are skipped
  - No pages are removed from the logbook – if a mistake is made, it is crossed out, initialed, and the entry re-written correctly.
  - The logbook is completed even if one property requires the use of 2 or more logbooks.

Property Sketch Guidelines:

At the top of each drawing, the field team is required to include the AD number, the date, and the initials of the field team members completing the inspection. Each drawing must include the following information:

- North arrow
- Scale bar
- Overall property dimensions
- Location, dimension, and building (BD) identification numbers of all primary and secondary buildings
- Location, dimension, and corresponding use area (UA) identification numbers of specific, common, limited, and non-use areas
- Associated sample (TT) identification numbers
- Location and dimension (if applicable) of other features such as stock piles, driveway(s), parking areas, walkways, trees, and fences.

Photograph Log Guidelines:

- Photographs must be checked before being downloaded. If photographs from more than one property are on a camera at the same time, the field team members will need to carefully cross-check the photograph log descriptions in the logbook with the photos on the camera.

- Photographs will be downloaded at the end of each day to a temporary directory and renamed to reflect where they were collected. The field teams will create a folder in the directory for the pictures labeled with the AD number and the word "photos" (i.e. AD-201645_photos). The individual picture files will be renamed with the AD number and the photograph number, for example: AD-201645 001, AD-201645 002, etc. Each photograph should be compressed to less than 500kb

in size. Photographs will be renamed and compressed using either PhotoWizard or Microsoft Office Picture Manager.

- Field teams should collect (at a minimum) one photograph of the property from the main right-of-way (front of primary building on developed parcels). A photograph is needed even from undeveloped parcels.

- On developed properties, field teams should collect exterior photographs of each of the primary and secondary buildings, the attics and insulation in primary and secondary buildings, any visible vermiculite (if present) on the property, and before and after photographs of any temporary repairs made in homes if vermiculite is present (for example, a separation between a light fixture and the ceiling is caulked to prevent vermiculite insulation from leaking through. These repairs, and photographs, are done with homeowner permission only). Field teams should also take pictures of other notable features on the parcels. All photographs should be clearly described in the Photograph Log in the logbook.

- The team members should collect pictures of damaged building materials that may contain asbestos, if present.

Troy Analytical Data Load Instructions

Load Samples into SQL Server (scripts are in AnythingLoad.sql). Only load samples if needed.

1. In SQL Server, delete all records in SAMPLES
```
delete from samples
```
2. Open SQL Server Enterprise Manager 2000
   Or
   Install SQLServer2005_DTS.msi for SQL Server 2005
   Management, Legacy, Data Transformation Services
   Open the DTS package, Package, Execute
   http://msdn2.microsoft.com/en-us/library/ms143706.aspx
   (need to install SQLServer2005_DTS.msi)
3. Run DTS package: Troy - Import Samples
   Samples are retrieved from C:\Program Files\Scribe\Projects\Tape Sampling.mdb
4. Delete sample data from tblSample except for sample LQ*
```
delete from dbo.tblSample where IndexID <> 'LQ-00001'
```
5. Before running the insert, check the counts
```
select count(1) as cnt from Samples --scribe
select count(1) as cnt from tblSample
```
6. Insert Scribe data (Samples) into tblSample
```
insert into dbo.tblSample
(IndexID, SampleArea, SampleQuantityCollected, SampleDateBegin,
SampleQCTypeID, SampleMatrixID)
select
   IndexID,
      Case
            When Matrix = 'Dust' Then SampleArea
            Else 0
      End,
    Case
            When Matrix = 'Air' Then SampleQuantityCollected
            Else 0
      End,
   SampleDateBegin,
   SampleQCTypeID,
   SampleMatrixID
FROM dbo.vScribeSamples2Insert
```

Load EDD from Spreadsheets and Populate into Scribe

Use the Volpe load program to load spreadsheet EDDs into the Troy analytical SQL Server database.
Load program: C:\Visual Studio Projects 2008\TTEMI \VolpeEDDLoad

If an EDD doesn't load, run the load program again. If the same number of EDDs did not load, then read the log file to determine the problem. Fix the problem and reload

1) From SQL Server, run script to check for analytical results that don't have any records in analysis.

```
      -- tlbAnalysisResults without results
      select * from tblAnalysis a
      where not exists
      (select * from tblRESULTS r
      where r.AnalysisIDSeqN = a.AnalysisIDSeqN)

      --Results without analysis
      select * from tblRESULTS r
      where not exists
      (select * from tblAnalysis a
      where r.AnalysisIDSeqN = a.AnalysisIDSeqN)


      --Delete Results w/out analysis
      delete tblRESULTS
      where not exists
      (select * from tblAnalysis a
      where tblRESULTS.AnalysisIDSeqN = a.AnalysisIDSeqN)

      --Check for result samples without a sample in Scribe
      --(SHOULD RETURN 0 rows)
      -- If not, then update the samples (first part of this document)
      select * from tblAnalysis
      where not exists
      (select * from samples
      where tblAnalysis.IndexID = samples.Samp_No)
      and IndexID <> 'LQ-00001'

--Check for tblDocuments that are not in tblAnalysis (SHOULD RETURN 0
rows)
select * from tblDocuments r
where not exists
(select * from tblAnalysis a
where r.FieldNameValue = a.AnalysisIDSeqN)
and r.FieldName = 'AnalysisIDSeqn'

--Delete entries in tblDocuments that are not in tblAnaysis
delete tblDocuments
where not exists
(select * from tblAnalysis a
where tblDocuments.FieldNameValue = a.AnalysisIDSeqN)
and FieldName = 'AnalysisIDSeqn'

-------------------------------------------------------
-- Check for duplicate tblAnalsis  (corrections are OK)
-------------------------------------------------------
select a.indexID, a.AnalysisLabQCID, a.AnalysisComments, d.cnt
from tblAnalysis a,
      (select count(1) as cnt, indexID, AnalysisLabQCID from
      tblAnalysis
      where indexID <> 'LQ-00001'
      group by IndexID, AnalysisLabQCID
```

```
      having count(1) > 1 ) d
      where a.indexID = d.IndexID
      order by a.indexID, a.AnalysisLabQCID, a.AnalysisComments

-----------------------------------------------------------
-- Check for duplicate tblResults
-----------------------------------------------------------
select count(1) as cnt, r.AnalysisIDSeqN, r.CharacteristicID,
r.ResultsMineralClass, a.AnalysisLabQCID
from tblResults r, tblAnalysis a
where indexID <> 'LQ-00001'
and r.AnalysisIDSeqN = a.AnalysisIDSeqN
and r.ResultsMineralClass = 'LA'
and r.CharacteristicID not in ('AR', 'FBRLEN', 'FBRWID', 'TSTRUC',
'PSTRUC')
group by r.AnalysisIDSeqN, r.CharacteristicID, r.ResultsMineralClass,
a.AnalysisLabQCID
      having count(1) > 1
```

2) Open the temporary Troy results Access database:
C:\TTEMI\MDEQ\Troy\EDD\Spreadsheets\TroyEDD_vls.mdb

Run the macros to delete the 3 main tables: **mDeleteResultTables_Step1**
(tblDocuments, tblAnalysis, tblRESULTS)
(may need to compact and repair the database before step 3)

3) Run the DTS for populating the temporary Troy results Access database.
DTS: **Troy EDD Result Update** - Laptop

4) Open the temporary Troy results Access database. Run macros to remove the uncorrected EDDs (when there is a corrected EDD):
mDelete_uncorrectedData_Step2
mDelete_uncorrectedData_Step3
Compact and Repair

5) Open the Scribe Troy Analytical project:
C:\Program Files\Scribe\Projects\Tape Results.MDB in Access.
Delete the data in the tables (tblAnalysis and tblRESULTS)
Marcro: **mdel_Results**
Compact and Repair

6) Open the Scribe Troy Analytical project in Scribe:
C:\Program Files\Scribe\Projects\Tape Results.MDB

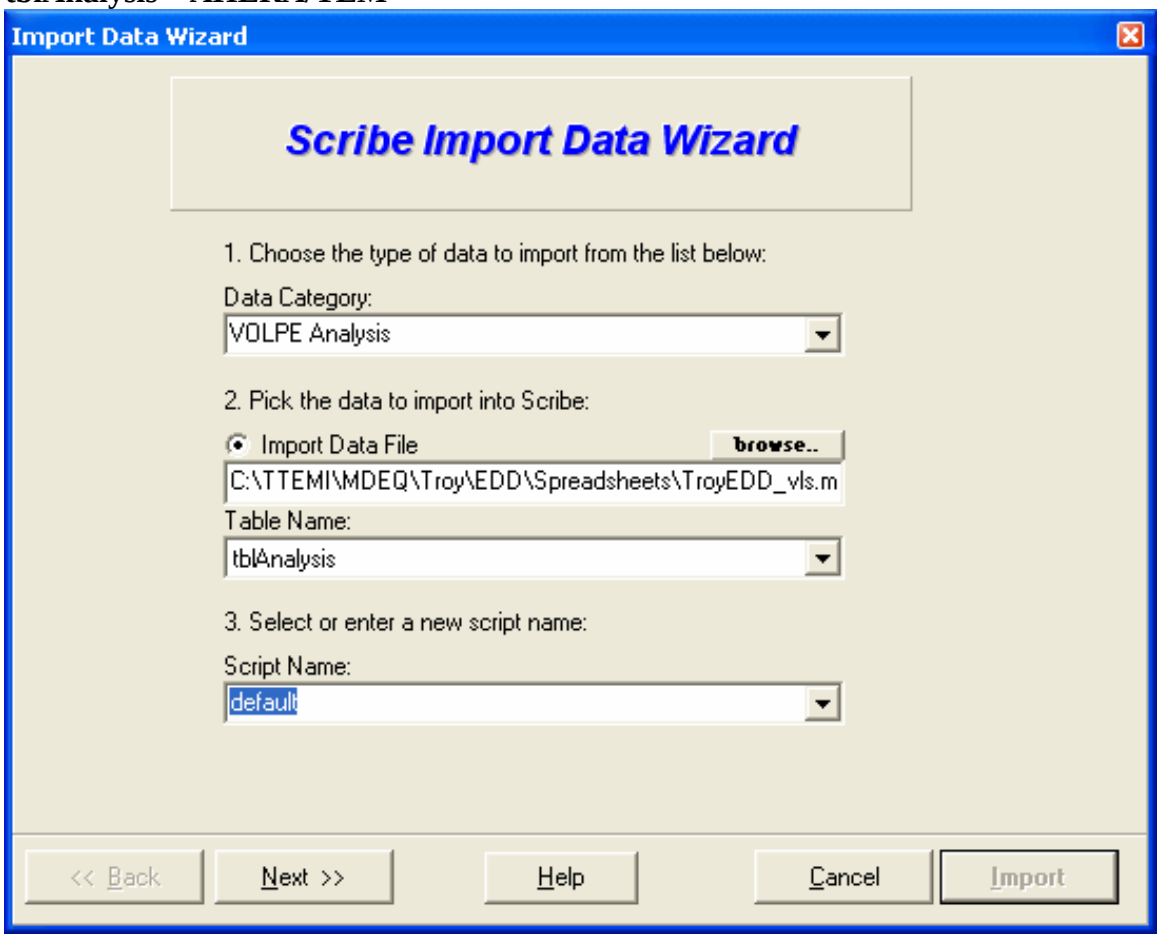
Make sure the template is associated:
C:\Program Files\Scribe\Template\Troy Template_YYYYMMDDanalytical.mdb

Import the data from the temporary Access database

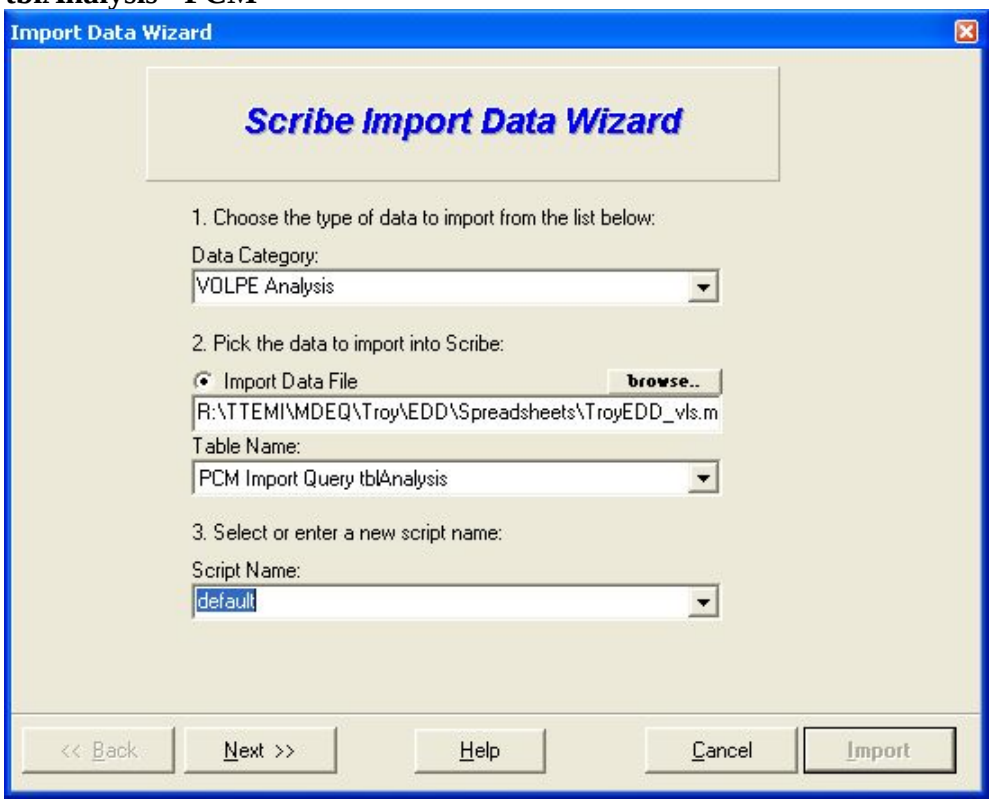
From Scribe:

File, Import, Custom Import

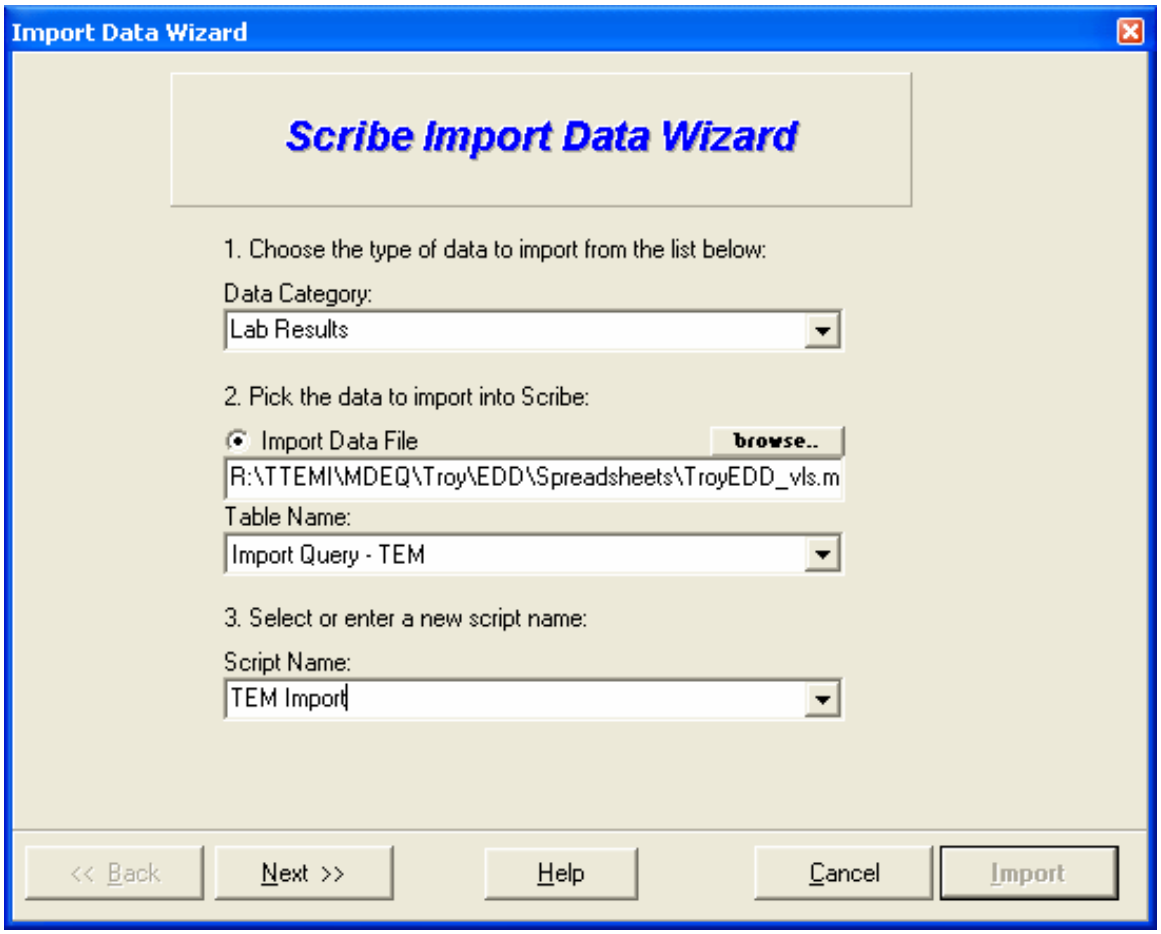
tblAnalysis – AHERA/TEM



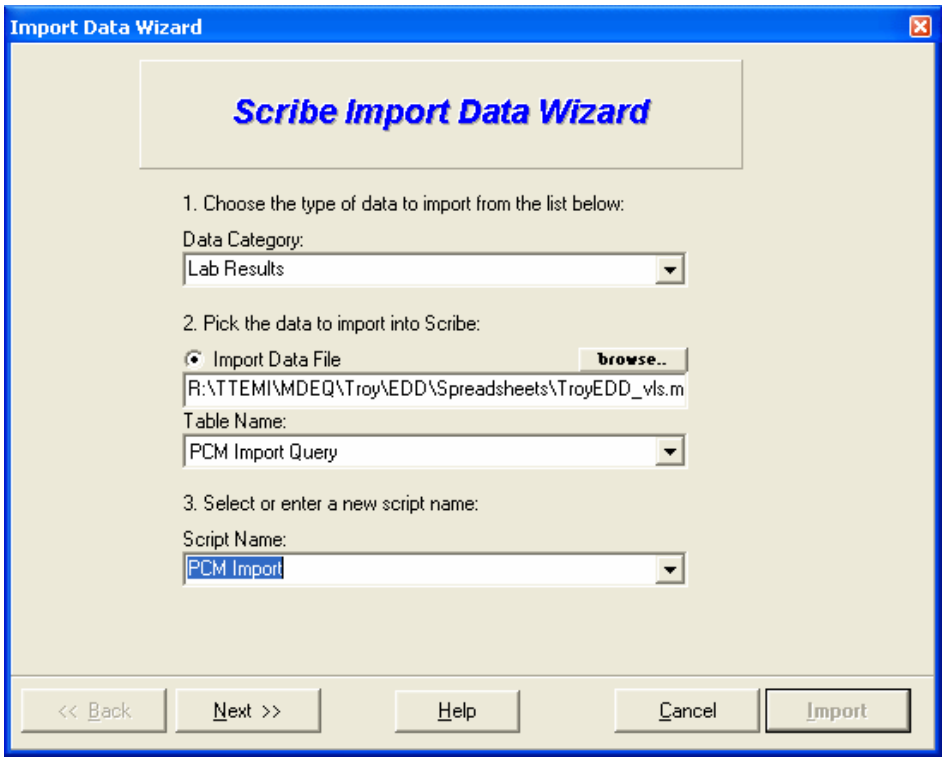
tblAnalysis - PCM



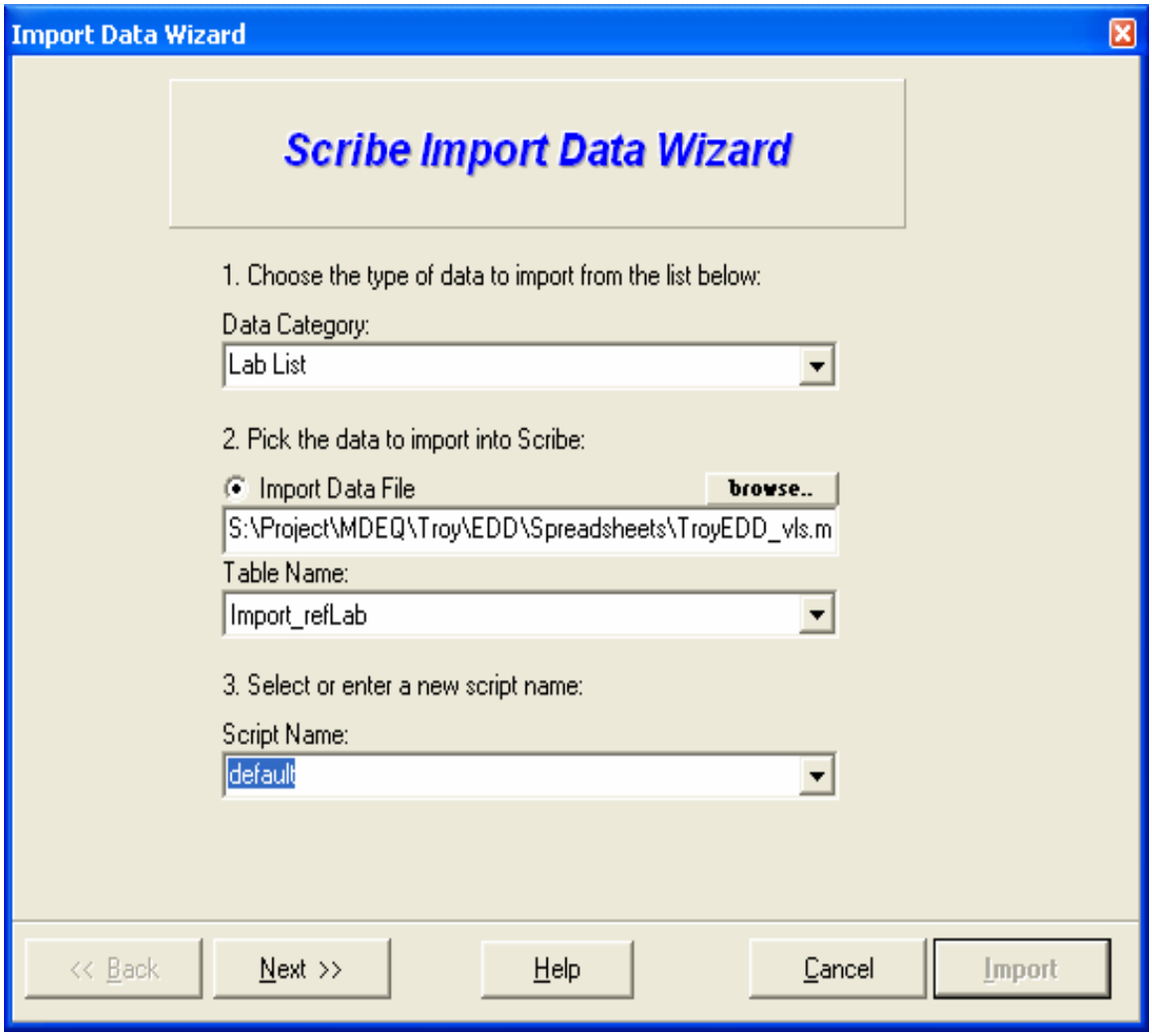
LabResults – AHERA/TEM



LabResults - PCM



Lab List (only need if new labs; 36)

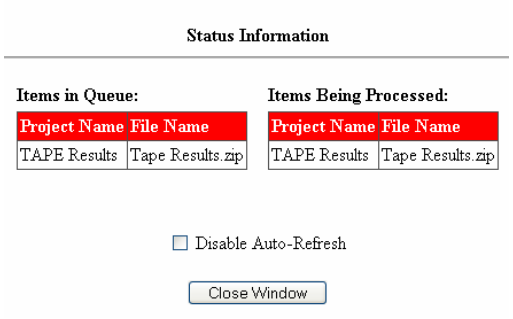


7) After the Results have been published, and the Combined has been subscribed, then……After all of the data are loaded, updated the PLM lab job number from the lab sample ID. (this step can be deleted when the PLM data manager adds the lab job number to tblAnalysis). Run Access Update queries:

Update_LabJobNumber_PLM_LabResults
Update_LabJobNumber_PLM_tblAnalysis

Scribe Subscriptions

Verify that the publishing has finished processing before moving on to the next step. Check web site: http://209.196.55.152/scribe_net/admin_tools/login.aspx
R8_Troy /[redacted]



Status Information

Items in Queue:

Project Name	File Name
TAPE Results	Tape Results.zip

Items Being Processed:

Project Name	File Name
TAPE Results	Tape Results.zip

Disable Auto-Refresh

Close Window

1. Publish Tape Sampling Master (TAPE Sampling Master.mdb)
    a. R8_Troy / [redacted]
    b. Project ID = 347

2. Publish TAPE Results (Tape Results.MDB)
    a. R8_Troy / [redacted]
    b. Project ID = 457

3. Subscribe to the combined project: Tape Combined.mdb
    a. R8_Troy_Combined / [redacted]
    b. Project ID = 460
    c. Combines projects
        i. TAPE (347)
        ii. TAPE PLM Results (469) – run by Marty
        iii. TAPE Results (457)

4. Publish the combined project: Tape Combined.mdb
    a. R8_Troy / [redacted]
    b. Project ID = 460

5. User can download: Tape Sampling.mdb
    a. troy / [redacted]
    b. Project ID = 460 (subscription is to Tape Combined)

PROTOCOL FOR THE COMBINATION AND DIVISION OF PARCELS

Properties in the Troy TAPE parcel database are expected to change over time as properties are legally combined or subdivided. Parcel changes will be identified either by the GIS coordinator during periodic retrieval of updated Lincoln County tax records from the Montana Department of Administration, or by the Community Involvement Coordinator (CIC) as property owners schedule inspections and discuss parcel information with the CIC. The following protocol has been established to account for these changes.

Parcel Combinations

1. The CIC is notified of a property boundary change and posts a message for the GIS coordinator on WebEOC.
2. The GIS coordinator updates the parcel database and associated GIS layer. General practice will be to retain the lower of the two AD- numbers as the "new" parcel identification number. The higher of the two AD- numbers will become inactive. The parcel database will then contain the combined legal description and the GIS layer will display one property boundary outline instead of two.
3. The GIS coordinator will notify the Scanned Data Archives coordinator that parcels have been combined. The Scanned Data Archive coordinator will remove scanned property files (Access Agreement form, Logbook entry, Point-of-Contact form, Property Sketch, and photos) from the electronic Scanned Data Archive for the inactive AD- number and place it into the archive folder for the combined parcel. A text file will be placed into the folder for the inactive AD- number describing in detail that the two parcels were legally combined, and that inspection information for the inactive parcel can now be found in the archive folder for the "new" (lower) AD- number.
4. The Scanned Data Archive coordinator will then identify which data from the inactive parcel needs to be reassigned in the Scribe database to the combined AD- number. This person will fill out a Modification Tracking (ModTrack) table detailing the BD-, UA-, and TT- numbers that need to be associated with the lower AD- number. The ModTrack table will be given to the Scribe Database Coordinator.
5. The Scribe Database Coordinator will reassign all data pertaining to the inactive AD-number to the new, lower AD-number in the Scribe database. The inactive AD-number will be placed into an "Inactive Parcel" table where its history can be tracked, but it will not be counted in queries as an active parcel number.
6. The Scanned Data Archive coordinator will send a copy of the text file detailing the change back to the CIC where it will be placed inside the hardcopy property folder. The folder for the inactive AD- number will be inserted into the property folder for the new (lower) combined AD- number.

Note: If the GIS coordinator is the first to determine a parcel change (as a result of new tax record information), this process will occur in the same order starting from Step 2.

Parcel Divisions

1. Same as Step 1 under Parcel Combinations.
2. The GIS coordinator will create a new, *previously unassigned*, AD- number for the divided parcel and retain the initial AD- number for the remaining portion of the parcel. The parcel database and associated GIS layer will be updated to reflect the change.
3. The GIS coordinator will notify the Scanned Data Archive coordinator of the division. The Archive coordinator will create an archive folder for the new parcel and place copies

of the pertinent scanned property files from the original archive folder into the new folder (Access Agreement, Logbook, Property Sketch, and Photos). Comments will be added to the scanned property files (.pdf files) to designate which samples fall onto the new divided parcel (shown in the Logbook) and where the parcel was divided (shown on Property Sketch). A detailed text file will be placed in the archive folder for the original AD- number discussing the legal division.

4. The Scanned Data Archive coordinator will then review the scanned property files from the original archive folder and determine which data belong to the newly divided portion (BD- numbers, UA- numbers, and TT- numbers). Only those buildings, use areas, and samples that are *completely* encompassed by the newly divided parcel will be reassigned to the divided parcel (i.e. if a use area falls across the boundary between the divided parcel and the original, then all data pertaining to the use area will remain with the original portion of the property). The Archive coordinator will fill out a ModTrack table for those BD-, UA-, or TT- numbers that need to be electronically reassigned to the new parcel in the Scribe database. The ModTrack table will be given to the Scribe Database Coordinator.
5. The Scribe Database Coordinator will reassign all pertaining data from the original parcel to the divided parcel in the Scribe database. A comment regarding this action will be placed in the "ParcelComments" field in the Parcel table of the Scribe database.
6. The Scanned Data Archive coordinator will send a copy of the text file from the archive folder of the original parcel to the CIC. The CIC will place this information in the hardcopy folder for the original parcel. In addition, the CIC will create a new folder for the divided parcel and place copies of information from the original parcel that now pertain to the divided parcel into the new folder.

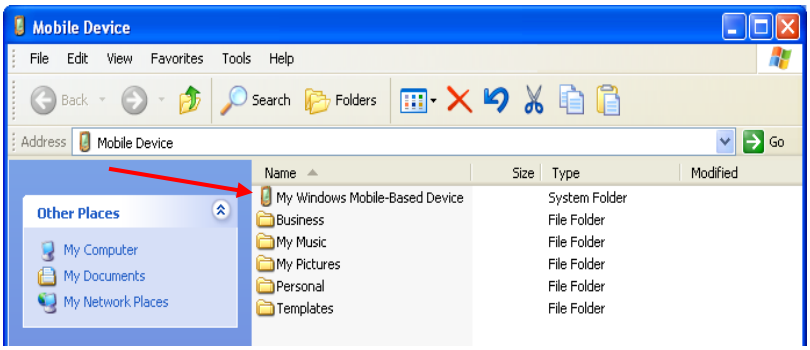
Note: If the GIS coordinator is the first to determine a parcel change (as a result of new tax record information), this process will occur in the same order starting from Step 2.

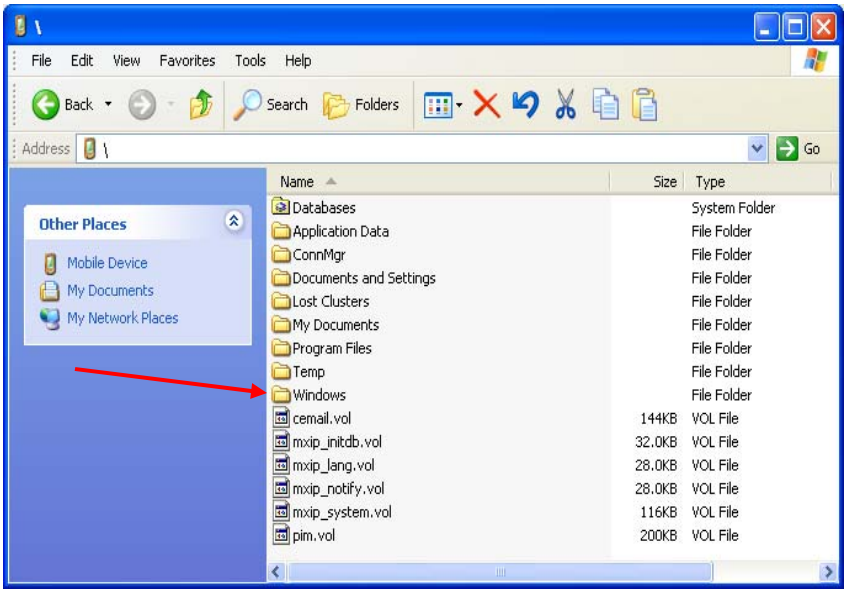
Assumption: all software has already been configured on the desktop (and previously used for configuring the units). If not, then software will need to be installed on the desktop computer.

1. Hard Reset the GeoXT 2005 – a hard reset returns the handheld to its factory default settings. Any data or software installed on the handheld is lost.
    a. Turn on the handheld.
    b. Press and hold both the applications buttons (—) and, at the same time, press and hold the power button until the handheld turns off.
    c. Continue to hold down the two application buttons, but release the power button. When you see a warning about data loss, follow the instructions on the screen.

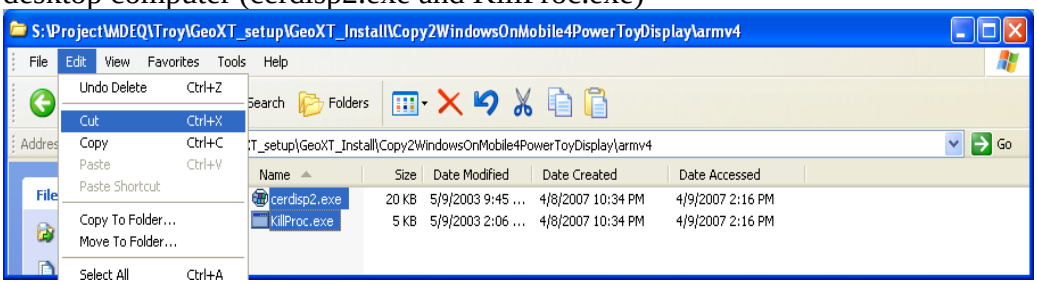
    If the handheld does not restart and display the *Windows Mobile Today* screen, do the following:

    d. Press and hold both the applications buttons (—) and, at the same time, press and hold the power button until the handheld turns off.
    e. Release and then press the power button while continuing to hold down the two application buttons. A message appears warning about data loss. Follow the instructions on screen.
2. Set GeoXT configuration after the handheld has successfully reboot
    a. Follow the direction to align the screen
    b. "Skip" the password
    c. Follow "Step c" only if the PDA will be used for **PowerToy** remote display (used for screen shots of handheld), place in the cradle and cancel synchronization (only use ActiveSync 4.2)
        i. Open Explorer and navigate to the Windows folder on the handheld

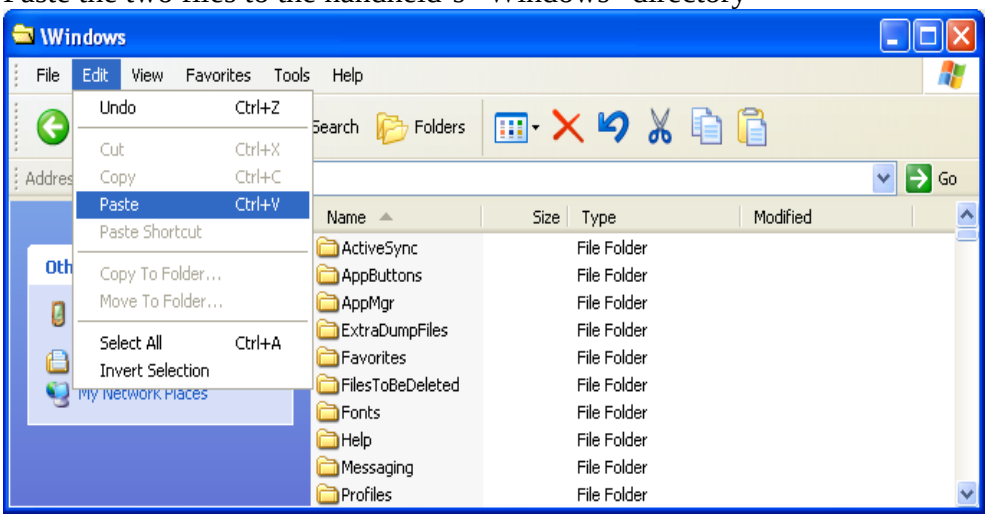




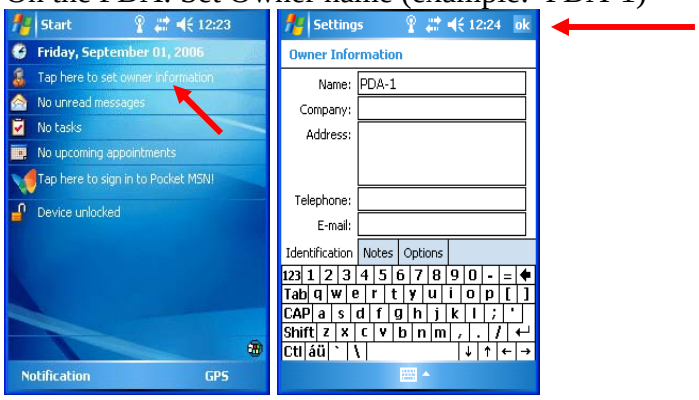
ii. Copy ARV4 files to GeoXT "Windows" directory from the desktop computer (cerdisp2.exe and KillProc.exe)



iii. Paste the two files to the handheld's "Windows" directory



d. On the PDA: Set Owner name (example: PDA-1)



e. Add File Explorer to Menu
   i. Start, Settings, Menus
   ii. Check File Explorer

f. Set the Clock/Date and Time Zone
   i. Start, Settings, System, Clock & Alarms
   ii. Set the time, date, and time zone

g. Disable error reporting
   i. Start, Settings, System
   ii. Error Reporting
   iii. Disable error reporting

h. Turn off Wireless signals
   i. Place in flight mode (shortcut on title bar), or
   ii. Start, Settings, System, Power
   iii. Wireless
   iv. Wireless signals off (Flight mode)

i. Default: Turn off battery power after 3 min
   i. Start, Settings, Power, Advanced
   ii. On battery power: Turn off device if not used for 3 minutes

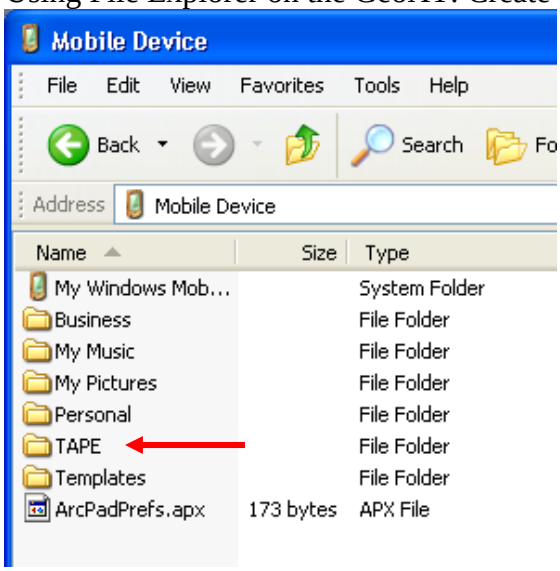
j. Turn off external after 30 min
   i. Start, Settings, Power, Advanced
   ii. On external power: Turn off device if not used for 30 minutes

k. Default: Turn off backlight after 1 min (battery)
   i. Start, Settings, System
   ii. Backlight

l. Default: Turn off backlight after 10 min (external)
   i. Start, Settings, System
   ii. Backlight
   iii. External Power

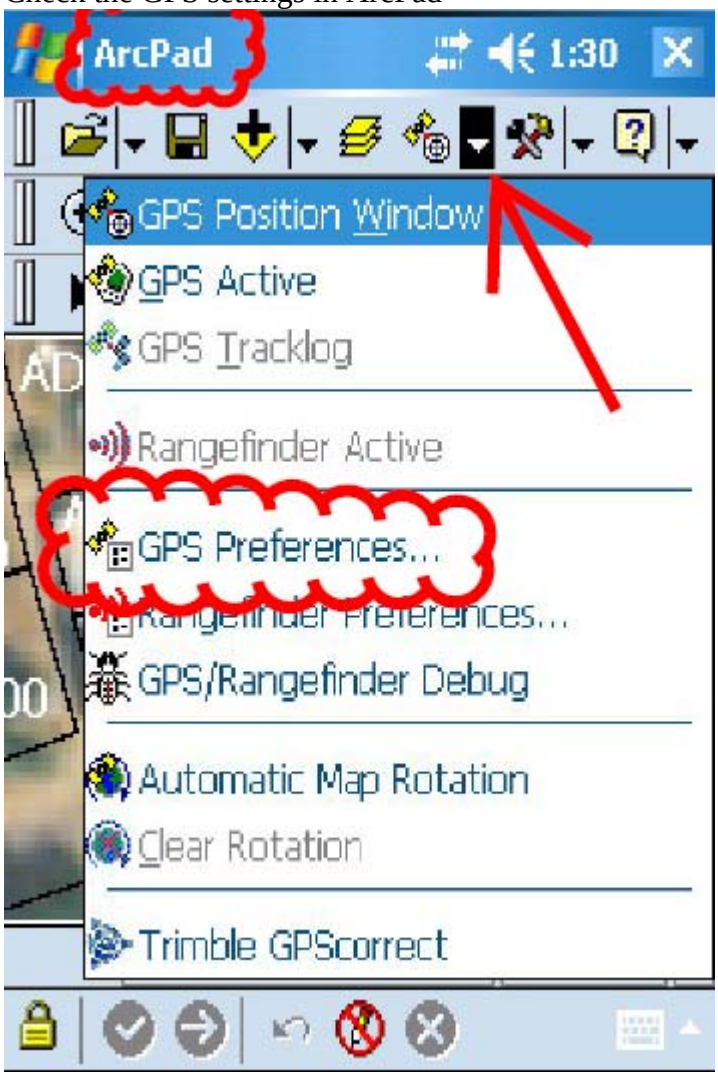
3. Install ArcPad (place unit in cradle)
   a. From Desktop: program files, ArcGIS, ArcPad 7, Install ArcPad 7.0.1 Application on Windows Mobile
   b. Add ArcPad to the menu
      i. Start, Settings, Menus
      ii. Uncheck Contacts
      iii. Check ArcPad 7.0.1

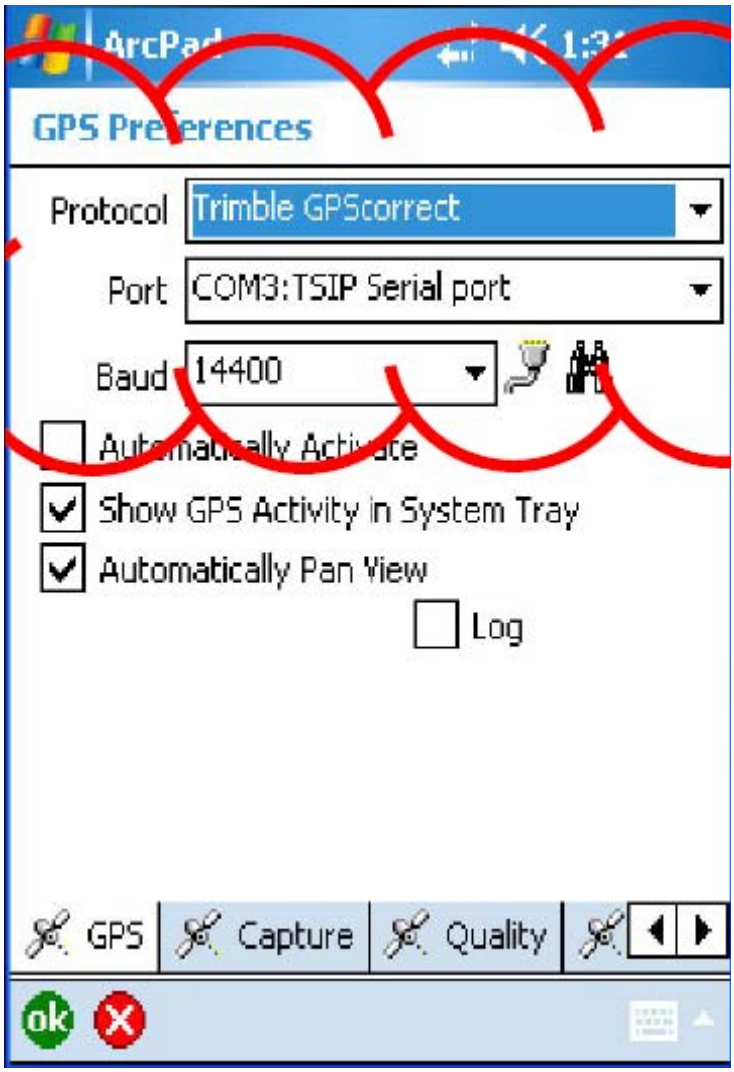
   c. Start ArcPad on the GeoXT – add registration number
   d. Close ArcPad
4. Install ADOCE
   a. From Desktop: double click on ADOCE.WM5.exe
5. Install GPSCorrect
   a. C:\Program Files\GPScorrect\Updater.exe
   b. If software is installed on Desktop, just pick the option for Windows Mobile Device
   c. Use updates folder or download from the web
   d. Enter the registration number
6. Using File Explorer on the GeoXT: Create TAPE folder under My Documents

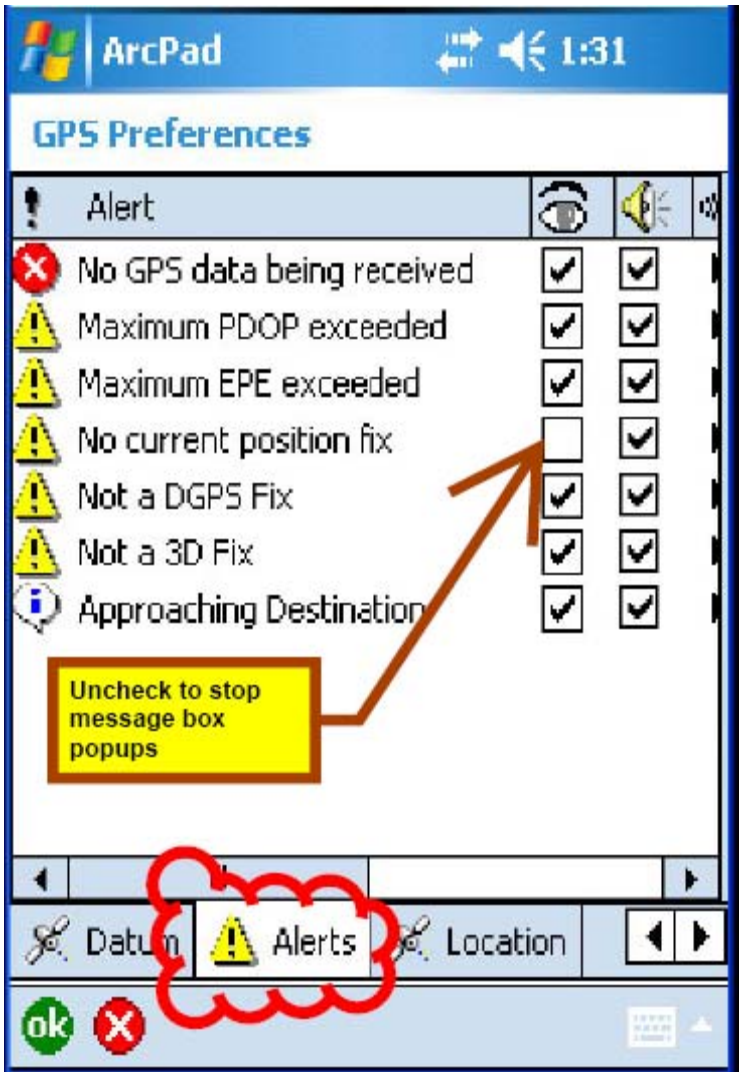


7. Copy All ArcPad application files and database from the desktop to the GeoXT Assume master directory on desktop is named MasterPDA
   a. From the Desktop Computer: use File Explorer to Copy all files in MasterPDA directory
   b. Open another File Explorer and navigate to the TAPE directory on the PDA.
   c. Paste all files into the TAPE directory
   d. When the convert box appears for the database, uncheck “Keep tables synchronized”. The database file will automatically be copied to the correct folder (it will default to My Documents which is where it should be located)

8. Check the GPS settings in ArcPad



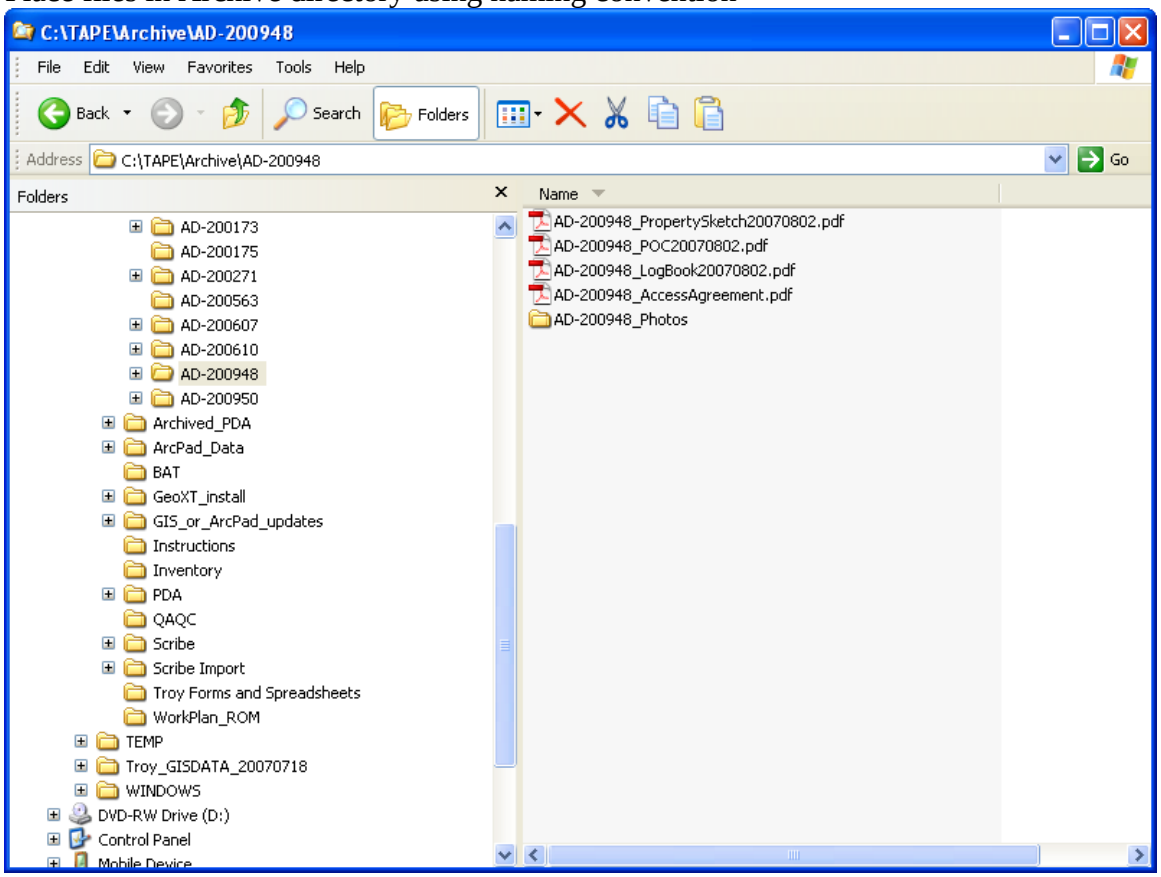

ArcPad
GPS Preferences
Protocol
Trimble GPScorrect
Port
COM3:TSIP Serial port
Baud
14400
Automatically Activate
Show GPS Activity in System Tray
Automatically Pan View
Log
GPS
Capture
Quality
ok


ArcPad
1:31
GPS Preferences
Alert
No GPS data being received
Maximum PDOP exceeded
Maximum EPE exceeded
No current position fix
Not a DGPS Fix
Not a 3D Fix
Approaching Destination
Uncheck to stop message box popups
Datum
Alerts
Location
ok

PDA Loading

Scan Documents:

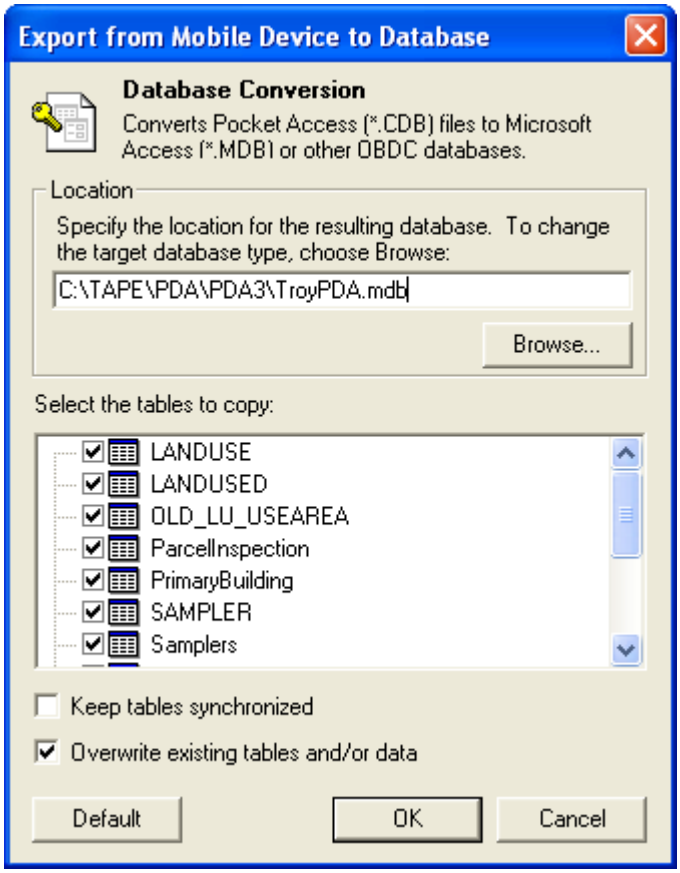
1. Place files in Archive directory using naming convention



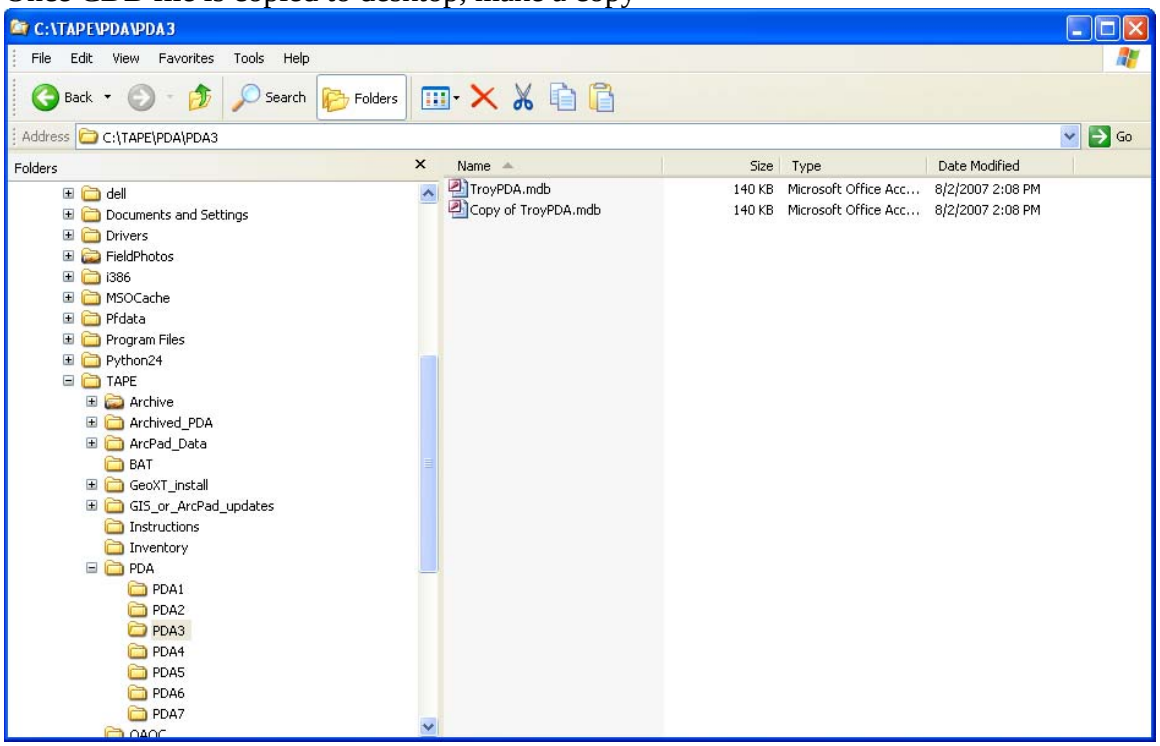
1. Place PDA in cradle and wait to sync.
2. Do NOT synchronize
3. Use Explorer to navigate to PDA directory
4. Copy CDB file to desktop PDA directory (PDA directory should correspond to PDA #).

   UNCHECK "Keep table synchronized"

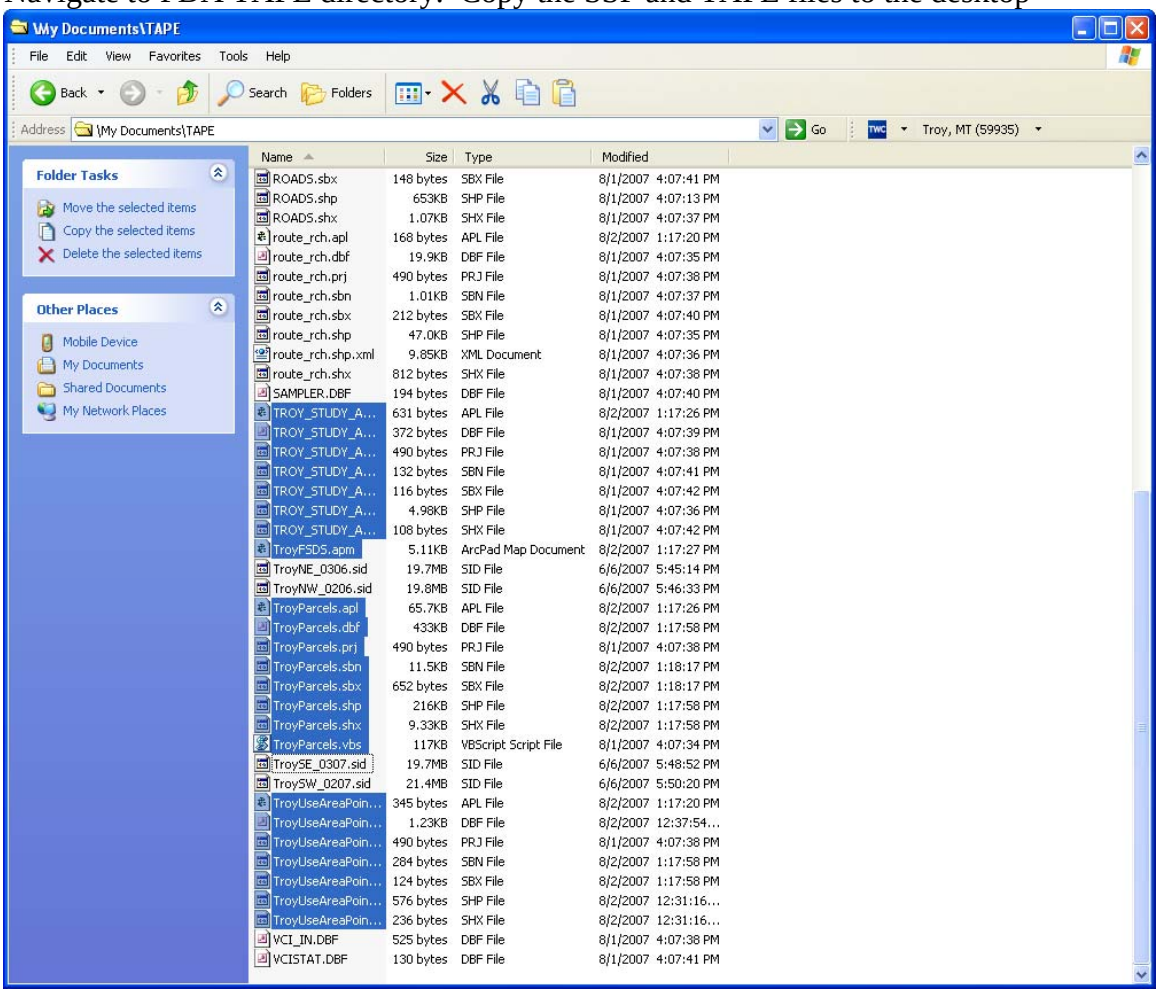
   Change "Location" to the PDA# directory on Desktop

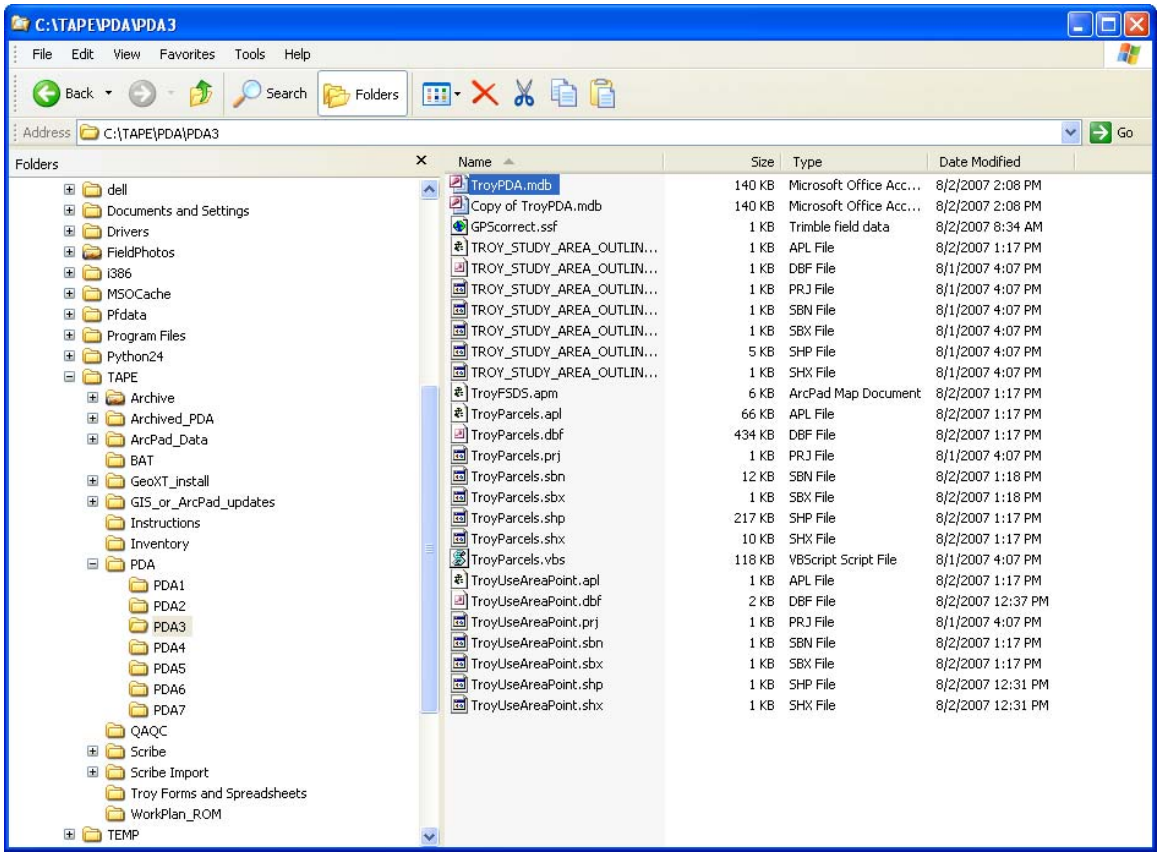


5. Once CDB file is copied to desktop, make a copy

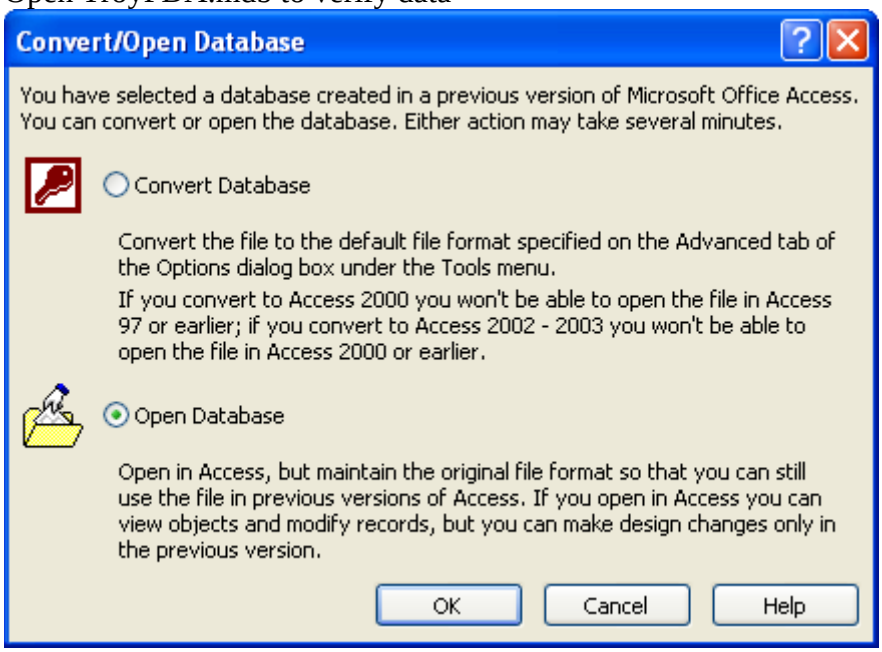


6. Navigate to PDA TAPE directory. Copy the SSF and TAPE files to the desktop





7. Open TroyPDA.mdb to verify data



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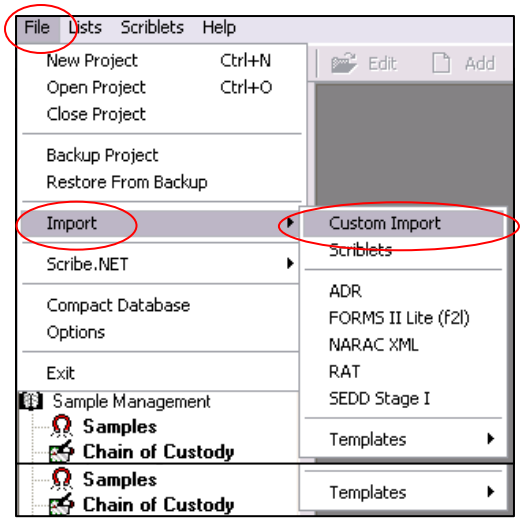
Moving Files From the PDA to The Computer

Before docking the PDAs that come from the field, the Sample Coordinator ensures that all PDA applications are closed and the PDA is powered off. The PDA is placed in the docking station and a conversion of the CDB file is initiated. The conversion of the CDB file creates an MDB that the Sample Coordinator names TroyPDA.MDB. After the conversion, files are copied from the PDA to the Sample Coordinator's computer. Three things are copied from the PDA:

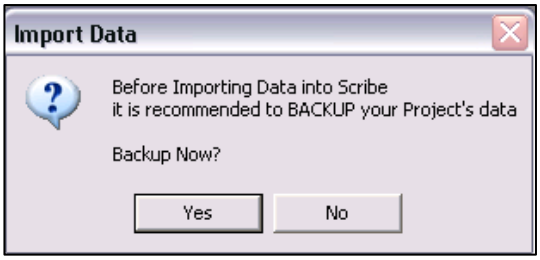
- The TroyPDA CDB file is copied to C:\TAPE\PDA\PDA#
- Shape Files are copied from the Tape Directory on the PDA to C:\TAPE\PDA\PDA#
- The GPS Correct SSF file is CUT & PASTE from the PDA to C:\TAPE\PDA\PDA#

Importing Data Into Scribe

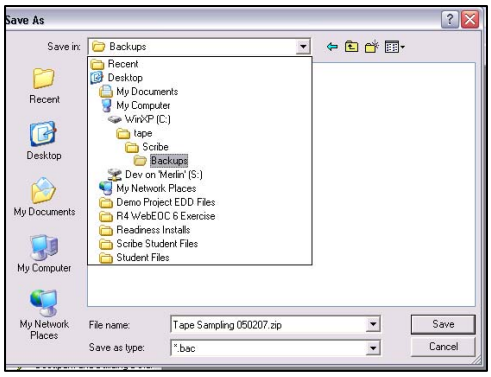
The Sample Coordinator moves the TroyPDA.MDB to the corresponding C:\TAPE\PDA\PDA# directory before opening Scribe. Also, the Sample Coordinator should have the sampling crew's paperwork in-hand and look for any pink Data Mod forms the field may have issued. All Scribe imports for one PDA will be done before moving to another PDA.



- Open Scribe
- Click on File, Import, Custom Import



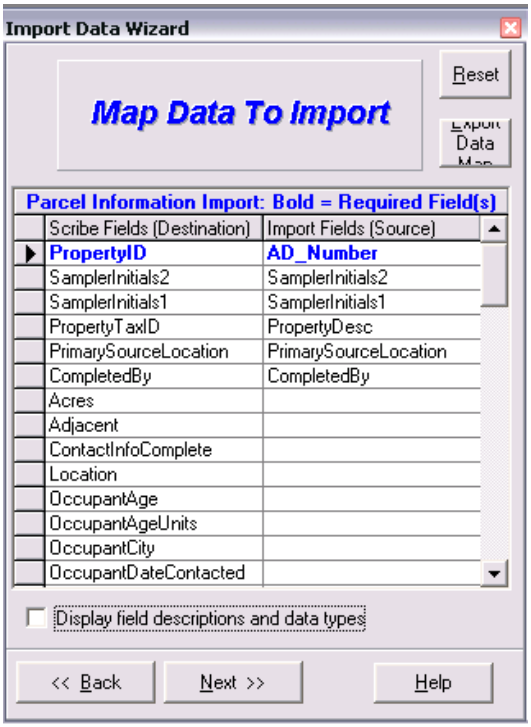
- Click YES to backup the Scribe project before importing new data.



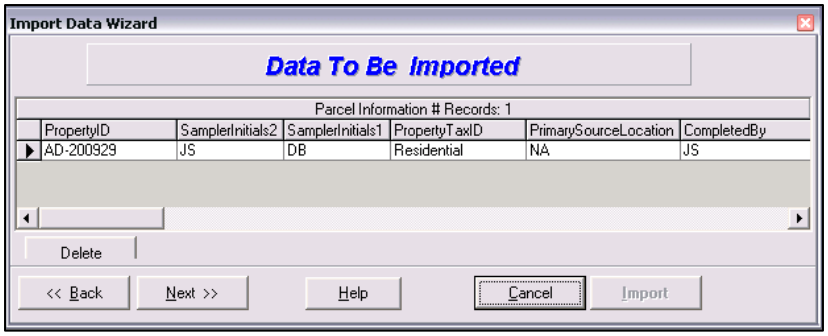
- Navigate to C:\TAPE\SCRIBE\BACKUPS
- Add the current date to the end of the file name i.e. Tape Sampling 050207
- Click Save after naming the backup
- Click OK when the backup is complete

Import the Parcel Inspection Information

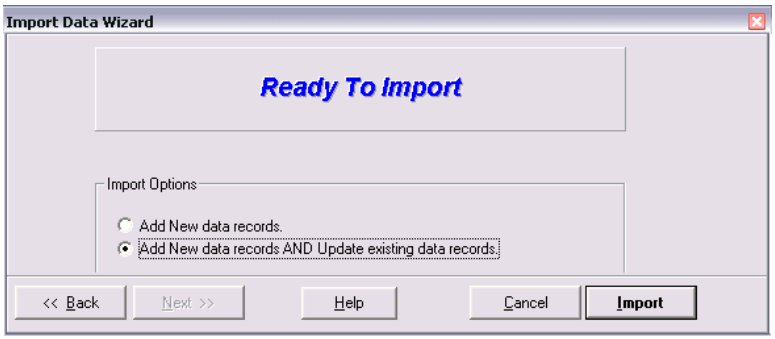
- Select **Parcel Information** as the Data Category
- Path to **C:\Tape\Scribe Imports\ImportPDA#.mdb** (replace the # with the true number of the PDA) as the Import Data File
- Select **Import PDA Parcel Inspection** as the Table Name
- Select **Troy Parcel Inspection** as the Script Name
- Click **Next** when all fields are selected



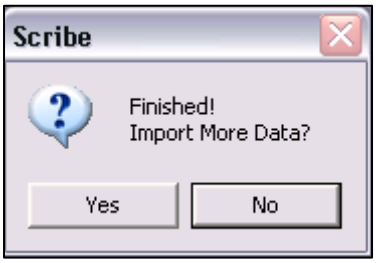
- Ensure the appropriate fields are mapped on the Map Data to Import screen. The mapping should be there automatically. If the mapping does not look like the screen-shot, use the Back button and make sure the appropriate tables were selected on the Import Wizard screen.
- Click **Next** when the correct fields are mapped.



Review the data to be imported for accuracy. Compare the records shown to the field crew notes and ensure the data is complete and correct. If records appear on this screen and should not be entered into Scribe (per pink mod form), highlight the records and use the delete button to remove them before importing. Click **Next** after verifying the data is accurate.



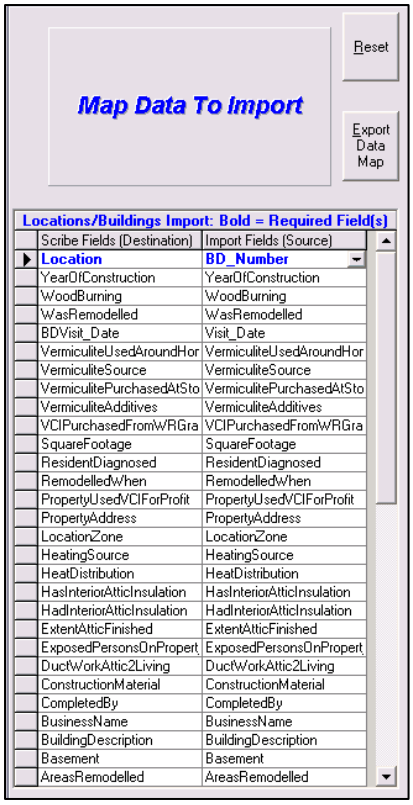
- Select **Add New data records AND Update existing data records**
- Click the **Import** button



- Click **YES** when the import is finished

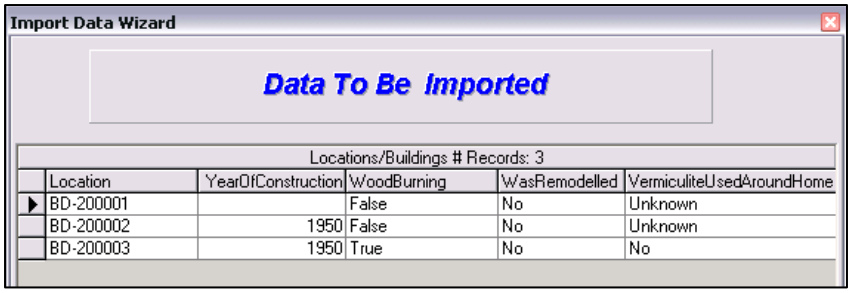
Import Primary Building Inspection Data

- Select **Locations/Buildings** as the Data Category
- Path to **C:\Tape\ScribeImports\ImportPDA#.mdb** (The path should already be filled in from the previous import)
- Select **Import PDA Primary Building** as the Table Name
- Select **Troy Primary Building** as the Script Name
- Click **Next** when all fields are selected

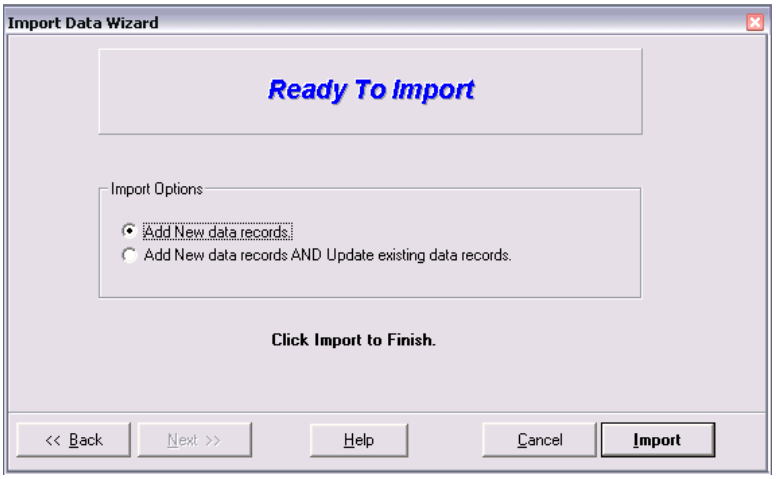


Scribe Fields (Destination)	Import Fields (Source)
Location	**BD_Number**
YearOfConstruction	YearOfConstruction
WoodBurning	WoodBurning
WasRemodelled	WasRemodelled
BDVisit_Date	Visit_Date
VermiculiteUsedAroundHor	VermiculiteUsedAroundHor
VermiculiteSource	VermiculiteSource
VermiculitePurchasedAtSto	VermiculitePurchasedAtSto
VermiculiteAdditives	VermiculiteAdditives
VCIPurchasedFromWRGra	VCIPurchasedFromWRGra
SquareFootage	SquareFootage
ResidentDiagnosed	ResidentDiagnosed
RemodelledWhen	RemodelledWhen
PropertyUsedVCIForProfit	PropertyUsedVCIForProfit
PropertyAddress	PropertyAddress
LocationZone	LocationZone
HeatingSource	HeatingSource
HeatDistribution	HeatDistribution
HasInteriorAtticInsulation	HasInteriorAtticInsulation
HadInteriorAtticInsulation	HadInteriorAtticInsulation
ExtentAtticFinished	ExtentAtticFinished
ExposedPersonsOnPropert	ExposedPersonsOnPropert
DuctWorkAttic2Living	DuctWorkAttic2Living
ConstructionMaterial	ConstructionMaterial
CompletedBy	CompletedBy
BusinessName	BusinessName
BuildingDescription	BuildingDescription
Basement	Basement
AreasRemodelled	AreasRemodelled

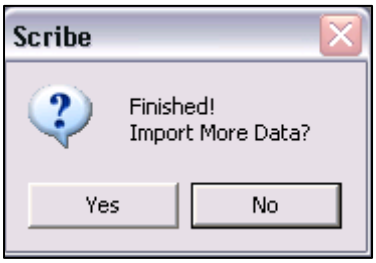
- Ensure the appropriate fields are mapped on the Map Data to Import screen. The mapping should be there automatically. If the mapping does not look like the screen-shot, use the Back button and make sure the appropriate tables were selected on the Import Wizard screen.
- Click **Next** when the correct fields are mapped.



Review the data to be imported for accuracy. Compare the records shown to the field crew notes and ensure the data is complete and correct. If records appear on this screen and should not be entered into Scribe (per pink mod form), highlight the records and use the delete button to remove them before importing. Click **Next** after verifying the data is accurate.

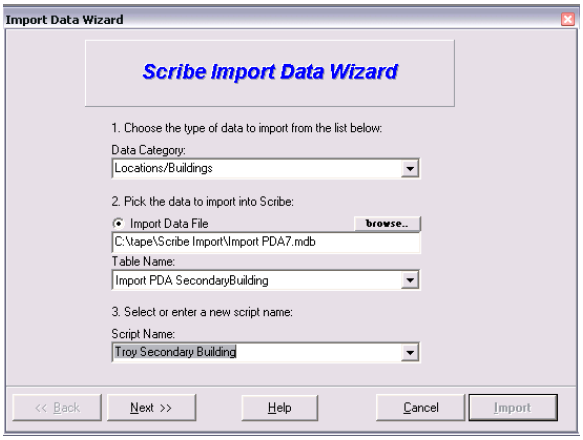


- Select **Add New data records**
- Click the **Import** button

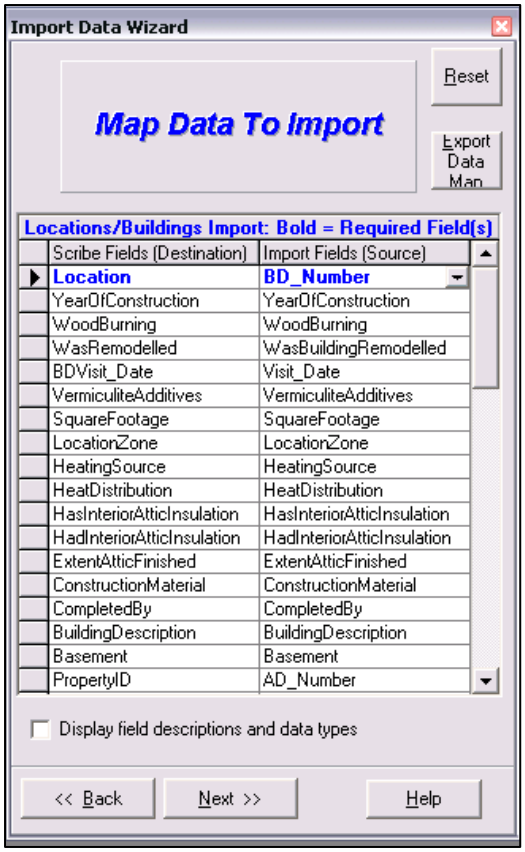


- Click **YES** when the import is finished

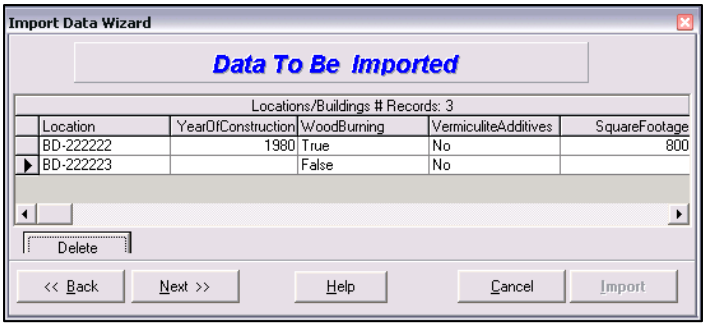
Import Secondary Building Information



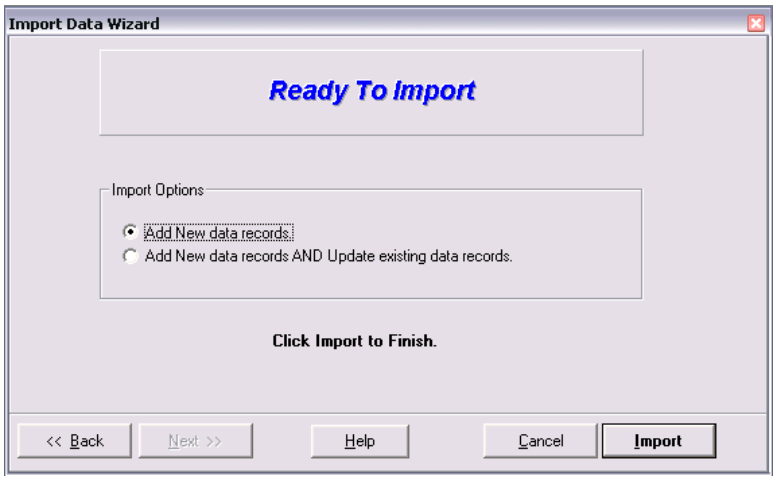
- Select **Locations/Buildings** as the Data Category
- Path to **C:\Tape\ScribeImports\ImportPDA#.mdb** (The path should already be filled in from the previous import)
- Select **Import PDA Secondary Building** as the Table Name
- Select **Troy Secondary Building** as the Script Name
- Click **Next** when all fields are selected



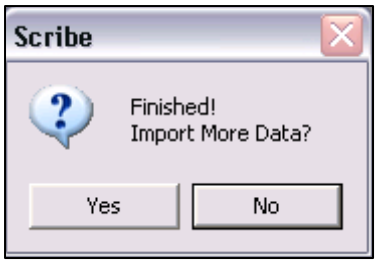
- Ensure the appropriate fields are mapped on the Map Data to Import screen. The mapping should be there automatically. If the mapping does not look like the screen-shot, use the Back button and make sure the appropriate tables were selected on the Import Wizard screen.
- Click **Next** when the correct fields are mapped.



- Review the data to be imported for accuracy. Compare the records shown to the field crew notes and ensure the data is complete and correct. If records appear on this screen and should not be entered into Scribe (per pink mod form), highlight the records and use the delete button to remove them before importing. Click **Next** after verifying the data is accurate.

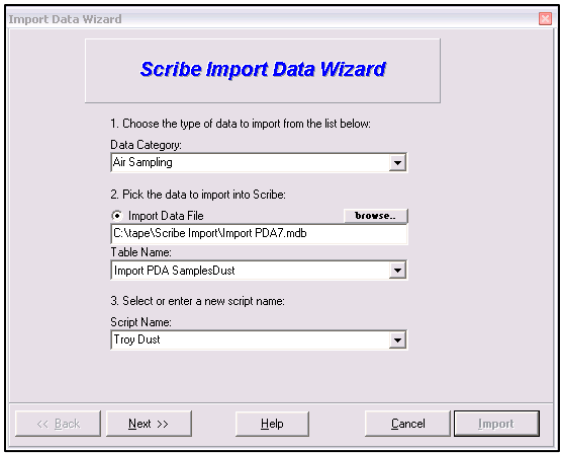


- Select **Add New data records**
- Click the **Import** button

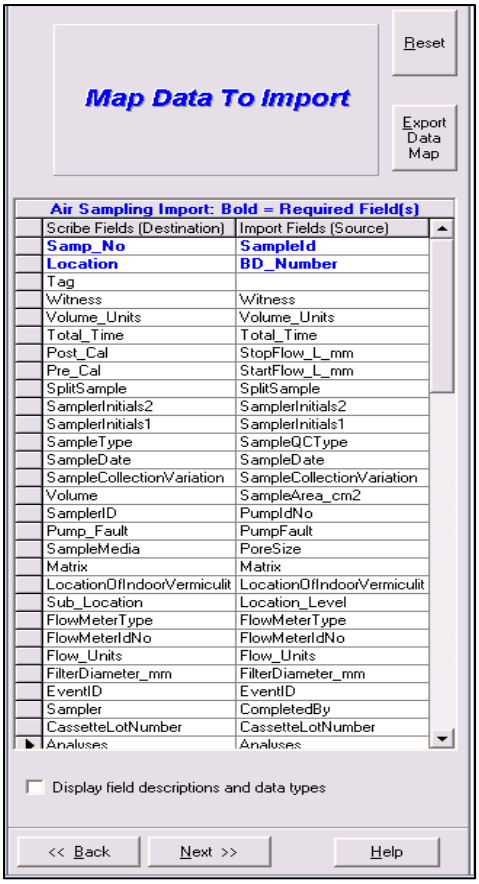


Click **YES** when the import is finished

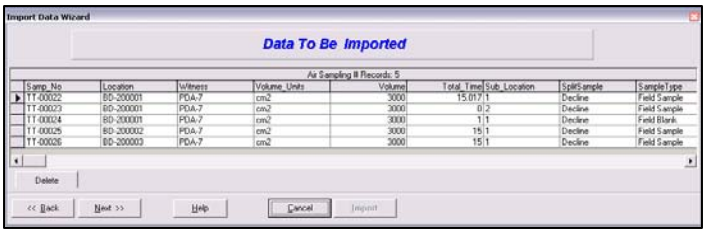
Import Dust Samples from PDA



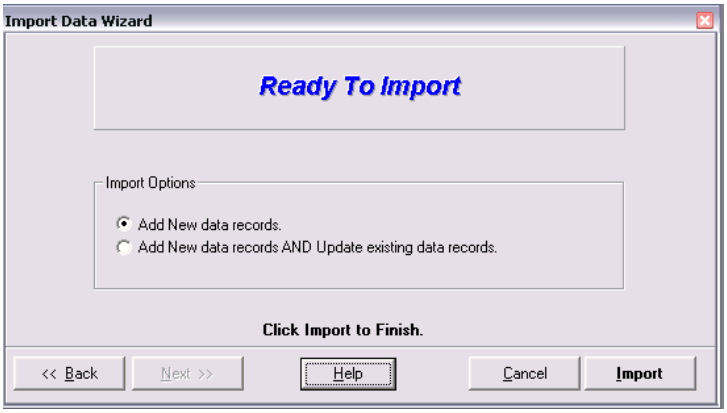
- Select **Air Sampling** as the Data Category
- Path to **C:\Tape\ScribeImports\ImportPDA#.mdb** (The path should already be filled in from the previous import)
- Select **Import PDA Samples Dust** as the Table Name
- Select **Troy Dust** as the Script Name
- Click **Next** when all fields are selected



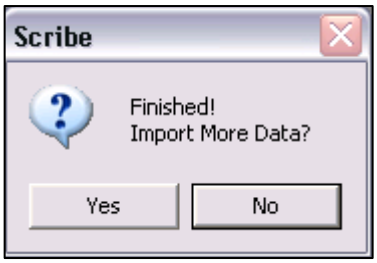
- Ensure the appropriate fields are mapped on the Map Data to Import screen. The mapping should be there automatically. If the mapping does not look like the screen-shot, use the Back button and make sure the appropriate tables were selected on the Import Wizard screen.
- Click **Next** when the correct fields are mapped.



Review the data to be imported for accuracy. Compare the records shown to the field crew notes and ensure the data is complete and correct. If records appear on this screen and should not be entered into Scribe (per pink mod form), highlight the records and use the delete button to remove them before importing. Click **Next** after verifying the data is accurate.



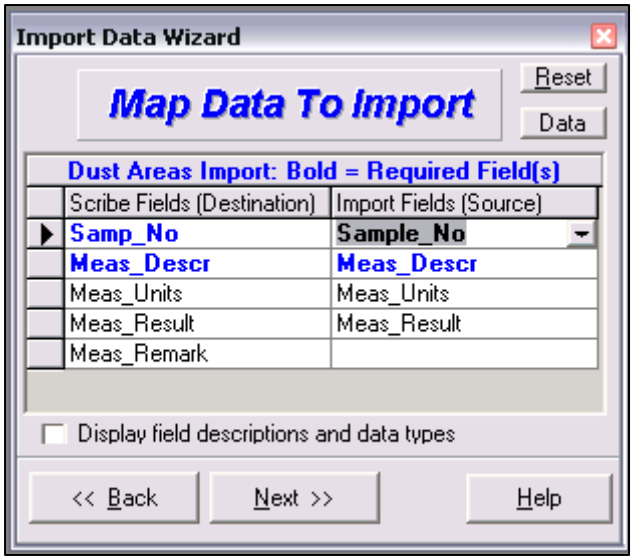
- Select **Add New data records**
- Click the **Import** button



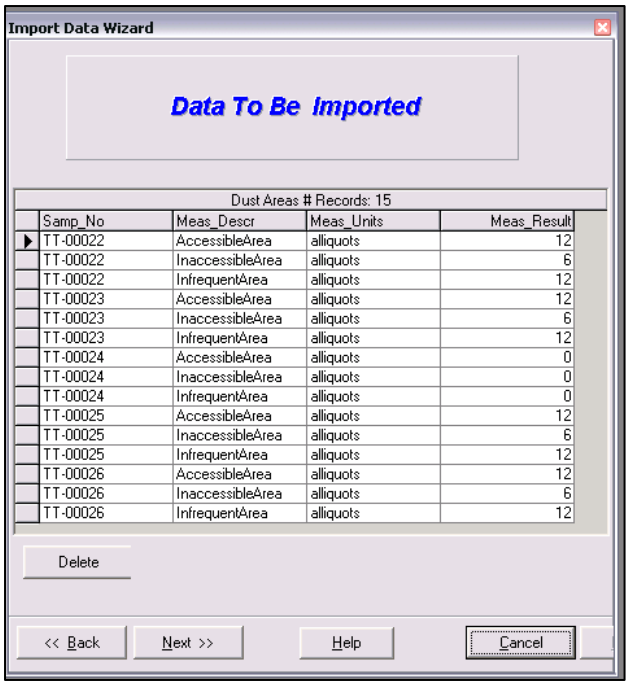
- Click **YES** when the import is finished

Import Dust Area Information

- Select **Dust Areas** as the Data Category
- Path to **C:\Tape\ScribeImports\ImportPDA#.mdb** (The path should already be filled in from the previous import)
- Select **Import PDA Dust Area** as the Table Name
- Select d**efault** as the Script Name
- Click **Next** when all fields are selected

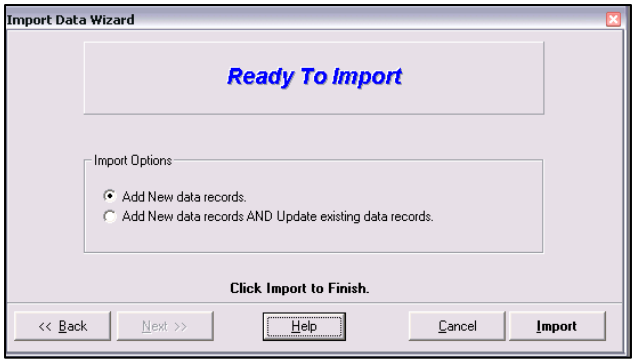


- Ensure the appropriate fields are mapped on the Map Data to Import screen. The mapping should be there automatically. If the mapping does not look like the screen-shot, use the Back button and make sure the appropriate tables were selected on the Import Wizard screen.
- Click **Next** when the correct fields are mapped.

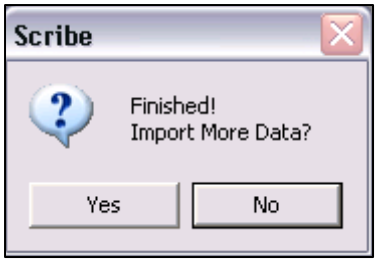


Samp_No	Meas_Descr	Meas_Units	Meas_Result
TT-00022	AccessibleArea	alliquots	12
TT-00022	InaccessibleArea	alliquots	6
TT-00022	InfrequentArea	alliquots	12
TT-00023	AccessibleArea	alliquots	12
TT-00023	InaccessibleArea	alliquots	6
TT-00023	InfrequentArea	alliquots	12
TT-00024	AccessibleArea	alliquots	0
TT-00024	InaccessibleArea	alliquots	0
TT-00024	InfrequentArea	alliquots	0
TT-00025	AccessibleArea	alliquots	12
TT-00025	InaccessibleArea	alliquots	6
TT-00025	InfrequentArea	alliquots	12
TT-00026	AccessibleArea	alliquots	12
TT-00026	InaccessibleArea	alliquots	6
TT-00026	InfrequentArea	alliquots	12

Review the data to be imported for accuracy. Compare the records shown to the field crew notes and ensure the data is complete and correct. If records appear on this screen and should not be entered into Scribe (per pink mod form), highlight the records and use the delete button to remove them before importing. Click **Next** after verifying the data is accurate.



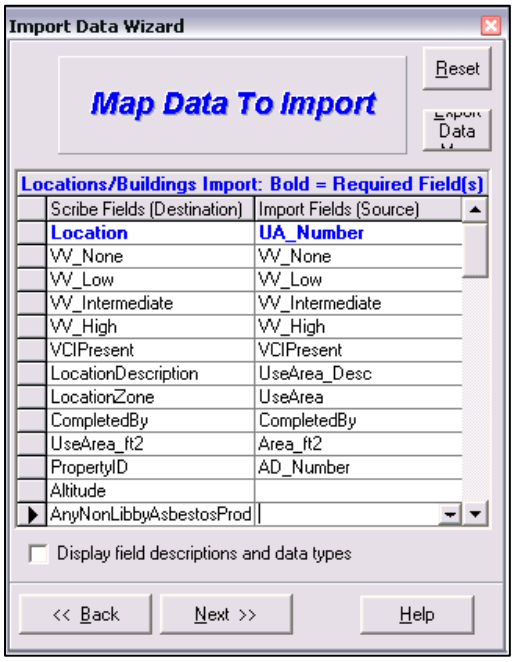
- Select **Add New data records**
- Click the **Import** button



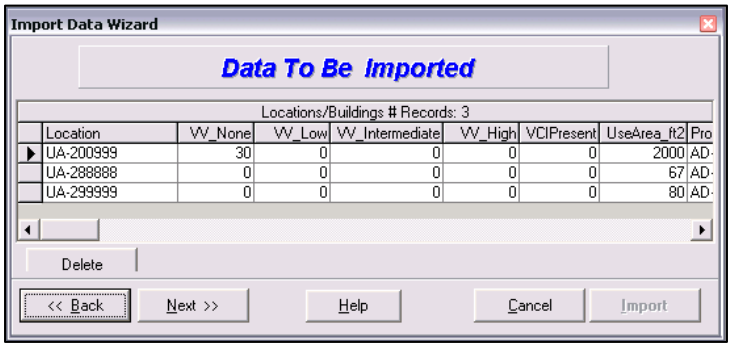
Click **YES** when the import is finished

Import Use Area Information

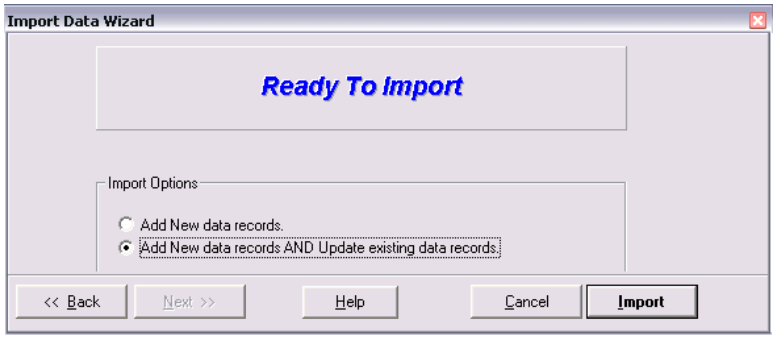
- Select **Locations/Buildings** as the Data Category
- Path to **C:\Tape\ScribeImports\ImportPDA#.mdb** (The path should already be filled in from the previous import)
- Select **Import PDA Use Area** as the Table Name
- Select **Troy Use Area** as the Script Name
- Click **Next** when all fields are selected



- Ensure the appropriate fields are mapped on the Map Data to Import screen. The mapping should be there automatically. If the mapping does not look like the screen-shot, use the Back button and make sure the appropriate tables were selected on the Import Wizard screen.
- Click **Next** when the correct fields are mapped.



Review the data to be imported for accuracy. Compare the records shown to the field crew notes and ensure the data is complete and correct. If records appear on this screen and should not be entered into Scribe (per pink mod form), highlight the records and use the delete button to remove them before importing. Click **Next** after verifying the data is accurate.

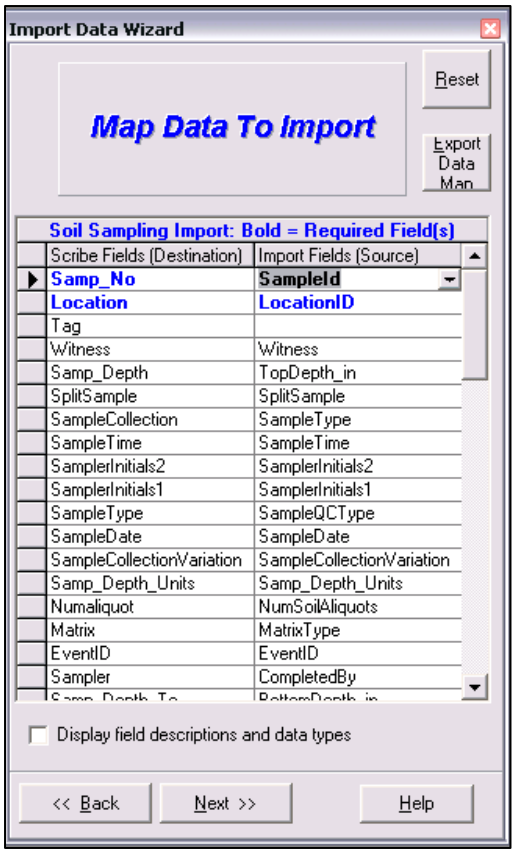


- Select **Add New data records AND Update existing records**
- Click the **Import** button

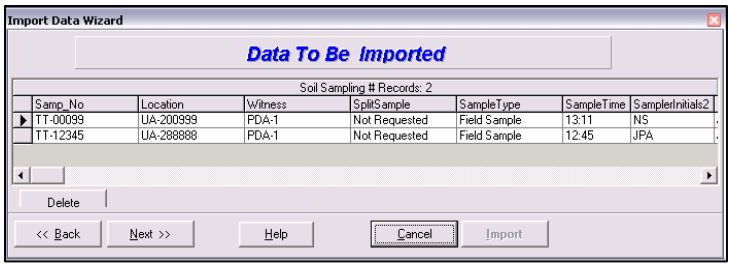
Click **YES** when the import is finished

Import Soil Sample Information

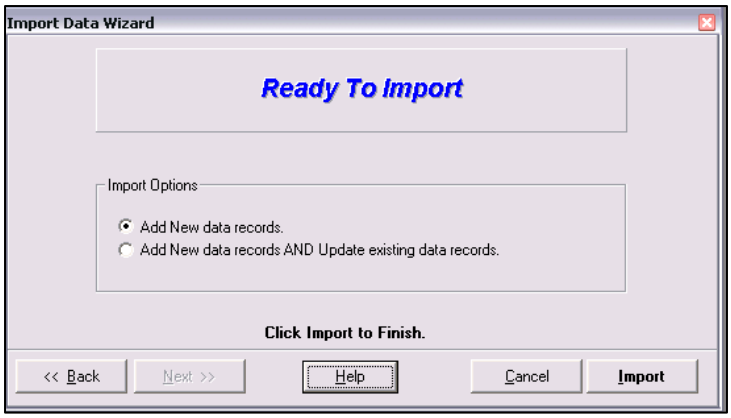
- Select **Soil Sampling** as the Data Category
- Path to **C:\Tape\ScribeImports\ImportPDA#.mdb** (The path should already be filled in from the previous import)
- Select **Import PDA SamplesSoil** as the Table Name
- Select **Troy Soil Samples** as the Script Name
- Click **Next** when all fields are selected



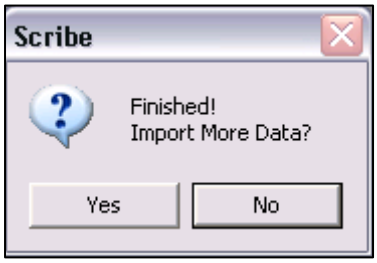
- Ensure the appropriate fields are mapped on the Map Data to Import screen. The mapping should be there automatically. If the mapping does not look like the screen-shot, use the Back button and make sure the appropriate tables were selected on the Import Wizard screen.
- Click **Next** when the correct fields are mapped.



Review the data to be imported for accuracy. Compare the records shown to the field crew notes and ensure the data is complete and correct. If records appear on this screen and should not be entered into Scribe (per pink mod form), highlight the records and use the delete button to remove them before importing. Click **Next** after verifying the data is accurate.



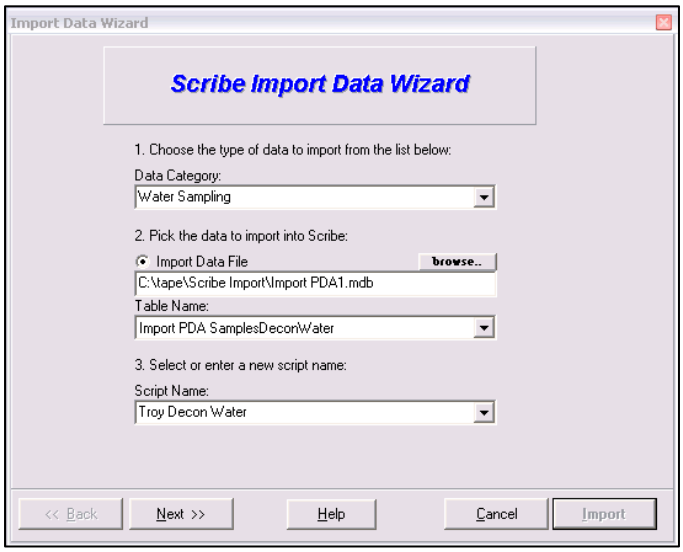
- Select **Add New data records**
- Click the **Import** button



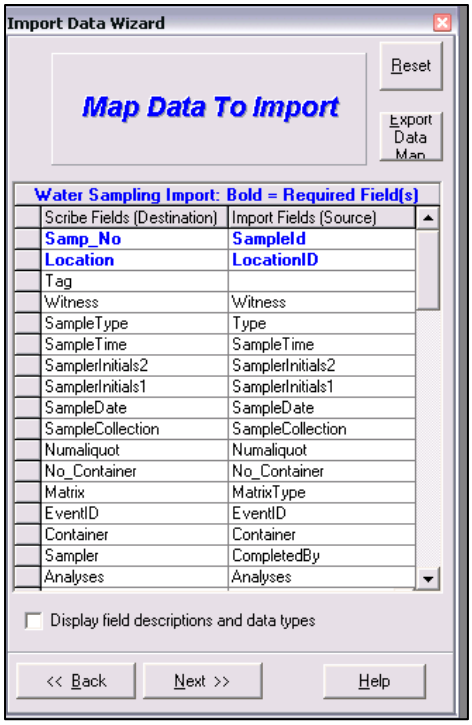
Click **YES** when the import is finished

Import Decon Water Samples

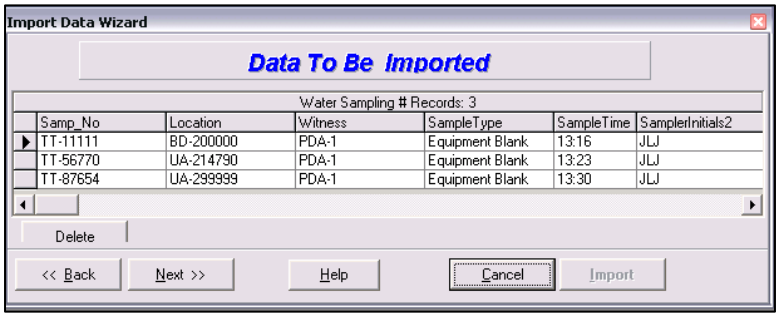
Decon Water Samples will be collected once a week. Each sampling crew will collect one Decon Water sample on the designated day each week.



- Select **Water Sampling** as the Data Category
- Path to **C:\Tape\ScribeImports\ImportPDA#.mdb** (The path should already be filled in from the previous import)
- Select **Import PDA SamplesDeconWater** as the Table Name
- Select **Troy Decon Water** as the Script Name
- Click **Next** when all fields are selected

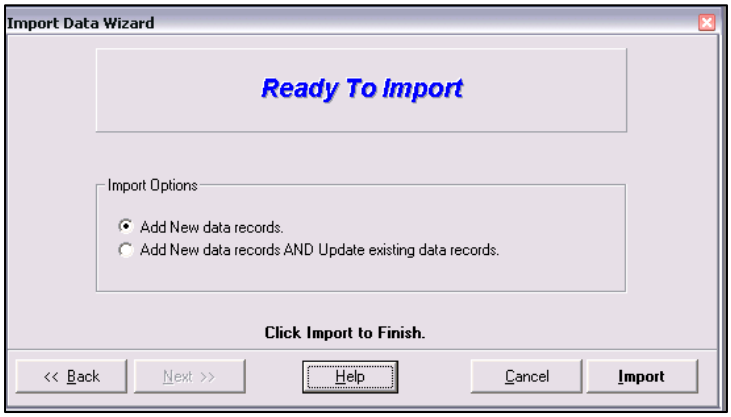


- Ensure the appropriate fields are mapped on the Map Data to Import screen. The mapping should be there automatically. If the mapping does not look like the screen-shot, use the Back button and make sure the appropriate tables were selected on the Import Wizard screen.
- Click **Next** when the correct fields are mapped.

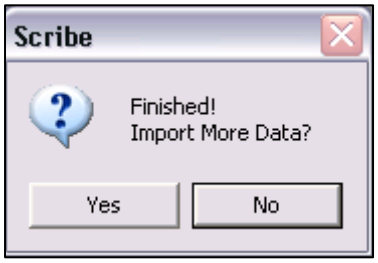


Review the data to be imported for accuracy. Compare the records shown to the field crew notes and ensure the data is complete and correct. If records appear on this screen and should not be entered into Scribe (per pink mod form), highlight the records and use the delete button to remove them before importing.

Click **Next** after verifying the data is accurate.



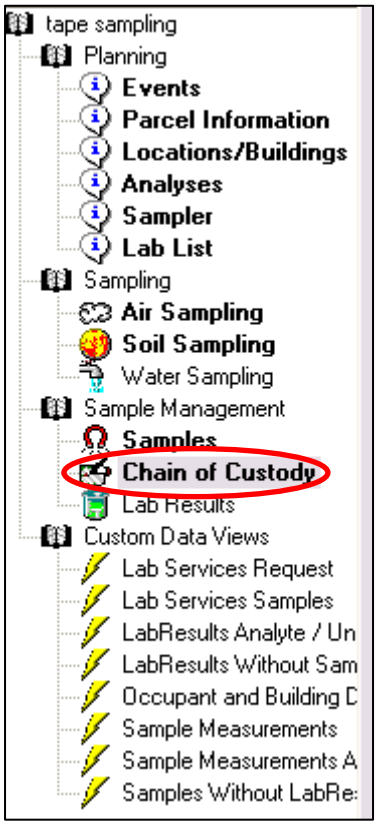
- Select **Add New data records**
- Click the **Import** button



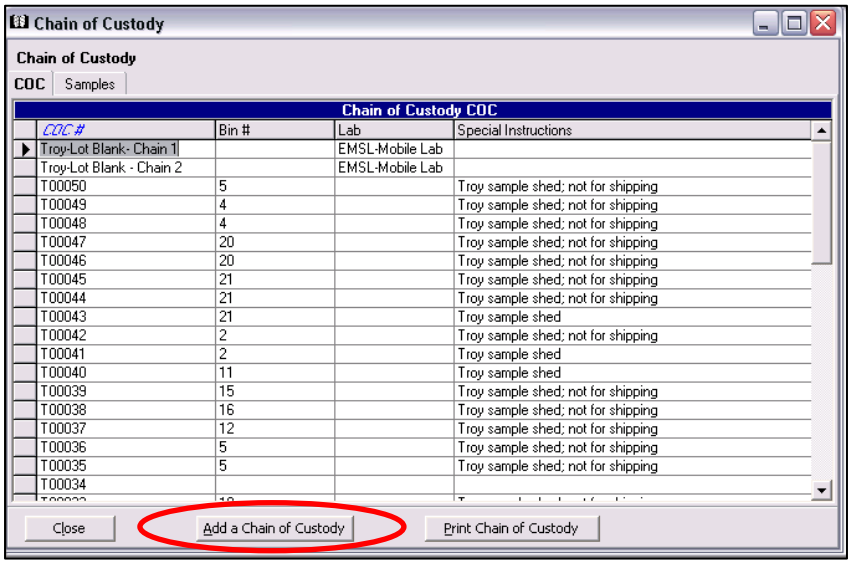
Click **No** when the import is finished

Create a Simple Chain of Custody

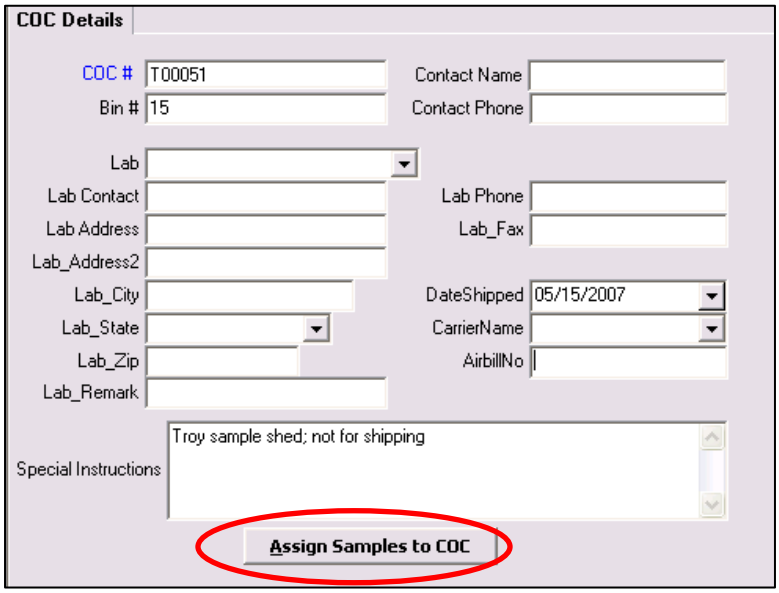
A simple COC for Dust and Soil Samples will be created after every PDA import. The simple COC tracks which bin in the Sample Shed contains the samples. After the COC is completed, the sampling crews put the COC on top of the corresponding bin.



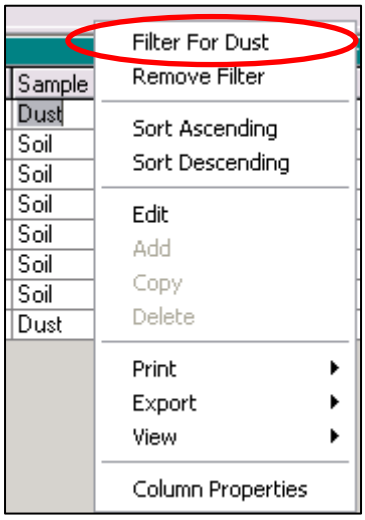
- Click on **Chain of Custody** under the Sample Management section of the navigation pane.



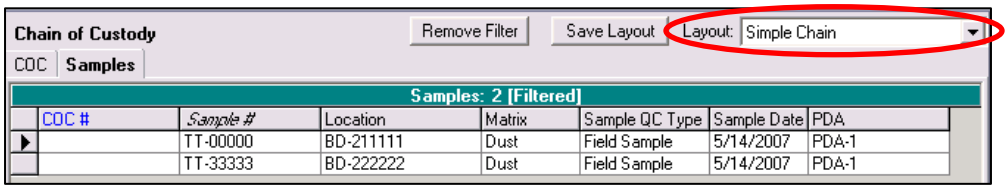
Click the **Add a Chain of Custody** button



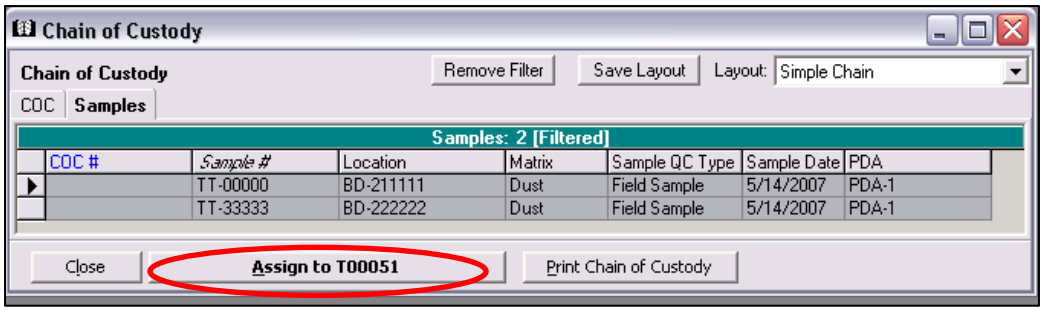
- Scribe automatically assigns the next sequential COC #.
- Enter the **Bin Number** the crews reported on the Sample Coordinator Check-List
- Enter the current date as the **date shipped**
- Type "**Troy sample shed, not for shipping**" in the Special Instructions
- Click the **Assign Samples to COC** button to select which samples are in the bin.



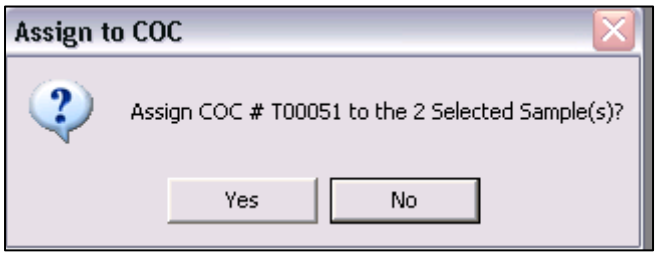
- Dust and Soil Samples are assigned to separate COCs. First filter for either dust or soil by highlighting the sample type, right-clicking and selecting Filter for Dust (or Soil)



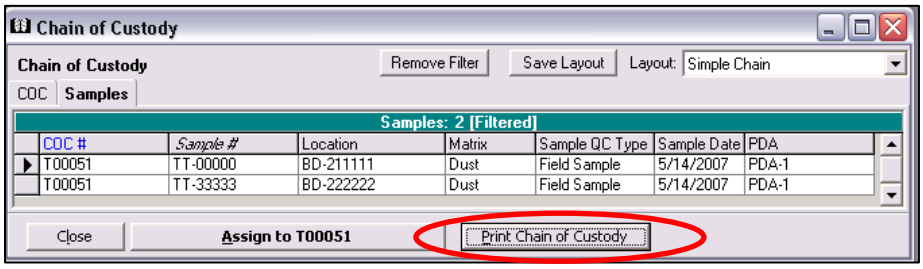
Select the **Simple Chain** Layout



- **Hi-light the samples to be assigned** to the chain and **click the Assign to Txxxxx button** at the bottom of the screen.



- Click **Yes** to assign the samples to the chain

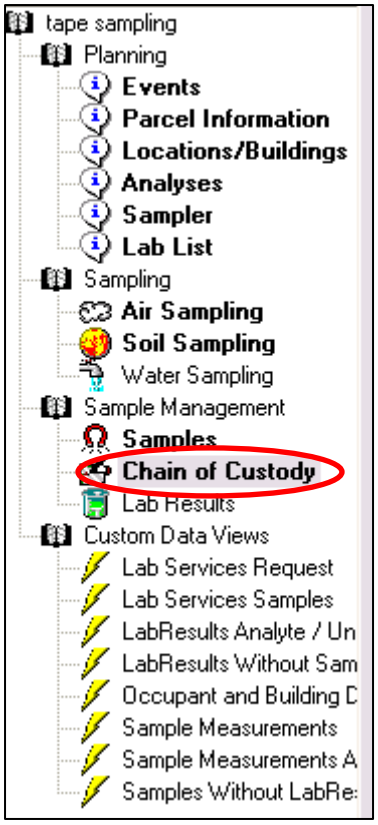


- Click the **Print Chain of Custody** button and select **Preview**

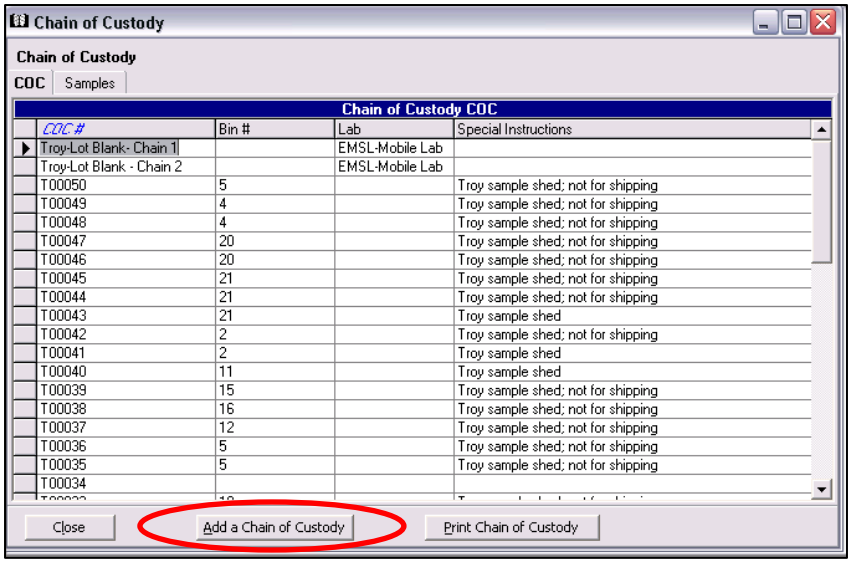
- Click the printer icon to send the COC to the printer
- Place the COC in the paperwork box for the crew.

- Repeat the COC process for the remaining soil/dust samples imported from the PDA

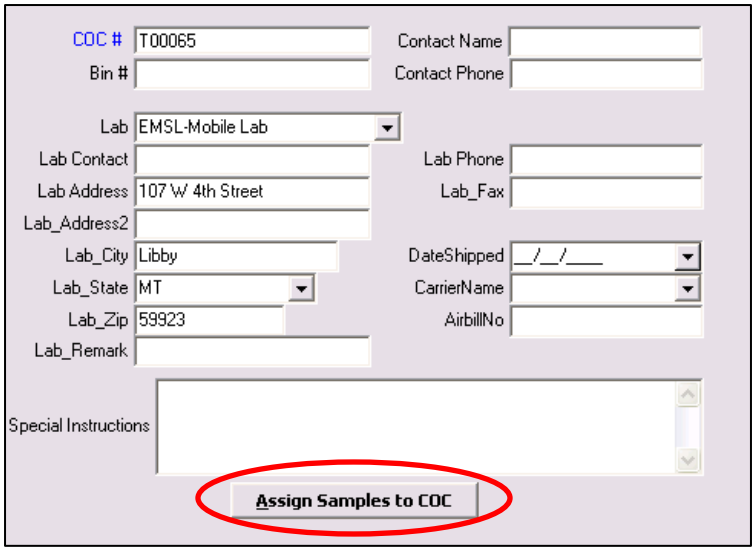
Create a Decon Water Chain of Custody



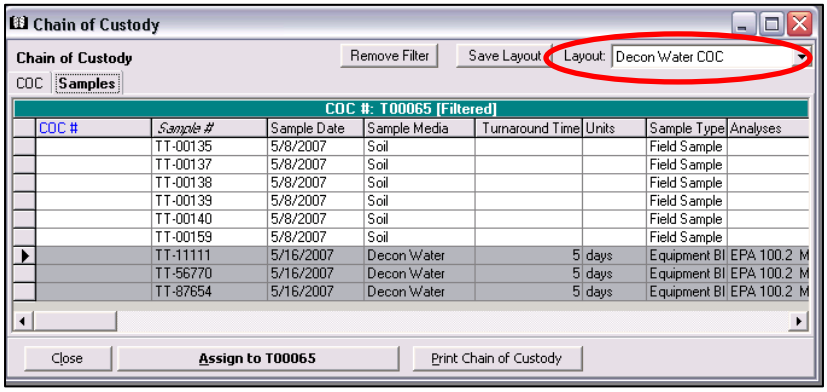
- Click on **Chain of Custody** under the Sample Management section of the navigation pane.



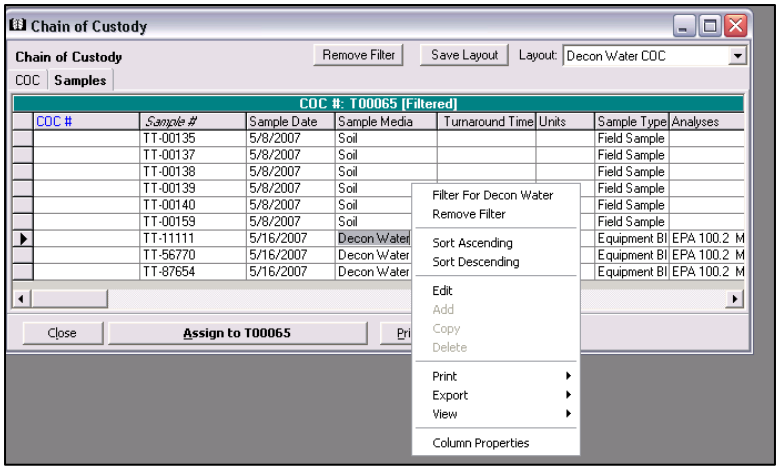
Click the **Add a Chain of Custody** button



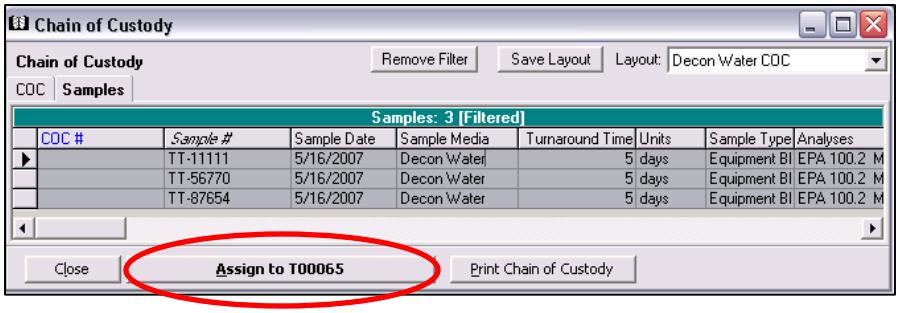
- Scribe automatically assigns the next sequential COC #.
- Enter the **Lab** name where the samples will be shipped
- Enter the current date as the **date shipped**
- Click the **Assign Samples to COC** button to select which samples are in the bin.



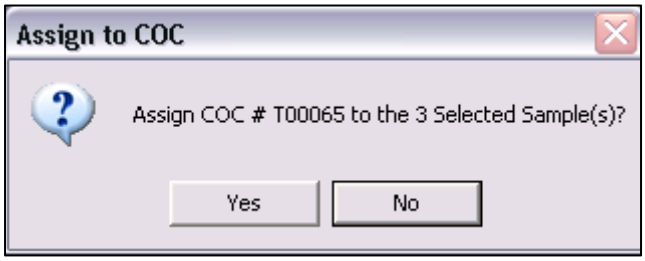
- Select the **Decon Water COC** Layout



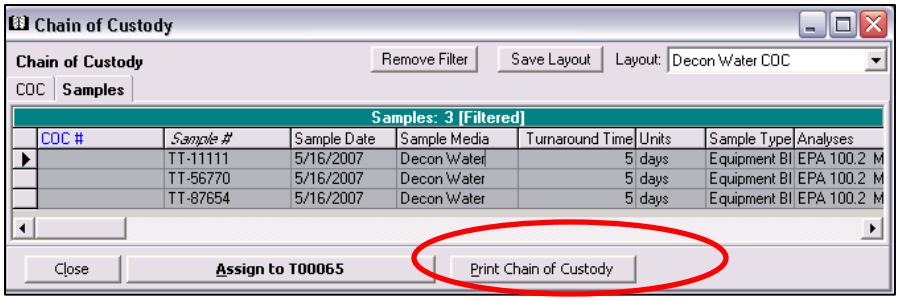
- **Filter the samples listed for Decon Water** by right clicking on Decon Water in the Sample Media Column and selecting "Filter for Decon Water" from the drop-down list



- **Hi-light the Decon Water Samples** and click the **Assign to Txxxxx** at the bottom of the screen.

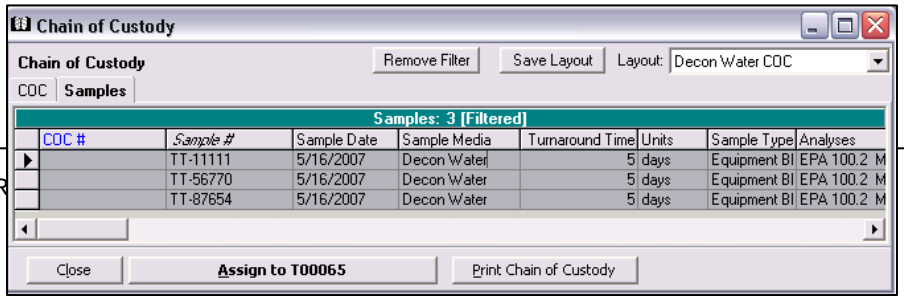


- Click **Yes** to assign the samples to the chain.



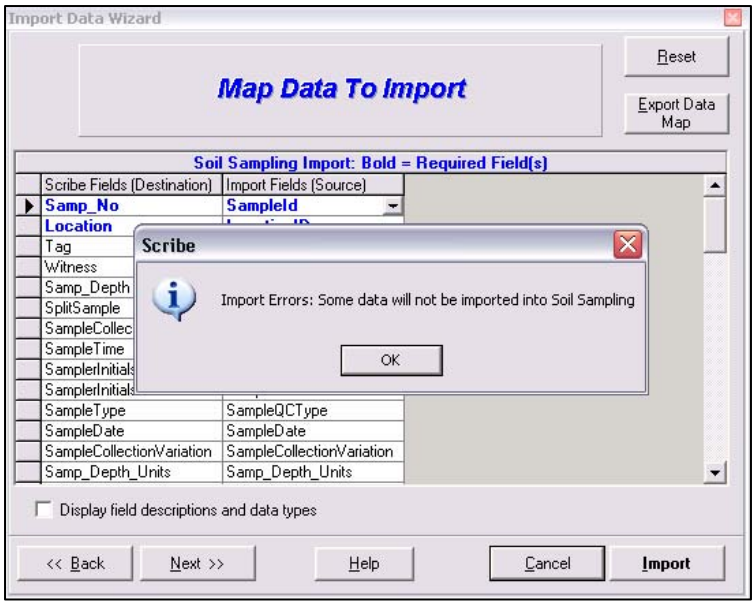
- Click the **Print Chain of Custody** button and select **Preview**

- Click the **Printer Icon** to send the COC to the printer

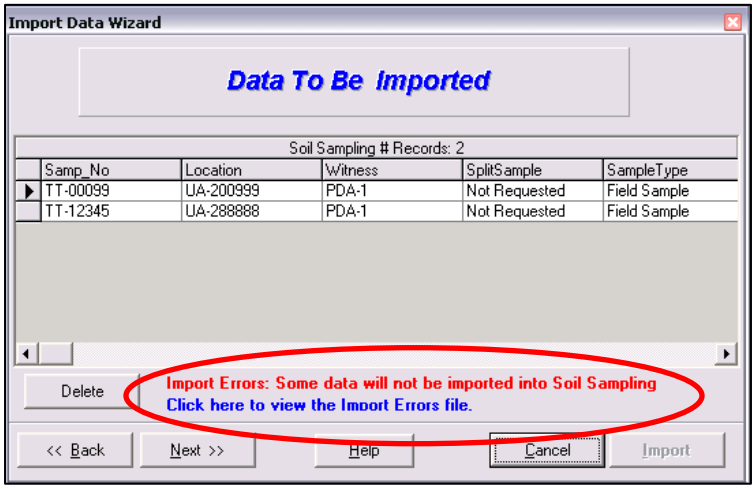


Troubleshooting Scribe Import Errors

Occasionally the data collected on the PDA will cause an import error in Scribe. For example, the PDAs allow a crew to collect two samples with the same sample number and Scribe will not allow duplicate samples to be imported. These issues are usually easy to resolve by looking at the Import Log file that Scribe creates and the field crew notes on the samples they collected.



- When Import Errors occur, a warning message like the one pictured in the image to the left will be displayed.
- Click the **OK** button to clear the error warning.



- The next screen will display the data that Scribe intends to import and also a link to the error log file showing the data that Scribe will not import. Click the blue text to see the error log file before continuing with the import.

	A	B	C	D	E	F	G	H
1	The following data will not be imported for Soil Sampling:							
2	site_no	Tag	Samp_No	Location	Witness	SplitSample	SampleType	SampleTime
3	08BC	A	TT-12345	UA-288888	PDA-1			

Scribe opens the error log file and displays the data that will **not** be imported. By comparing the error log data to the import screen above, it is obvious that two entries had the same Sample Number. If the crew field notes show that they only collected two samples, review the duplicate entry and make sure that Scribe will import the "more complete" record. For example the images above show that the Sample Number TT-12345 in the Scribe import screen is more complete than the one in the import error file. In this case, it is okay to continue with the import. If Scribe showed the "less complete" entry in the Data to Be Imported screen, the data would need to be modified (deleted) in the corresponding TroyPDA.MDB (using MS Access) before continuing with the import.

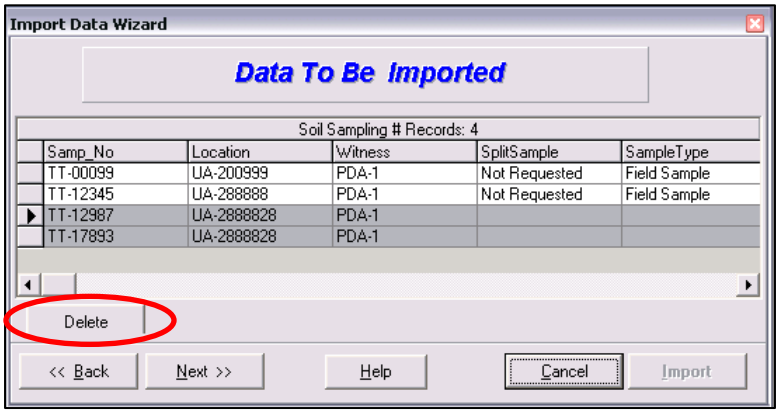
Import Errors

Error: The changes you requested to the table were not successful because they would create duplicate values in the index

If it was not obvious that the import error was caused by duplicate sample numbers, the error log file will also give an explanation of the error. When the error log file is opened, scroll to the far right until the error explanation is displayed. The error gives a clue that there was a duplicate value, and from there, you can compare the records to find the duplicate.

Advanced Importing

Sometimes records are collected incorrectly and should not be imported into Scribe. These records are not necessarily "duplicates" and often will not create an import error in Scribe. Such an example would be a crew that accidentally created and saved a Soil Sample entry or a Use Area entry on the PDA by mistake. The crew should complete a Pink "data modification" form alerting the Sample Coordinator that some data exists on the PDA that should not be imported into Scribe.



When Scribe displays the data to be imported, any records that should NOT be imported can be deleted from this screen. Hi-light the records that should NOT be imported (records listed on the pink data mod form) and click the delete button. The records will be removed from the import and you can click Next to continue.

Sample Database Coordinator Checklist

Sampling Crew to Complete This Section

Date:	Team #:	PDA #:

Parcel Complete? (circle one)	YES	NO	AD Number:

# Of Dust Samples Collected:	Dust Samples Bin # :
# Of Soil Samples Collected:	Soil Samples Bin #:

Sample Database Coordinator to Complete This Section

Step 1 - Copy Files From the PDA (make sure PDA is powered off and applications are closed)		**Initial When Completed**
Scribe Guide Page 3	Copy TroyPDA CDB File from PDA to C:\Tape\PDA\PDA#	
	Copy Shape Files from Tape Directory on PDA to C:\Tape\PDA\PDA#	
	Cut and Paste the GPS Correct.SSF file from PDA to C:\Tape\PDA\PDA#	
Step 2 - Import Files into Scribe		
	Have Crew Folder In Hand **(**Check for Pink forms and use info to verify imports into Scribe)	
Scribe Guide Page 3	Open Scribe, Go to **File**, **Import, Custom Import** **Backup Project** to C:\tape\scribe\backups\Tape Sampling_date.bac	
Scribe Import Data Wizard		
Scribe Guide Page 4	**Parcel Inspection Import** (data category - Parcel Information) (table name - Import PDA Parcel Inspection) (script name - Troy Parcel Inspection) (add new **AND** update)	
Scribe Guide Page 6	**Primary Building Inspection Import** (data category - Locations/Buildings) (table name – Import PDA PrimaryBuilding) (script name – Troy Primary Building) (add new data records)	
Scribe Guide Page 8	**Secondary Building Inspection Import** (data category - Locations/Buildings) (table name – Import PDA SecondaryBuilding) (script name – Troy Secondary Building) (add new data records)	
Scribe Guide Page 10	**Dust Sampling Import** (data category - Air Sampling) (table name - Import PDA SamplesDust) (script name - Troy Dust) (add new data records)	
Scribe Guide Page 12	**Dust Area Import** (data category - Dust Areas) (table name - Import PDA DustArea) (script name - default) (add new data records)	
Scribe Guide Page 14	**Use Area Import** (data category - Locations/Buildings) (table name - Import PDA Use Area) (script name – Troy Use Area) (add new **AND** update)	
Scribe Guide Page 16	**Soil Sample Import** (data category - Soil Sampling) (table name - Import PDA SamplesSoil) (script name – Troy Soil Samples) (add new data records)	
Scribe Guide Page 18	**Decon Water Sample Import** (data category - Water Sampling) (table name - Import PDA SamplesDeconWater) (script name – Troy Decon Water (add new data records)	
Create Simple Chain Of Custody		
Scribe Guide Page 20	Add a new COC (Special Instructions – Troy Sample Shed – Not for shipping)	
	Assign Samples to the Simple Chain (dust & soil on different chains)	
	Print Simple Chain & deliver to the field crew.	
Backup Scribe		
	File, Backup, C:\Tape\Scribe\Backups\Tape Sampling_date	

Step 3 – Archive PDA Data Files on the C: drive (c:\tape\pda\PDA# folder should be empty)		
	Highlight all files under c:\tape\pda\pda# and zip them up with the name YYMMDD_PDA#.zip	
	Copy the .ZIP file to C:\TAPE\Archived_PDA	
	Post the .ZIP file to the TetraTech Portal	
	Clear off PDA for the next day	
	Publish to Scribe	
Step 4 – Copy Field Photos to Computer		
	Copy photos from camera to c:\	
Step 5 – Scan Crew Documentation		
	Scan Log Book Pages	
	Scan Parcel Sketches	
	Scan Access Agreeement	
	Scan Point of Contact Form	
	Scan PDA Modification Form	
Step 6 – Hand Enter Point of Contact Form		
	Enter into Scribe's Parcel Info Table. Double-Click the AD number and switch to the Contacts tab to enter the point of contact information	
Data Issues Sample Coordinator Encountered		
List Data Mod Forms Added	Reason	Resolution

TROY SAMPLE DATABASE COORDINATOR
MANAGEMENT STEPS

Step 1: Sample Database Coordinator (SDC) downloads field information off PDA and compares information against Logbook entries, Property Sketches, and Point of Contact (POC) forms to check for accuracy. Any errors in field data noted by the SDC should be resolved before uploading data into Scribe.

Step 2: PDA data are imported from Access database on PDA to Scribe (See "Sample Database Coordinator Checklist" as a complement to this step); in addition, field teams download photographs to temporary field photograph directory.

Step 3: Access agreements, Logbooks, Property Sketches, POC forms and PDA modification forms (if any) are scanned and filed into electronic parcel folders organized by AD number. This includes retrieving photographs from temporary directory and placing them with scanned property data. The SDC checks to make sure photographs correspond to the Photograph Log in the logbook and the files are named correctly.

Step 4: Scribe and the scanned data files (except photograph log that comes later on CD) are published to the Tetra Tech internal web portal at the end of each day. The Scanned Data Archive Coordinator in Helena will retrieve the posted information once a week and download it to the Troy scanned data archive directory in Helena.

Step 5: The assigned Data Verification Analyst reviews previous day's data in the Tetra Tech Helena and/or Denver offices.

Step 6: Any identified errors and issues are researched in Scribe and submitted in a ModTrack table to the Scribe Database Administrator. For scanned file issues or clarifications, the Data Verification Analyst will make electronic changes in the PDF file using Adobe Acrobat commenting tool. Changes to scanned data archive files (PDFs) will be sent back to the SDC for incorporation into the master file in Troy.

Step 7: SDC writes all scanned data (including photographs) to a CD every two weeks on Thursday afternoon and mails it to Helena. The Scanned Data Archive Coordinator will update the directory in Helena using this CD. This allows for a master scanned data archive to reside in Helena as well as in Troy.

TROY DRAFT DATABASE MANAGEMENT PLAN
Appendix C -
Verification Checklist Queries

Grouping	Description	Name	Who	When	What does it do?	What does it find	How to resolve	ModTrigger
Analytical	Soil hits with MF >=1 should have BIN = C for LA	a_chk_BIN_C_MF	Database Manager	Anytime	Inspects data for LA hits (Bin = C). The MF results field should be greater than 1	Laboratory reporting results error	Contact lab	a_chk_BIN_C_MF
Analytical	Soil hits with MF >=1 should have BIN = C for LA	a_chk_BIN_MF_C	Database Manager	Anytime	Lists LA MF results that are greater than 1%. Should only show Bin = C	Laboratory reporting results error	Contact lab	a_chk_BIN_MF_C
Analytical	Duplicate file name submittal from lab check	a_chk_DupResults3	Database Manager	Anytime	Counts sample ID and file name with results	If an EDD was submitted more than once	Research EDDs, delete extraneous data	EDD check
Analytical	Samples should only have 1 associated Lab and 1 batch number	a_Dups_Sample_LabJobNumber	Database Manager	Anytime	Finds COC errors, and/or same sample ID going to more than one lab	COC errors	Research, and update Scribe	EDD check
Analytical	Shows missing sample results	a_MissingSampleResults	Database Manager	Anytime	Lists all samples without analytical results	Samples without results	Wait for lab results, or contact lab	EDD check
Analytical	Soil result counts vs visible vermiculite	a_PLMVS_VS_VV	Database Manager	Anytime	Counts total SUA, Total parcels for each soil BIN by VV	Shows trends	N/A	Result check
Analytical	Samples that have been sent to a laboratory	a_SamplesSent2Lab	Database Manager	Anytime	Displays samples that should have analytical results	Displays samples that should have analytical results	N/A	EDD check
Analytical	Unmatched samples in tblAnalysis	a_tblAnalysis Without Matching Samples			tblAnalysis samples that are not in the Sample table	Typos, missing data, inconsistancies	Research, update Scribe	EDD check
Analytical	Prep Lab Blank Summary	av_PrepLab_PrepBlankQC5	Database Manager	Anytime	Prepares data for QC report	Problems with prep lab blanks	N/A	Prep Lab validation
Analytical	Prep Lab Duplicate Summary	av_PrepLab_PrepDupQC4_XTABMAX	Database Manager	Anytime	Prepares data for QC report	Problems with prep lab duplicates	N/A	Prep Lab validation
Analytical	Finds samples in SamplesTag that should be deleted	av_SamplesTags Without Matching Samples	Database Manager	Anytime	Finds extra samples in SampleTag	Finds samples that shouldn't exist	Research, delete extra samples in SamplesTag	COC check
Analytical	Lab Analyst Matrix Method Counts	avLabAnalystMatrixCounts	Database Manager	Anytime	Counts by analyst for validation	Allows validator to perform counts by validator	N/A	Validation
Analytical	Verify that sample ID in EDD file name exists in database	chk_EDD_Spreadsheet_SampNo2	Database Manager	Anytime	Error in EDD file name	Typo or missing sample ID	Research, contact lab	chk_EDD_Spreadsheet_SampNo2
Analytical	EDDs not in Scribe Sample	EDD.mdb - EDD Without Matching SamplesTags	Database Manager	After EDDs are logged (2x/week)	Lists EDD sample IDs from Lab that are not in Scribe Sample	Shows sample IDs that were written incorrectly by Lab or deleted from Scribe	Research, update Scribe	EDD Sample Query
Analytical	Check EDD log table	EDD.mdb - qDupSMP_ID	Database Manager	After EDDs are logged (2x/week)	Lists duplicate sample IDs in temporary EDD logging table (log EDDs as they are delivered)	Data entry mistakes	Update EDD table	EDD Spreadsheet Query
Analytical	View samples that have results	EDD.mdb - qHaveSampleResults	Database Manager	Weekly	Lists samples, matrix, type, date that have associated results	Counts the available samples with results		EDD Sample Query
Analytical	View samples without results	EDD.mdb - qMissingSampleResults	Database Manager	Weekly	Lists samples, matrix, type, date that do NOT have associated results	Counts the samples missing results		EDD Sample Query
Analytical	Sample matrix count by Parcel	EDD.mdb - qSampleCount	Database Manager	Anytime	Lists Parcels with a Matrix Xtab showing sample counts	status report		EDD Sample Query
Analytical	Sample result count overview	EDD.mdb - qSampleResult_cnt	Database Manager	Weekly	Counts sample, missing, and delivered results	Percentage of samples with results		EDD Sample Query
Scanned Data								
Scribe Sample	Weekly AD Status Report	AD_Status.mdb - mk_AD_Status	Database Manager	Weekly	Pulls parcel information into one report from various sources: WebEOC, GIS, Scribe.	Errors in WebEOC (date formats, duplicates); Reference parcel data entry errors; Parcels completely missing AD Numbers; missing property inspection dates.	Enter and assign tasks into portal list. Reseach Scribe, PDA, and/or scanned log archive. Make changes to master Scribe database	Parcel Check Query
Scribe Sample	Lists all samples in SamplesTag that do not have an associated COC	av_COC_NULL	Database Manager	Anytime	Shows samples that have not been sent to the lab.	Misplaced samples, extra samples, or Scribe error.	Research, update Scribe	COC check
Scribe Sample	Lists all samples in Samples that do not have an associated COC	av_COC_NULL_SAMPLE_EXISTS	Database Manager	Anytime	Shows samples that have not been sent to the lab, but the samples are in the Sample table	Samples that have not been send to a lab	Research, update Scribe	COC check
Scribe Sample		Catherines Monthly Public Report	Database Manager	Anytime				
Scribe Sample	Checks for duplicate samples	chk Find duplicates for Samples	Database Manager	Anytime	Checks for duplicate samples	sample IDs that were used more than once	Research, update Scribe	Sample Coordinator Verification
Scribe Sample	Air samples not in main Sample table	chk SamplesAir Without Matching Samples	Database Manager	Anytime	Finds unmatched samples	sample issues	Research, update Scribe	Sample Coordinator Verification
Scribe Sample	Air samples not in main Sample table as Dust sample	chk SamplesAir Without Matching Dust Samples	Database Manager	Anytime	Finds unmatched dust samples	sample issues	Research, update Scribe	Sample Coordinator Verification
Scribe Sample	Soil samples not in main Sample table as Soil Sample	chk SamplesSoil Without Matching Soil Samples	Database Manager	Anytime	Finds unmatched soil samples	sample issues	Research, update Scribe	Sample Coordinator Verification
Scribe Sample	Soil samples not in main Sample table	chk SamplesSoil Without Matching Samples	Database Manager	Anytime	Finds unmatched samples	sample issues	Research, update Scribe	Sample Coordinator Verification

Scribe Sample	Water samples not in main Sample table as Water Sample	chk SamplesWater Without Matching Water Samples	Database Manager	Anytime	Finds unmatched water samples	sample issues	Research, update Scribe	Sample Coordinator Verification
Scribe Sample	General Building	chk_BldgGeneral1	Database Manager	Anytime	Easily view/filter general building information.	Secondary building described as Residential; Year of construction issues; square footage issues	Update Scribe	General Building Query
Scribe Sample	Building remodeled data	chk_BldgRemodeled	Database Manager	Anytime	Easily view/filter building remodling data	Discrepencies like WasRemodled=No, but contains remodel data	Update Scribe	Remodeled Query
Scribe Sample	VCI usage	chk_BldgVCI_use	Database Manager	Anytime	View/filter VCI use	discrepencies	Update Scribe	
Scribe Sample	Check ModTrack has the correct critical error fields after 11/1/07	chk_CriticalError_ModTrack_part1 and chk_CriticalError_ModTrack_part2	Database Manager	Anytime	use table and field names in "Critical Field Data Errors For Verifier.doc" to make sure the entries in ModTrack match the list.	Counts critical errors - need to merge VV counts as one error, and put in start date	record error count	Critical error count
Scribe Sample	Dust samples missing in SamplesAir table	chk_DustSamples_missing_SamplesAir	Database Manager	Anytime	Checks for dust samples missing an entry in table SamplesAir	missing records	Research, update Scribe	
Scribe Sample	Soil samples missing in SamplesSoil table	chk_SoilSamples_missing_SamplesSoil2	Database Manager	Anytime	Checks for soil samples missing an entry in table SamplesSoil	missing records	Research, update Scribe	
Scribe Sample	Water samples missing in SamplesWater table	chk_WaterSamples_missing_SamplesWater	Database Manager	Anytime	Checks for water samples missing an entry in table SamplesWater	missing records	Research, update Scribe	
Scribe Sample	View VV Descriptions	chk_ER_SUA_VV_Description	Database Manager	Anytime	Counts all VV description variations	Missing or erroneous VV descriptions	Research, update Scribe	chk_ER_SUA_VV_Description
Scribe Sample	View counts for Location Descriptions by Building type	chk_LocationDescription	Database Manager	Anytime	Visual inspection of building location descriptions	typos, erroneous location descriptions, missing descriptions	Research, update Scribe	chk_LocationDescription
Scribe Sample	Dust samples should have an entry for LocationOfIndoorVCI	chk_LocationOfIndoorVermiculite	Database Manager	Anytime	Views Location of Indoor VCI	blank and/or erroneous entries	Research, update Scribe	chk_LocationOfIndoorVermiculite
Scribe Sample	Use area description category matches the description category	chk_LocDesc_LocZone	Database Manager	Anytime	Finds mismatched use area description and categories	Finds mismatched use area description and categories	Research, update Scribe	chk_LocDesc_LocZone
Scribe Sample	Shows samples associated with Non-Use Areas	chk_NonUseArea_Samples	Database Manager	Anytime	Shows samples associated with Non-Use Areas	displays samples	field procedures?	chk_NonUseArea_Samples
Scribe Sample	Non-use Parcel inspections with asociated Use Area and Sample	chk_NonUseParcel	Database Manager	Anytime	Shows Locations and/or samples associated with Non-Use Parcels	Mislabeled parcels	Research, update Scribe	chk_NonUseParcel
Scribe Sample	Non-use Parcel inspections	chk_NonUseParcel	Database Manager		Shows non-use parcels that have associated inspections	Non-use parcels should not be inspected	Check logbooks, update Scribe	Non-Use Parcel Query
Scribe Sample	Non-use Parcel inspections	chk_NonUseParcel_Samples	Database Manager	Anytime	Shows non-use parcels with inspections and/or samples data	Non-use parcels should not be inspected or sampled	Check logbooks, update Scribe	Non-Use Parcel Query
Scribe Sample	Reference parcels should not have any Location data	chk_RefParcel_LocationDate	Database Manager	Anytime	Shows any reference parcels that have Location data	Reference parcels with Location data	Research, update Scribe	chk_RefParcel_LocationDate
Scribe Sample	Samples in both the Soil and Dust tables	chk_Samples_In_Both_Air_Soil	Database Manager	Anytime	Finds samples located in both soil and dust tables	Error in either SamplesSoil or SamplesAir	Research, update Scribe	chk_Samples_In_Both_Air_Soil
Scribe Sample	All soil samples should have a record in SamplesSoil	chk_SoilSamples_missing_SamplesSoil	Database Manager	Anytime	Finds soil samples missing from SamplesSoil table			
Scribe Sample	Use area categories and descriptions with counts	chk_UseAreas_1	Database Manager	Anytime	Lists all use area categories and descriptions with the counts	typos, discrepencies	Research, update Scribe	chk_UseAreas_1
Scribe Sample	Check VCI source vs. VCI purchased at store	chk_VermiculiteSource	Database Manager	Anytime	if location.VermiculiteSource = Some Value (not null and not N/A), then location.VermiculitePurchasedAtStore = yes	Compares VermiculiteSource	Research, update Scribe	Check VCI source vs. VCI purchased at store
Scribe Sample	View use area square footage	chkUseArea_Footage	Database Manager	Anytime	Shows use area square footage	Missing areas, erroneous areas	Research, update Scribe	chkUseArea_Footage
Scribe Sample	Check VCI From WRGrace vs. VCI purchased at store	chk_VCIPurchasedFromWRGrace	Database Manager	Anytime	if location.VCIPurchasedFromWRGrace = Yes, then location.VermiculitePurchasedAtStore = yes	Compares VCIPurchasedFromWRGrace to purchased at store	Research, update Scribe	Check VCI From WRGrace vs. VCI purchased at store
Scribe Sample	Report for all Scribe PDA data by AD Number	frmReport	Anyone	Anytime	Creates an Access report that shows ALL data entered into Scribe from the PDA. Organized in a similar fashion to the PDA. Can be used to QC PDA data against Scribe and Logbooks	Discrepencies between Logbook and data in Scribe.	Update Scribe	Scribe Parcel Report

Scribe Sample	Indoor VCI and attic relationship	q_IndoorAtticRelation	Database Manager	Anytime	Shows buildings, interior attic and addivies (eliminate No only), and optionally, dust sample with not 'None'. OR statements	Issues with interior attic VCI, VCI additive, and location of indoor	Check logbooks, update Scribe	Dust Sample Interpretation
Scribe Sample	Use Area hits	q_UseArea_hits	Database Manager	Anytime	Shows Use Areas, description, and square footage for Use Areas that have a hit.	Issues with square footage and LocationDescription (when checked against the scanned docs)	Check logbooks, update Scribe	Dust Sample Interpretation
Scribe Sample	Indoor VCI in living space	q_VCI_LivingSpace	Database Manager	Anytime	Shows list of parcels and buildings where indoor VCI is not 'None'	List of parcels and buildings for checks	Check logbooks, update Scribe	Dust Sample Interpretation
Scribe Sample	Null fields in Property table	qNull_PropertyInfo	Database Manager	Anytime	Shows property info records that are missing required fields	Bogus PropertyIDs, missing descriptions, missing dates, initials	Check logbooks, update Scribe	
Scribe Sample	Verify data prior to Scribe upload by comparing Logbook, Parcel Sketches, and PDA data	Sample Coordinator visual inspection/update	Sample Database Coordinator	Each PDA upload (multiple times per day)	Verifiy data completeness and accuracy	Typos, missing data, inconsistancies	Work with field team to update PDA data prior to Scribe import	Sample Coordinator Verification
Scribe Sample	Samples missing location	Samples Without Matching Location	Database Manager	Anytime	Shows samples without a parent location	orphan samples	Research, update Scribe	Samples Without Matching Location
Scribe Sample	Air samples missing parent sample	SamplesAir Without Matching Samples	Database Manager	Anytime	Shows SamplesAir without parent sample	orphan samples	Research, update Scribe	SamplesAir Without Matching Samples
Scribe Sample	Soil samples missing parent sample	SamplesSoil Without Matching Samples	Database Manager	Anytime	Shows SamplesSoil without parent sample	orphan samples	Research, update Scribe	SamplesSoil Without Matching Samples
Scribe Sample	Data Scrubber	Sampling Data Scrubber.mdb	Sample Database Coordinator	2x/week	Checks completeness of data in Scribe	missing values, values that are not in valid value list	Check logbooks, update Scribe, and/or add valid value to data scrubber	Data Scrubber Report
Scribe Sample	Samples missing COC	Samples Without Matching SamplesTags	Anyone	Anytime	Checks for samples that are missing COCs	Samples without COCs	Research	
Scribe Sample	Use Area (except non-use) VV counts should be greater than 0	chk_VV_Counts	Anyone	Anytime	Lists Parcel and Use Area where VV counts = 0 (for all Use Areas except non-use)	Issue with counts	Research, update Scribe	chk_VV_Counts
Scribe Sample	Review owners of reference parcel against primary parcel	q_Reference_AD_OWNERS	Anyone	Anytime	Shows the owner for referenced parcel and the primary parcel	Displays data		
Scribe Sample	Shows reference parcel owners that do not match primary parcel	q_Reference_AD_OWNERS_NOTMATCHING	Anyone	Anytime	Shows not matching ref/primary owners	Problems with parcels ref and main		

TROY DRAFT DATABASE MANAGEMENT PLAN
Appendix C - Example Modification Tracking Form

PropertyID	Location	Samp_No	ModTable	ModField	OldValue	NewValue	RequestedBy	ModTrigger	ModVerifier	ModJustification	ModType	ModBy	ModDate	ModComments
AD-200043	BD-201343		Location	SquareFootage	600	750	CDL	Data_Verification	JPA	Property File	Update			
AD-200043	BD-201344		Location	SquareFootage	70	64	CDL	Data_Verification	JPA	Property File	Update			
AD-200136	BD-201761		Location	LocationDescription	Shed	Pumphouse	CDL	Data_Verification	JPA	Property File	Update			
AD-200885	BD-201757	TT-03446	Samples	SampleCollection	Grab	Composite	CDL	Data_Verification	JPA	Standardization	Update			
AD-200885	UA-202059	TT-03449	Samples	SampleCollectionVariation	No Variation	Total Depth cannot be attained	CDL	Data_Verification	JPA	Standardization	Update			
AD-201040	BD-201835		Location	VCIPresent	No	Yes	CDL	Data_Verification	JPA	Property File	Insert			
AD-201040	BD-201836		Location	SquareFootage	200	96	CDL	Data_Verification	JPA	Property File	Update			
AD-201040	UA-202071	TT-03512	Samples	SampleCollectionVariation	No Variation	Total Depth cannot be attained	CDL	Data_Verification	JPA	Property File	Update			
AD-201160	BD-201833		Location	SquareFootage	200	350	CDL	Data_Verification	JPA	Property File	Update			
AD-201160	UA-202066		Location	LocationZone	Specific Use Areas	Common Use Areas	CDL	Data_Verification	JPA	Property File	Update			
AD-200885	BD-201757		Location	HeatDistribution	None	Radiant	CDL	Data_Verification	JPA	Property File	Update			
AD-201160	BD-201833		Location	LocationDescription	Shed	Garage	CDL	Data_Verification	JPA	Property File	Update			

AD Number: **AD-200929**

Parcel Inspection

Ref AD Number:	AD-200929
Desc:	Residential
Team:	DB JS
Visit Date:	5/1/2007
Completed by:	JS

Primary Building: BD-200001

Visit Date:	5/1/2007	Have attic V:	No
Business Name:	N/A	Ever have attic V:	No
Desc:	Residential	Finishing:	unfinished
Completed by:	JS	Duct Work 2 Living:	☐
Year Const.:	1990	Exposed Persons:	No
Area:	3000	Diagnosed:	No
Material:	Wood frame		
Basement:	☐	V used home:	No
		Purchased:	No
Heating Source.:	Electric	Where:	
Heating Distrib.:	Other		
Remodeled:	No	Grace purchase:	☐
When:		For profit:	☐
Where.:			
Indoor Burning:	☑	V additives:	No
		Non-Libby asbst:	

Primary Building: BD-200002

Visit Date:	5/1/2007	Have attic V:	Yes
Business Name:	Debbie's Pet Groomin	Ever have attic V:	Yes
Desc:	Commercial	Finishing:	unfinished
Completed by:	JS	Duct Work 2 Living:	☐
Year Const.:	1950	Exposed Persons:	Unknown
Area:	900	Diagnosed:	Unknown
Material:	Masonry/Stone/Brick		
Basement:	☐	V used home:	Unknown
		Purchased:	
Heating Source.:	Electric	Where:	
Heating Distrib.:	Other		
Remodeled:	No	Grace purchase:	☐
When:		For profit:	☐
Where.:			
Indoor Burning:	☐	V additives:	Unknown
		Non-Libby asbst:	

AD Number: **AD-200929**

Primary Building: BD-200003

Visit Date:	5/1/2007	Have attic V:	Yes
Business Name:	N/A	Ever have attic V:	Yes
Desc:	Residential	Finishing:	unfinished
Completed by:	JS	Duct Work 2 Living:	☐
Year Const.:	1950	Exposed Persons:	No
Area:	750	Diagnosed:	Unknown
Material:	Masonry/Stone/Brick		
Basement:	☐	V used home:	No
		Purchased:	
Heating Source.:	Electric	Where:	
Heating Distrib.:	Other		
Remodeled:	No	Grace purchase:	☐
When:		For profit:	☐
Where.:			
Indoor Burning:	☑	V additives:	Unknown
		Non-Libby asbst:	Siding

Secondary Building: BD-201644

Visit Date:	5/5/2007	Heating Source.:	None
Desc:	Shed	Heating Distrib.:	None
Completed by:		Remodeled:	No
		Have attic V:	No
Year Const.:	1996	Ever have attic V:	No
Area:	0		
Material:	Wood frame		
Basement:	☐	Indoor Burning:	■
		V additives:	
		Finishing:	no attic

UA#:	**UA-200366**
Land Use Area:	Specific Use Areas
Desc:	S - Driveway (unpaved)
Footage:	2200
Completed by:	
VCI None.:	0
VCI Low.:	0
VCI Intermed:	0
VCI High.:	0
Visible Desc:	

UA#:	**UA-200367**
Land Use Area:	Common Use Areas
Desc:	C - Yard (front, back, side
Footage:	22000
Completed by:	
VCI None.:	0
VCI Low.:	0
VCI Intermed:	0
VCI High.:	0
Visible Desc:	

UA#:	**UA-200369**
Land Use Area:	Specific Use Areas
Desc:	S - Flowerbed
Footage:	50
Completed by:	
VCI None.:	30
VCI Low.:	0
VCI Intermed:	0
VCI High.:	0
Visible Desc:	

UA#:	**UA-200370**
Land Use Area:	Specific Use Areas
Desc:	S - Flowerbed
Footage:	30
Completed by:	
VCI None.:	30
VCI Low.:	0
VCI Intermed:	0
VCI High.:	0
Visible Desc:	

Location:	UA-200366	**Soil Sample ID:**	**TT-00052**
Sample Date:	5/5/2007	Sample QC Type:	Field Sample
Team:	DB	Top Depth.:	0
Completed by:	DB	Bottom Depth:	6
Matrix.:	Surface Soil	# Aliquotes:	30
Sample Type:	Composite	Variation:	No Variation
		Split:	Not Requested

Location:	UA-200367	**Soil Sample ID:**	**TT-00053**
Sample Date:	5/5/2007	Sample QC Type:	Field Sample
Team:	JS DB	Top Depth.:	0
Completed by:	JS/DB	Bottom Depth:	3
Matrix.:	Surface Soil	# Aliquotes:	30
Sample Type:	Composite	Variation:	No Variation
		Split:	Not Requested

Location:	UA-200370	**Soil Sample ID:**	**TT-00054**
Sample Date:	5/5/2007	Sample QC Type:	Field Sample
Team:	JS DB	Top Depth.:	0
Completed by:	JS/DB	Bottom Depth:	6
Matrix.:	Surface Soil	# Aliquotes:	30
Sample Type:	Composite	Variation:	No Variation
		Split:	Not Requested

Location:	UA-200369	**Soil Sample ID:**	**TT-00055**
Sample Date:	5/5/2007	Sample QC Type:	Field Sample
Team:	JS DB	Top Depth.:	0
Completed by:	JS/DB	Bottom Depth:	6
Matrix.:	Surface Soil	# Aliquotes:	30
Sample Type:	Composite	Variation:	No Variation
		Split:	Not Requested

Building:	BD-200001	**Dust Sample ID**	**TT-00022**

Sample Date:	5/1/2007	Location indoor V:	None
Team:	DB JS	Pump Fault:	☐
Desc:	1	Sample Area:	3000
Completed by:	JS	Lot #:	23802-2
		Accessible:	
Total Vacume (m).:	15.017	Infrequent:	
Start Flow:	2.28	Inaccessible:	
Stop Flow:			
Filter Diameter.:	25		
Pore Size.:	0.45	Sample Type:	Field Sample
Flow Meter Type:	Rotometer	Variation:	No Variation
Pump ID:	TT-1	Split:	Not Requested
Flow Meter ID.:	R-1		

Building:	BD-200001	**Dust Sample ID**	**TT-00023**

Sample Date:	5/1/2007	Location indoor V:	None
Team:	DB JS	Pump Fault:	☐
Desc:	2	Sample Area:	3000
Completed by:	DB	Lot #:	23802-2
		Accessible:	12
Total Vacume (m).:	0	Infrequent:	12
Start Flow:	2.028	Inaccessible:	6
Stop Flow:	2		
Filter Diameter.:	25		
Pore Size.:	0.45	Sample Type:	Field Sample
Flow Meter Type:	Rotometer	Variation:	No Variation
Pump ID:	TT-1	Split:	Not Requested
Flow Meter ID.:	R-1		

Building:	BD-200001	**Dust Sample ID**	**TT-00024**

Sample Date:	5/1/2007	Location indoor V:	None
Team:	DB JS	Pump Fault:	☐
Desc:	1	Sample Area:	0
Completed by:	DB	Lot #:	23802-2
		Accessible:	0
Total Vacume (m).:	1	Infrequent:	0
Start Flow:	2.028	Inaccessible:	0
Stop Flow:	2.028		
Filter Diameter.:	25		
Pore Size.:	0.45	Sample Type:	Field Blank
Flow Meter Type:	Rotometer	Variation:	No Variation
Pump ID:	TT-1	Split:	Not Requested
Flow Meter ID.:	R-1		

Building:	BD-200002	**Dust Sample ID**	**TT-00025**

Sample Date:	5/1/2007	Location indoor V:	None
Team:	DB JS	Pump Fault:	☐
Desc:	1	Sample Area:	3000
Completed by:	DB	Lot #:	23802-2
		Accessible:	12
Total Vacume (m).:	15	Infrequent:	12
Start Flow:	2.028	Inaccessible:	6
Stop Flow:	2		
Filter Diameter.:	25		
Pore Size.:	0.45	Sample Type:	Field Sample
Flow Meter Type:	Rotometer	Variation:	No Variation
Pump ID:	TT-1	Split:	Not Requested
Flow Meter ID.:	R-1		

Building:	BD-200003	**Dust Sample ID**	**TT-00026**

Sample Date:	5/1/2007	Location indoor V:	Ceiling
Team:	DB JS	Pump Fault:	☐
Desc:	1	Sample Area:	3000
Completed by:	DB	Lot #:	23802-2
		Accessible:	12
Total Vacume (m).:	15	Infrequent:	12
Start Flow:	2.028	Inaccessible:	6
Stop Flow:	1.98		
Filter Diameter.:	25		
Pore Size.:	0.45	Sample Type:	Field Sample
Flow Meter Type:	Rotometer	Variation:	No Variation
Pump ID:	TT-1	Split:	Not Requested
Flow Meter ID.:	R-1		

Building:	BD-201644	**Dust Sample ID**	**TT-00056**

Sample Date:	5/5/2007	Location indoor V:	None
Team:		Pump Fault:	☐
Desc:	1	Sample Area:	30
Completed by:	JS/DB	Lot #:	23802-3
		Accessible:	
Total Vacume (m).:	15	Infrequent:	
Start Flow:	2.02	Inaccessible:	
Stop Flow:	1.75		
Filter Diameter.:	0		
Pore Size.:	0.45	Sample Type:	Field Sample
Flow Meter Type:		Variation:	No Variation
Pump ID:		Split:	Not Requested
Flow Meter ID.:			