CLEAN AIR ENGINEERING

PROJECT MANAGER HANDBOOK

REVISION 1: OCTOBER 12, 1995
REVISION 2: NOVEMBER 8, 1995
REVISION 3: NOVEMBER 15, 1995

CONTENTS

1 General Information

PROJECT MANAGEMENT PROCESS AIM AND DEFINITIONS

Process Aim: The aim of the CAE project team, the Project Manager and those involved in the project management process, is to provide the highest value service and products to the clients of Clean Air Engineering.

Process Boundaries:
•Involvement in a project may occur in the estimating and proposal stages, but the project management process for one project begins once the project release is completed and a project number has been issued.

•Project management process ends for one project once the final invoice has been paid and the project file is closed.

Ultimately, the Project Manager should be more proactive with the client to learn more about their company, eventually managing the client, not just the project.

Inputs: verbal and written communication with sales people, client and field crew, proposal, pricing, project release, electronic project file, scope of work, project files, reports, site files, safety on project sites, expense reports, invoices, field time sheets, field data, field log and accounts payable for approval.

Suppliers (Indirect Stakeholders): Sales Person, Estimator, Administrative Assistant, Test Leader, Field Technician, Report Writer, equipment groups and external CAE client.

Outputs: project plan, packing lists, purchase orders, travel arrangements, laboratory arrangements, trailer/truck/car rental arrangements, 3 ring field data binder, reports, invoices, project notes, scheduling, advance requests, project files, verbal and written communication with field crew and client, change orders, projections and electronic project file.

Customers (Indirect Stakeholders): Test Leader, Field Technician, Report Writer, Sales Person, Administrative Assistant, external CAE client, Equipment/Packing Manager and personnel, internal Rental Coordinator, internal laboratory personnel, internal glassware personnel, external laboratory personnel, misc. external suppliers of equipment/supplies/rentals and Business Leader.

Direct Stakeholders: Project Managers.

PROJECT MANAGEMENT PHILOSOPHY AND TASKS

Philosophy:

The Project Manager owns his project and takes pride in all work involved with it. The Project Manager **oversees** a project from start to finish. Many times, involvement in a project begins in the estimating and proposal stages. For project management purposes, ownership of a project begins once the project release is completed and a project number has been issued. A project includes some of the following tasks:

Receipt of the customer purchase order
Coordinating planning/packing
Arranging for laboratory services
Creating a job/project plan
Writing and/or coordinating protocols
Answering client questions
Serving as office contact for field personnel
Reviewing field data and tracking/writing/reviewing reports
Invoicing
If necessary, collecting outstanding balances
Assist in developing/maintaining relationship with client

A project ends once the final invoice has been paid and the project file is closed. It is important to recognize that a project is more than the field test program. The final product is usually the report.

Detail is the key word in project management. It is imperative that client contact information be documented in the project file. This information, including changes in scope of work, customer disputes or technical information, is very important.

The Administrative Assistant (AA) is responsible for beginning a project file folder. After a salesman turns in a CAE Project Release Form to personnel in Accounting, currently Barb Kaput, a project number is assigned to the release form. Barb Kaput will then make a copy of the release form and direct it to the corresponding Administrative Assistant. The Administrative Assistant then uses the release form to create a project folder. Using the project release form, the AA will retrieve everything from the proposal file (including pricing, proposals, addendums, and request for proposal) located in the Proposal Department and leave a copy of the release form with the Proposal Coordinator to indicate the transfer has taken place. A breakdown of where paperwork belongs in the project file is presented in pages 2-8 through 2-11.

The Project Manager cannot rely solely on information received from a Sales Person. A Project Manager needs to ask **why** Clean Air is doing the testing. Try to determine how Clean Air can provide value to the client. The Project Manager may help to define that value. Think of it as client management and not just project management.

A key to success in project management is keeping the client **informed**. Whether it's a call to give the client a project status update or to let the client know of any problems or delays. Keeping the client informed is critical.

PROJECT MANAGEMENT PHILOSOPHY AND TASKS (CONTINUED)

The Sales Person is responsible for initiation of the proposal, receiving a purchase order number from the client and filling out a project release form. Depending on the client and the Sales Person/Project Manager relationship, Project Managers also participate in this process.

The Project Manager is responsible for ensuring the **report** has had an in-depth technical review and overall review before submission to the client. Finally, the Project Manager is responsible for the monthly **projections** on projects and working up a monthly work in progress (WIP) list and dollar amount.

Project Managers make use of whatever time necessary to ensure that a project is properly handled. Project management is not an 8:00 to 5:00 nor 40 hour week responsibility. Project Managers are detail oriented in all aspects regarding a project. Documentation is imperative.

Strengths of project management process:

- Project Managers "own" their clients;
- Project Managers have technical and administrative expertise regarding their clients;
- Project Managers are responsible for the client and the entire project from start to finish;
- Project Managers are available for communication with customers and suppliers; and
- Project Managers lend organization to a project and keep track of details.

PROJECT MANAGEMENT PHILOSOPHY AND TASKS (CONTINUED)

Tasks:

The project management team is comprised of a Business Leader (BL), Sales Person (SP), Project Manager (PM), Test Leader (TL), Report Writer (RW), Equipment Coordinator, Administrative Assistant (AA) and Field Technicians (FT). The specific personnel assigned to these positions is dictated by the needs of the project.

Some Project Managers may actually be the Sales Person, Test Leader, Project Manager and Report Writer for a project. Some may be the Report Writer and the Project Manager, it all depends upon the scope of the project. The Project Manager must make the decision about the personnel required.

The Project Manager is ultimately responsible for the projects assigned to him. Many responsibilities are delegated to other team members, therefore it takes a concerted group effort to ensure a successful project. Project management responsibilities can be divided into several phases:

- Proposal of project
- Planning the project
- Field execution of project
- Preparing project test report
- Invoicing project
- Closing project

The following table lists project management responsibilities as they apply to the team members.

PROJECT MANAGEMENT PHILOSOPHY AND TASKS (CONTINUED)

Activity	Team Member
Log-in RFQ and acquire Proposal Number	SP
Review RFQ	SP
Generate Proposal	SP/PM
Submit Proposal to Client	SP/PM
Negotiate Contract	SP/BL
Create Project Folder	AA
Submit Manager's Introduction Letter	PM
Phone Call to Primary Client Contact	PM
Gather Site and Safety Information	PM
Define Final Scope of Work	PM
Define Final Work Schedule	PM
Secure Change Orders (if needed)	PM and/or TL
Schedule Project	PM/BL
Prepare Protocol (if needed)	PM
Review, Finalize and Submit Protocol	PM/RW
Initiate Job/Project Plan	PM/RW
Prepare/Submit Equipment Packing List	PM
Define Analytical Requirements	PM
Make Outside Lab Arrangements	PM
Define Field Manpower Requirements	PM/BL
Define Vehicle Requirements	PM
Define Travel Requirements	PM
Finalize/Submit Job/Project Plan	PM/RW
Create 3-Ring Field Data Binder	PM/RW
Field Liaison with Client	TL
Technical Office Support of Field Crew	PM with Technical Leaders
Field Crew Management	TL
Compile Data Including Log in Field Data Binder	TL
Field Time Sheets	TL
Expense Approval	PM
Review Field Data Sheets	FT/TL
Expedite Laboratory Samples	PM
Process Field/Lab Data	PM/RW
Write Project Overview	PM
Write Report Methodology	PM/RW
Designate Table Formats for Report	PM/RW
Designate Figures for Report	PM/RW
Prepare Reports	PM/RW
Review Reports	PM with Technical Leader and TL
Submit Reports	AA
Gather Invoice Data	PM and AA
Prepare and Submit Invoice	PM and AA
Follow-up Contact with Client	PM
Pursue Overdue Invoices	PM and AA
Close Project File	AA
Site or Needs Visits	SP/PM

BEFORE FIELD TESTING BEGINS

The Client's Goals or Objectives for the Project
It is important to realize that the client's objectives may be much broader than CAE's scope of work. Every effort must be made to determine why the client is asking us to perform the requested scope of work.

Project Release
It is the responsibility of the Sales Person to complete the project release form and submit it to accounting. It is also his responsibility to obtain a PO and/or contract number and to ensure a hard copy is received.

Project Management Checklist
Pages 2-3 and 2-4 contain a copy of the project management checklist to be used for each project as a reminder of items to be completed. This tool makes the Project Manager's life easier and helps to keep track of details. The top of the checklist looks a lot like the top of the project plan. This is so you can enter the information once and copy it over to the project plan. The electronic template is located on the TechComm file server, Standard Files, Project Manager Forms, PM Checklist.

Client Contract/Purchase Order
After obtaining a client purchase order and/or contract, the Project Manager needs to review it for any discrepancies or special instructions. Then the Project Manager should compare current contracts with previous ones with the client taking special note of changes made to previous contracts. These may also be reviewed by the Business Leader of the department.

Protocol
If a protocol is required, the Project Manager is responsible for seeing that a protocol is written, reviewed by a Technical Leader, and submitted to the client. The report department can provide support for developing the protocol. A protocol should be written using Protocol Procedure, Revision 1: August 2, 1994. The electronic protocol template is located on the TechComm File Server, Standard Files, Protocols, Standard Templates, Word 6.0 Template, Protocolv.1DOC.

BEFORE FIELD TESTING BEGINS (CONTINUED)

Client Contact
When working with a client, it is necessary to distinguish between the overall client contact (if there is one) and the site contact. Again, the personal relationship with a client is stressed as very important. Project Managers need to develop a relationship with the client so that he/she will want to call with any questions they may have.

The Project Manager Log must contain a phone log of conversations with the client. Make sure the client's name is spelled properly. Following up with a letter regarding change of scope or a conversation is professional, keeps the client informed and can be used as legal back up in any disputes. Suggestion: Write an "introduction letter" to the client in addition to a telephone call, introducing yourself as their Project Manager. A sample is presented on page 2-32.

Field Crew
The Test Leader and field crew are chosen by the Project Manager, Business Leader and personnel coordinator prior to a project taking place. A Test Leader is chosen for his expertise on a certain process, and scheduled with the project. The field crew is chosen based on the special talents and needs of the project. The 9:00 am morning meetings are the forum for this scheduling on Tuesdays and Thursdays.

Reports
A Report Writer should be scheduled with the manager of the Technical Communications Department before the field testing takes place to assure there is ample manpower to cover all report writing requirements. Additionally, the Report Writer may be assigned to help with the project plan and pre-report.

Site Contact
When calling the site contact, verify/obtain the following items if necessary:

- shipping address and phone number
- directions to plant
- any good hotels and restaurants nearby
- any check in procedures at project site
- safety situations/precautions, equipment necessary (safety training)
- date, time crew is expected
- if a clean lab area is available -- if not, ask if there is room for a trailer if necessary
- other items the client is responsible for: electrical service, independent circuits, access to breakers, test location access
- if a trailer is necessary
- location descriptions, dimensions, port length and diameter, clearance for probe when it is taken out of duct (railings, walls)
- description of installation

BEFORE FIELD TESTING BEGINS (CONTINUED)

- flue gas parameters
- who/where report goes (how many, do they want separate reports for separate units, etc.)
- process data to be collected -- who does it, who gets it, when
- units for results
- who is responsible for on site changes in scope of work
- who will sign the on-site time sheet
- client reference number

Job/Project Plan

The job/project plan pulls together all the information necessary to successfully complete the field testing portion of the project. The electronic job/project plan template that all Project Managers should use is located on the TechComm File Server, Standard Files, Reports, Project Manager Forms, **PPReptv3.DOC**.

The project plan is in the report electronic file so once you receive your report training in Microsoft Word it will seem pretty easy to use. You enter the client information once in "Summary Info," put your drawings in the report text and your report is on its way. You also should be able to copy the work schedule from the proposal electronic file directly into the project plan without having to retype.

The job/project plan (double sided copies always) should be completed in addition to the preliminary report text for inclusion in the field data binder. The job/project plan contains travel and work schedule information and notes of special circumstances specific to the project. The preliminary report text contains the sampling apparatus and sampling locations. If you have complete information, you should attach the description of installation and sampling locations from the report text to the project plan before handing it out to field personnel.

Each Project Manager will have a folder of standard sampling train set-ups and recovery sheets. Copies of the sheets for the methods that apply to a project for each location and the field laboratory technician should be included in the field data binder.

Once in the field, the Test Leader needs to verify data in the preliminary report text with actual field/plant measurements. Specific areas are duct dimensions, up/downstream diameters and process descriptions. Any corrections should be made on the original contained in the field data binder.

Three-Ring Field Data Binder

The field data binder holds technical and administrative information necessary in the field. This folder is turned in to the Project Manager at the earliest possible time after testing is completed. Pages 2-18 through 2-22 describe items for inclusion in the field data binder.

BEFORE FIELD TESTING BEGINS (CONTINUED)

Purchase Orders
A purchase order is obtained for any purchase that is billed to a specific project, i.e., trailer, lab analysis and equipment. The purchase order must be signed by the Project Manager and taken to the Accounting Department for approval and assignment of a purchase order number.

The invoice for this purchase shall also be signed by the Project Manager after reconciling the amount and cost with the original purchase order.

Packing Lists
It is the Project Manager's responsibility to ensure that a packing list is completed in a timely fashion either by the Project Manager, Test Leader or other responsible party. The most updated packing list should be used. Different types of equipment are often added to the list. Once completed, the packing lists should be distributed to an Equipment Coordinator at least one week prior to the ship date of the project. Whenever possible, go over the list with the Equipment Coordinator so substitutes can be arranged if necessary.

The Project Manager should give a copy of the packing lists to the Administrative Assistant for filing in the project folder.

Travel/Hotel Reservations
All hotel and travel reservations will be made by the Administrative Assistant through the CAE Travel Agency. If the Administrative Assistant is unavailable, arrangements should be made through McCord Travel Management (800) 333-4717, (708) 297-8969.

Advances
One or two people will be responsible for bringing advance money for the crew. The Project Manager determines who will bring the money and either asks them to fill out an advance request or does it for them if they are in the field.

On-Site Trailer
The trailer rental is arranged by the Administrative Assistant according to the Project Manager's specifications.

Insurance Certificates
If certificates of insurance are required for a project, determine the specific insurance needs of the contract. If the client needs proof of insurance, a copy of our insurance policy is all that is necessary. If the client needs to be added as an additional insured, Peter Martel in Accounting will need specific information about the project which includes all of the contact information - a correct client name, contact name, client address, and a project number or client purchase order number. Also, if the additional insured certificate needs to be faxed to the client, a fax number is needed. Pete will then contact our insurance carrier. This process usually takes at least a day so please give ample notice.

BEFORE FIELD TESTING BEGINS (CONTINUED)

Laboratory

Determine what analysis is to be performed. Make arrangements with internal and/or external lab. Inform the labs regarding total number of samples of each type, turn around time, method of analysis required and when samples are to arrive. Informing your internal laboratory is just as important as informing your external laboratory.

Obtain a PO for external lab work. For some methods, prep work is required, i.e., PCDD/PCDF or VOST traps. Ensure this is performed in a timely manner.

DURING FIELD TESTING

While field testing is taking place, it is a requirement to keep in touch with the Test Leader daily. Phone calls need to be documented in the Project Manager's log. This is particularly important when delays or add-ons are incurred. Your documentation of these delays is in support of the Test Leader's log and it is not a substitute for his documentation. The Test Leader is responsible for keeping an accurate account of the testing, and for calling in each day to speak to or leave a voice mail message for the Project Manager.

If delays are incurred, the client needs to be contacted regarding the possibility of additional cost (if they are not already aware of the situation). Once the field work is completed, it is important to contact the client and review with him how the field testing was conducted. Lay out a time schedule for the remainder of the project, i.e., lab analysis, preliminary numbers, draft report and final report issuance.

POST FIELD TESTING

Invoicing

Typically a project is invoiced in two partial invoices. In some instances, an invoice for the protocol or planning stage can be sent before the field work takes place. Otherwise, a partial invoice is generated when the field work is completed, and a final invoice is generated when the final report is released. The sooner a report is sent, the sooner the final invoice can be sent. It is critical that a project be invoiced in a timely manner. If we can reduce Clean Air's payment cycle, we can become more profitable. If you have to prioritize tasks i.e., preparing field data binder, writing report, invoicing, invoicing should be at the top of your list.

Field Data Review

It is critical that the field data be reviewed and, if the report is not being written by the Project Manager, turned into the Report Writer as quickly as possible. It is the Field Technician's responsibility to make sure his data sheets are filled out completely and correctly. It is the Test Leader's responsibility to review the field data completed by the Field Technicians. It is the Project Manager's responsibility to ensure all data is complete and directions are clear regarding the reporting.

A Project Manager must complete a project summary. This document follows the job/project plan in the electronic document. The preliminary report text including sampling apparatus, methodology, process diagram and sampling locations is completed before testing begins. However, it is critical that certain information be verified in the field, i.e., process diagrams, duct/stack dimensions, and that the Test Leader fills in the remaining information.

Equipment Return

Verify that equipment was returned and any gases or equipment shipped separately from the plant arrived with the Equipment Coordinator.

Laboratory Analysis

For Project Managers who do not already use some means of alerting a laboratory of their analysis needs, a letter which details the analytical requirements and costs may be sent to the laboratory contact. The letter should include the total number of samples, total number of trains, analytes, methodology, report results in ____ , send the report to ____ , a purchase order number, the quoted cost per sample, any special turnaround time and other pertinent information.

Follow up on samples submitted to both CAE and outside laboratories to:

1) Ensure the samples have been received and
2) Answer any questions regarding the analytical techniques.

Submit, in the project summary, to the Report Writer a schedule of when laboratory analysis will be complete. When time is drawing near for the analysis to be complete, call the lab to ensure the analysis is on time. Alert the Report Writer if there are any changes to the original completion schedule. Once the analysis is completed and received, it needs to be reviewed by the Project Manager and/or technical personnel before forwarding to the Report Writer.

POST FIELD TESTING (CONTINUED)

Time Sheets
The Business Leader has signature authority for crew members time sheets. They will compare the project time with the field time sheet. They do no go to separate Project Managers because this could delay the turnaround time. It is critical for crew members to submit time sheets in a timely fashion.

Expense Reports
The Project Manager has signature authority for project related expense reports. The Administrative Assistant reviews the reports for accuracy. It is critical for crew members to submit expense reports in a timely fashion.

Costing
The Job Costing Process is under construction at this point. Job costing depends greatly on a functioning set-up within our accounting system and this currently does not exist. This does not mean that you have no control over the costing of your project. It is important to keep control of the profitability of your project. It is also crucial to give feedback, good or bad, to the estimator or salesman on costs which were not applied correctly to the project, or non-standard costs which were correctly assigned. Keep everyone aware of how these estimates affect project profitability. Do not forget about profit. Clean Air cannot exist without profit.

The Report
Reporting is not just reporting. Each report is unique and, therefore, the report needs to be a major focus of the Project Manager. The report is the only physical evidence a client has that proves a project was completed. Memories of the field crew fade over time, but the report will always be available (at least for ten years) to the customer. Special reporting requirements such as preliminary numbers or split reporting should be brought to the attention of the Report Writer in the planning phase of the project and again when the project is turned over to them.

Draft reports should only be issued to clients if they are requested, or if the client wants to review the data before a final report is issued (in which case, draft numbers can be faxed). Draft reports are not our reporting standard and should not be used to replace interface with the client to determine what information or data is important to him and how he would like his information and data presented.

It is the responsibility of the Project Manager to continue communication with the Report Writer throughout the reporting process. Discussion of results, possible problems and special requirements should be conveyed. An update of progress of larger projects should be given every couple of days.

POST FIELD TESTING (CONTINUED)

Once the data is turned over to the Report Writer, the Project Manager needs to be frequently involved in the reporting process to handle any questions that may arise. It is the Report Writer's responsibility to inform the Project Manager as soon as possible if the client did not meet his permit limits. Reports are written according to the Clean Air Engineering Report Manual, Revision 1, September 8, 1995.

Regarding the review process, the Project Manager is responsible for the in depth technical and overall cursory reviews. These technical reviews should address the following: Does the data make sense? Did the client meet his permit limits? What conclusions can be drawn from the data? These reviews are to be performed by two separate persons: the Project Manager and an Independent Reviewer.

The Project Manager selects the Independent Reviewer. The Project Manager provides the Independent Reviewer with the report and information necessary to review the report such as the project plan and log. The report goes to the Project Manager after the independent review. After the independent review, the Project Manager reviews the comments and suggestions made. If the Project Manager agrees with the independent reviewer, all necessary changes are submitted to the Report Writer. If there is some disagreement, the Project Manager and Independent Reviewer must discuss it and come to a consensus prior to submitting changes to the Report Writer.

Also during the reporting phase, the Project Manager needs to keep the client informed of the progress being made particularly if any difficulties arise. A client should never be surprised by what is inside the report. Report review procedures are presented in pages 2-24 through 2-26.

Closing a Project

Once the report has been issued, the Project Manager needs to follow up with the client regarding his satisfaction with Clean Air Engineering's performance. Then, the report is closed following the procedures detailed in the report manual. This procedure can be applied to project plans, notes, etc. This will assure that the electronic back up of the file is complete.

Once the report has been received by the client, the final invoice is issued, and payment is received on all invoices for a project, the project file can be prepared for closure. The project file folder should be reviewed by the Project Manager for completeness and turned over to the Administrative Assistant for final closure. At a later date, we will be linking project files and report files prior to archival. This will be performed by the Administrative Assistants.

Collections

It is the responsibility of the Project Manager to follow up on payments that are past due between 60 to 120 days. If the Project Manager runs into problems with the client such as stonewalling or not being responsive, they should notify the Business Leader immediately.

HOW TO IDENTIFY AND DEFINE THE SCOPE OF A PROJECT

•The definition of a project starts with the Sales Person. He receives a phone call explaining testing requirements, a request for quote (RFQ), a source test plan and/or a scope of work from the client or consultant working with the client.

•The Sales Person uses this information to compile a proposal. As a minimum, the proposal should include the objective, the work schedule and the price for the project. The generation of the proposal should include the input of a Project Manager.

•The Project Manager compiles a project plan (job plan) using the proposal, source test plan, verbal communication with the Sales Person, verbal communication with the client and data from previous testing at the same facility (if applicable). Send a copy of the plan to the client and the plant.

•Each member of the project field crew receives a copy of the project plan prior to leaving for the project (hopefully). The project plan contains travel information, the project objective, work schedule and any other important details for the successful completion of the project. If possible, the Project Manager should include the latest copy of the Bullsheet for the field crew to read.

•A three-ring field data binder is sent on the project. This binder contains information which the Test Leader and crew may need to define the scope of the project i.e. the project plan, proposal, source test plan, sampling protocol, calibration gas certification sheets and permit.

•During the project, the Test Leader keeps a log of the project (job log) which details communication with the client, project delays and difficulties, start and stop times, etc.

•After the project is completed, the Test Leader includes a copy of his project log in the binder along with the field data, process data and calibration data. The binder is then given to the Project Manager. The Project Manager reviews the items in the binder for a more complete understanding of the actual work performed on the project and of the client's objectives. The Project Manager then writes a project summary and makes sure the data are in proper order.

•The three-ring binder is given to the Report Writer. The project summary is for the Report Writer to be able to quickly understand what actually took place on the project and how the data should be presented. The Report Writer should also review the project log, project plan and protocol (if applicable) before beginning the report if they are not familiar with the project.

•The culmination of these documents and verbal communication with the Project Manager should identify and define the scope of the project necessary for a successful report and therefore a successful project. After you submit the report, review the value of the data with the client. Did we meet their expectations? Did we help improve their process?

PROJECT MANAGEMENT CAREER PATHWAY

Pathway to Becoming a Project Manager

- Field Technician
- Report Training and Writing
- Test Leader
- Project Manager

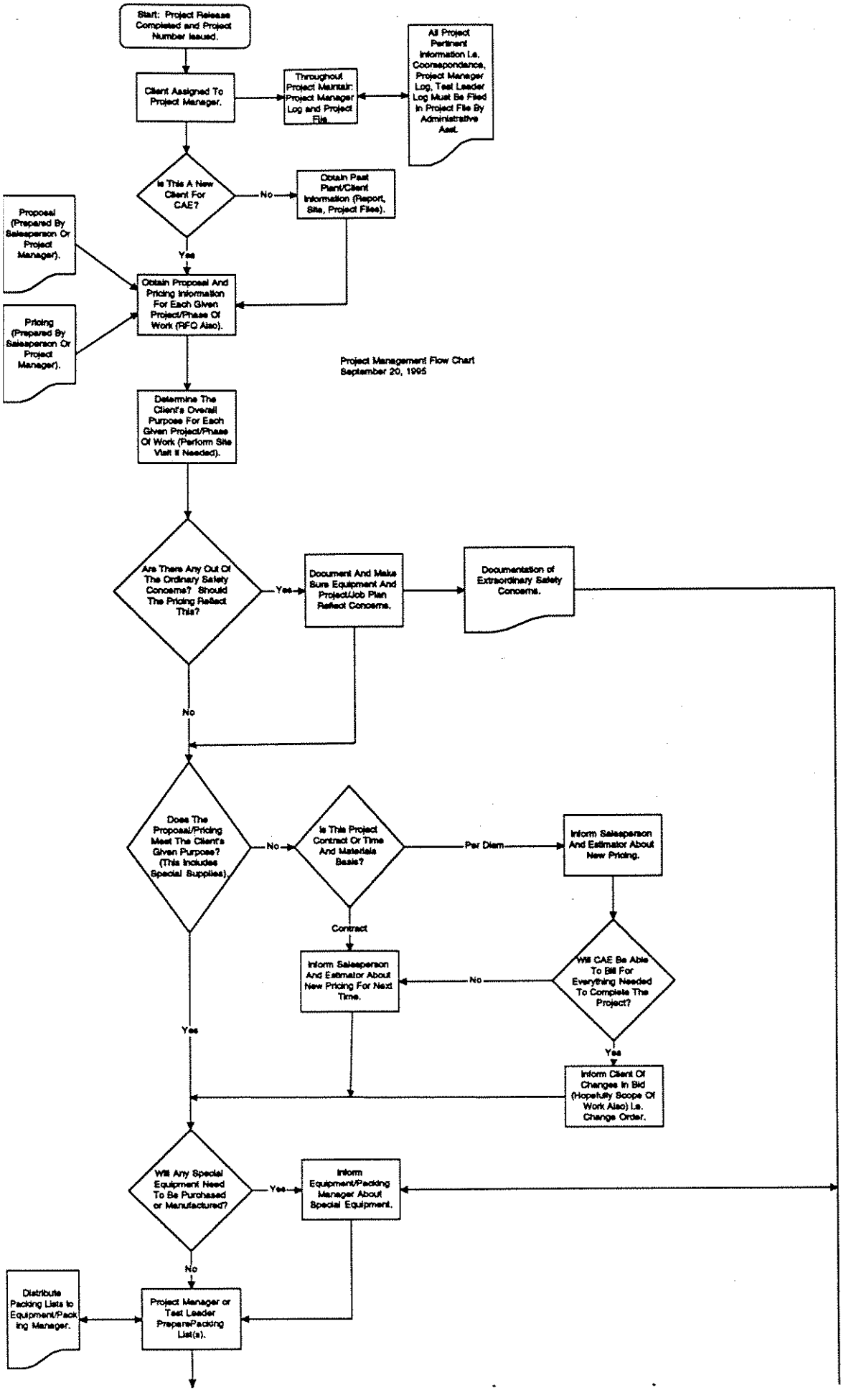
The field experience for certain individuals may differ. It is recommended that a Project Manager should participate in field projects at least twice a year, and preferably more.

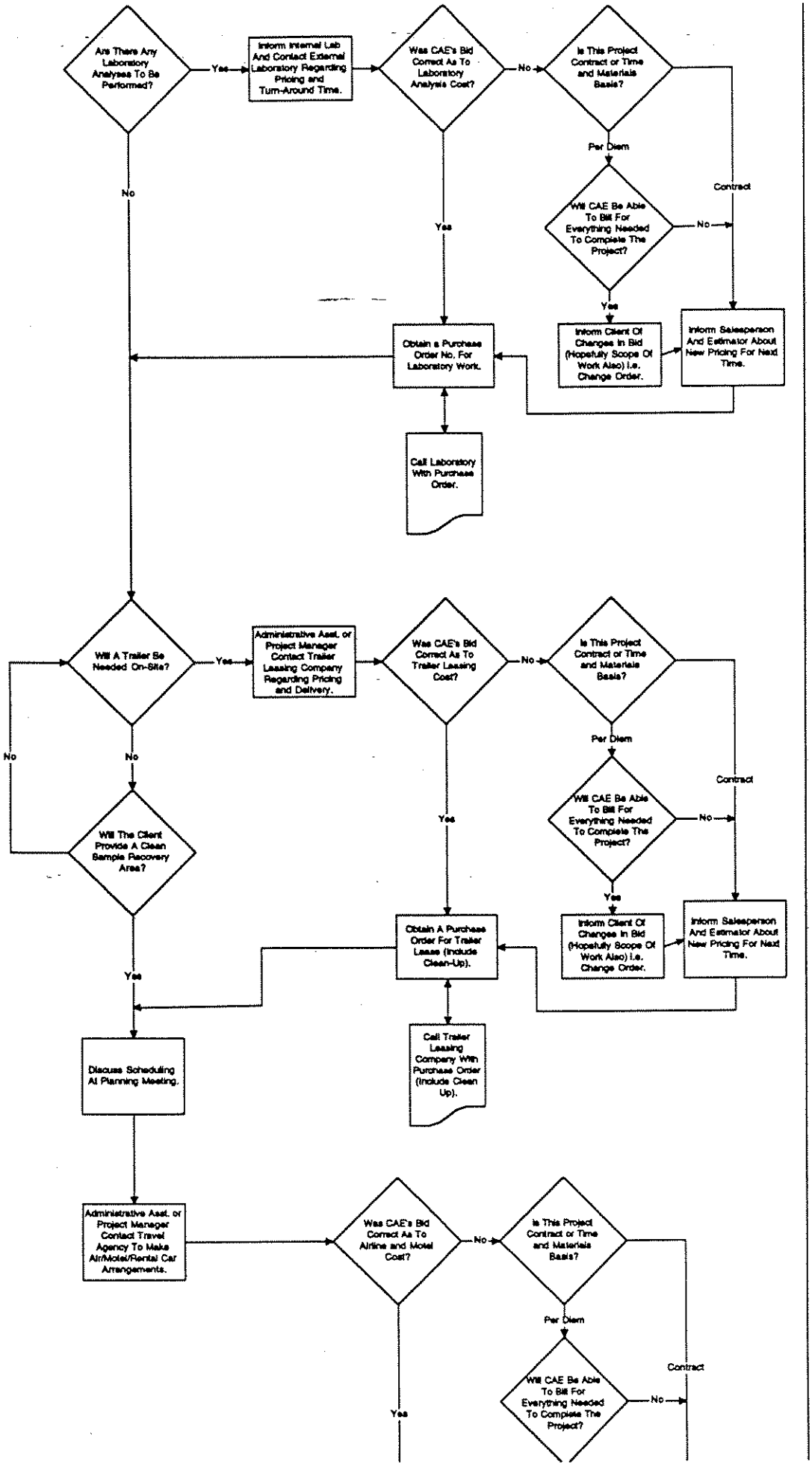
Life After Project Management
Some possibilities are:

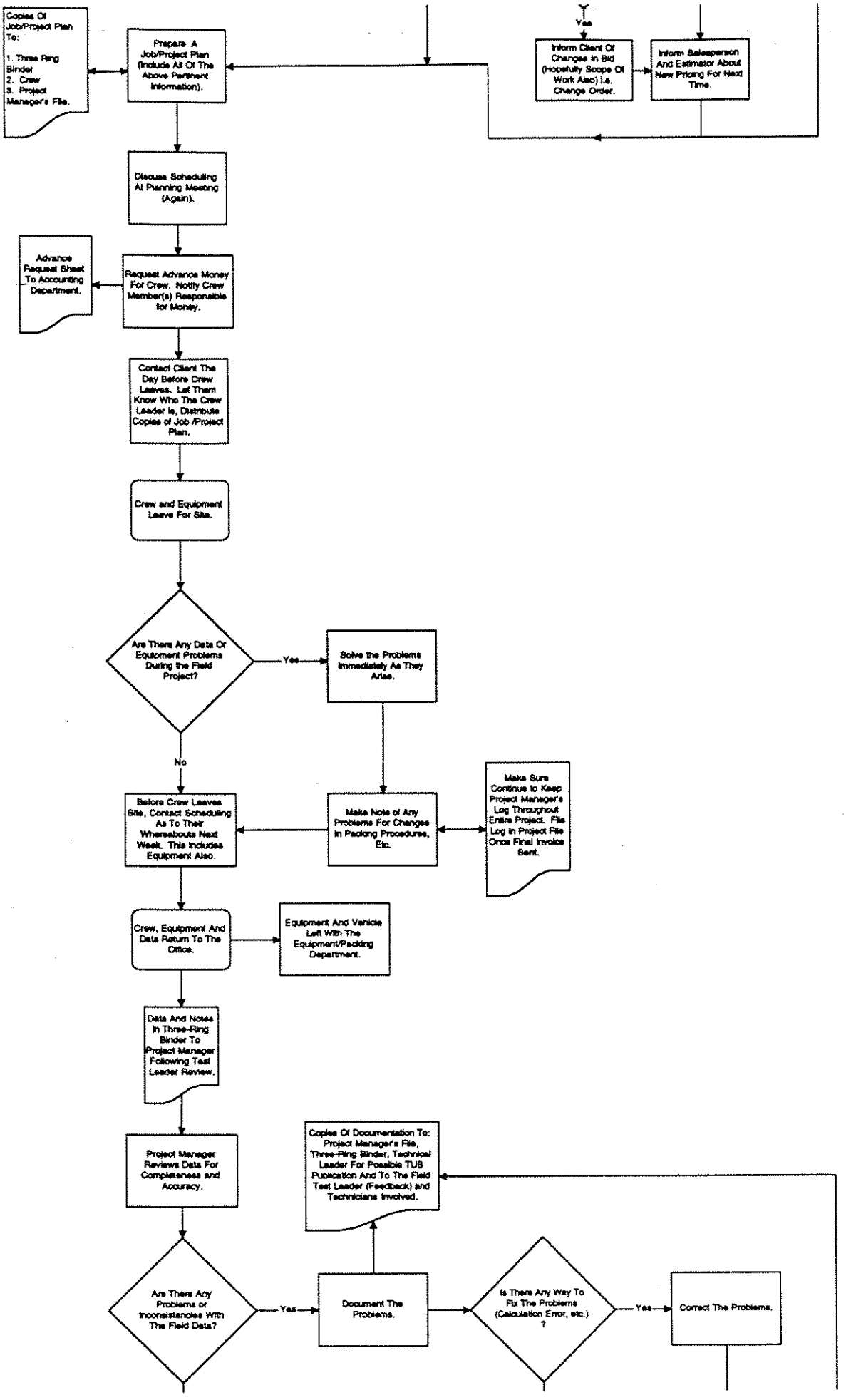
- Project management for large or specific jobs
- Develop continental US offices
- Develop international clients and offices
- Management

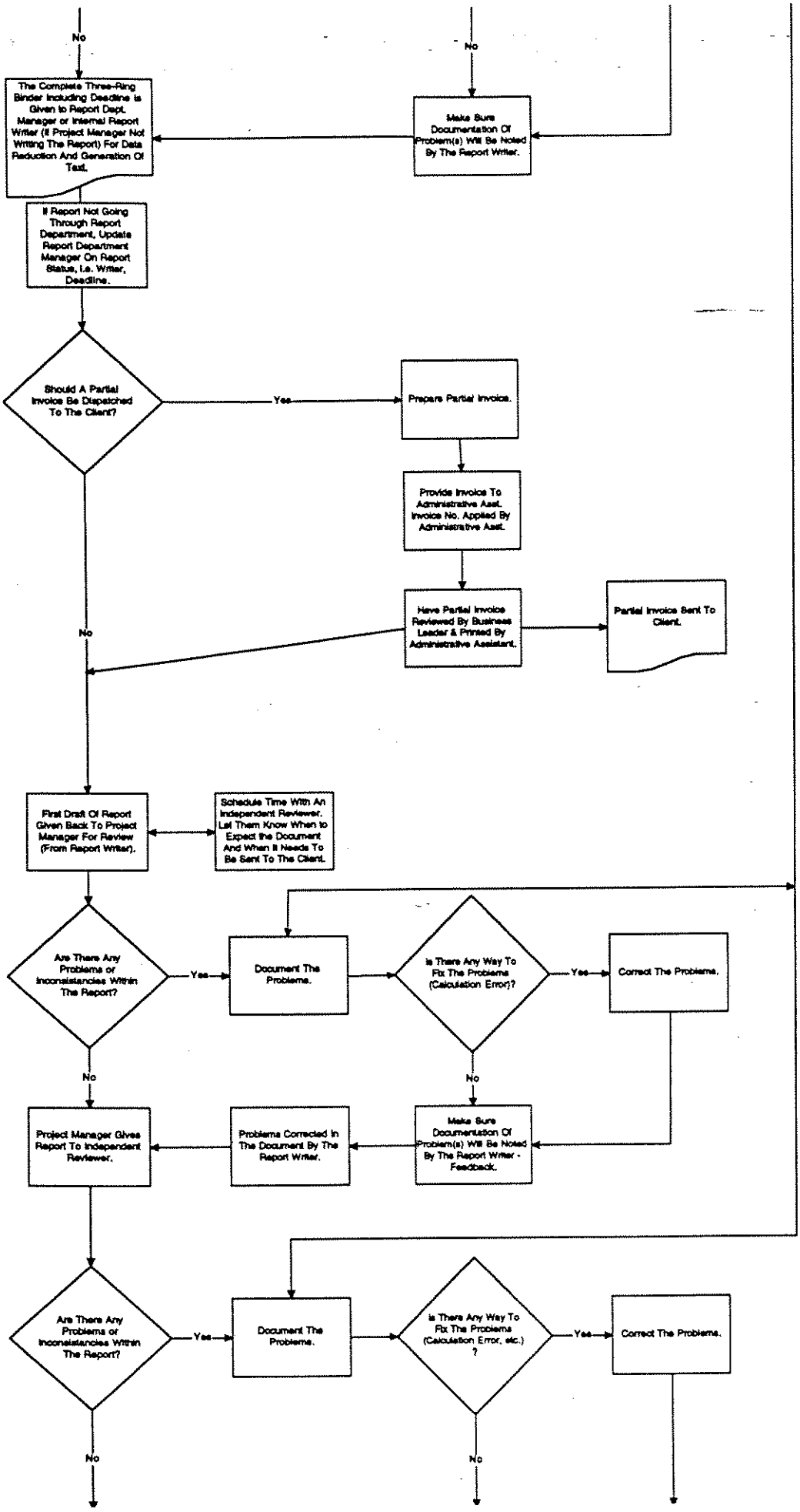
2 Appendices of Tools and Procedures

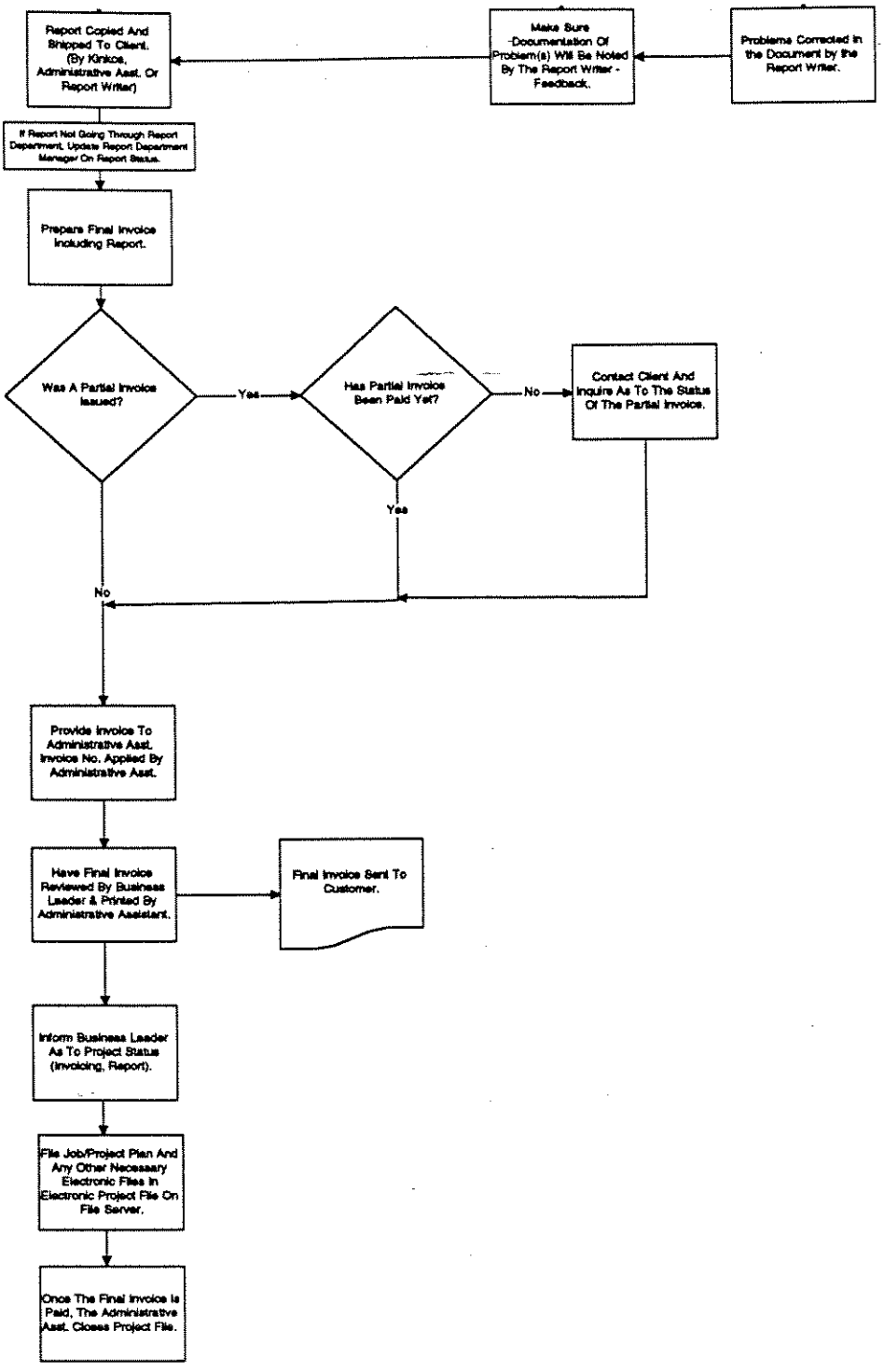
PROJECT MANAGEMENT PROCESS FLOW CHART


Start: Project Release Completed and Project Number Issued.
Client Assigned To Project Manager.
Throughout Project Maintain Project Manager Log and Project File.
All Project Pertinent Information I.e. Coorsepondance, Project Manager Log, Test Leader Log Must Be Filed In Project File By Administrative Asst.
Is This A New Client For CAE?
No
Obtain Past Plant/Client Information (Report, Site, Project Files).
Yes
Proposal (Prepared By Salesperson Or Project Manager).
Pricing (Prepared By Salesperson Or Project Manager).
Obtain Proposal And Pricing Information For Each Given Project/Phase Of Work (RFQ Also).
Project Management Flow Chart
September 20, 1995
Determine The Client's Overall Purpose For Each Given Project/Phase Of Work (Perform Site Visit If Needed).
Are There Any Out Of The Ordinary Safety Concerns? Should The Pricing Reflect This?
Yes
Document And Make Sure Equipment And Project/Job Plan Reflect Concerns.
Documentation of Extraordinary Safety Concerns.
No
Does The Proposal/Pricing Meet The Client's Given Purpose? (This Includes Special Supplies).
No
Is This Project Contract Or Time And Materials Basis?
Per Diem
Inform Salesperson And Estimator About New Pricing.
Contract
Inform Salesperson And Estimator About New Pricing For Next Time.
No
Will CAE Be Able To Bill For Everything Needed To Complete The Project?
Yes
Inform Client Of Changes In Bid (Hopefully Scope Of Work Also) I.e. Change Order.
Yes
Will Any Special Equipment Need To Be Purchased or Manufactured?
Yes
Inform Equipment/Packing Manager About Special Equipment.
No
Distribute Packing Lists to Equipment/Packing Manager.
Project Manager or Test Leader PreparePacking List(s).


Are There Any Laboratory Analyses To Be Performed?
Yes
Inform Internal Lab And Contact External Laboratory Regarding Pricing and Turn-Around Time.
Was CAE's Bid Correct As To Laboratory Analysis Cost?
No
Is This Project Contract or Time and Materials Basis?
Per Diem
Will CAE Be Able To Bill For Everything Needed To Complete The Project?
No
Contract
Yes
No
Yes
Inform Client Of Changes In Bid (Hopefully Scope Of Work Also) i.e. Change Order.
Inform Salesperson And Estimator About New Pricing For Next Time.
Obtain a Purchase Order No. For Laboratory Work.
Call Laboratory With Purchase Order.
Will A Trailer Be Needed On-Site?
Yes
Administrative Asst. or Project Manager Contact Trailer Leasing Company Regarding Pricing and Delivery.
Was CAE's Bid Correct As To Trailer Leasing Cost?
No
Is This Project Contract or Time and Materials Basis?
Per Diem
Will CAE Be Able To Bill For Everything Needed To Complete The Project?
No
Contract
Yes
No
No
Will The Client Provide A Clean Sample Recovery Area?
Yes
Inform Client Of Changes In Bid (Hopefully Scope Of Work Also) i.e. Change Order.
Inform Salesperson And Estimator About New Pricing For Next Time.
Obtain A Purchase Order For Trailer Lease (Include Clean-Up).
Call Trailer Leasing Company With Purchase Order (Include Clean Up).
Discuss Scheduling At Planning Meeting.
Administrative Asst. or Project Manager Contact Travel Agency To Make Air/Motel/Rental Car Arrangements.
Was CAE's Bid Correct As To Airline and Motel Cost?
No
Is This Project Contract or Time and Materials Basis?
Per Diem
Will CAE Be Able To Bill For Everything Needed To Complete The Project?
No
Contract
Yes


Copies Of Job/Project Plan To:
1. Three Ring Binder
2. Crew
3. Project Manager's File.
Prepare A Job/Project Plan (Include All Of The Above Pertinent Information).
Yes
Inform Client Of Changes In Bid (Hopefully Scope Of Work Also) i.e. Change Order.
Inform Salesperson And Estimator About New Pricing For Next Time.
Discuss Scheduling At Planning Meeting (Again).
Advance Request Sheet To Accounting Department.
Request Advance Money For Crew. Notify Crew Member(s) Responsible for Money.
Contact Client The Day Before Crew Leaves. Let Them Know Who The Crew Leader Is, Distribute Copies of Job /Project Plan.
Crew and Equipment Leave For Site.
Are There Any Data Or Equipment Problems During the Field Project?
Yes
Solve the Problems Immediately As They Arise.
No
Before Crew Leaves Site, Contact Scheduling As To Their Whereabouts Next Week. This Includes Equipment Also.
Make Note of Any Problems For Changes In Packing Procedures, Etc.
Make Sure Continue to Keep Project Manager's Log Throughout Entire Project. File Log In Project File Once Final Invoice Sent.
Crew, Equipment And Data Return To The Office.
Equipment And Vehicle Left With The Equipment/Packing Department.
Data And Notes In Three-Ring Binder To Project Manager Following Test Leader Review.
Project Manager Reviews Data For Completeness and Accuracy.
Copies Of Documentation To: Project Manager's File, Three-Ring Binder, Technical Leader For Possible TUB Publication And To The Field Test Leader (Feedback) and Technicians Involved.
Are There Any Problems or Inconsistancies With The Field Data?
Yes
Document The Problems.
Is There Any Way To Fix The Problems (Calculation Error, etc.) ?
Yes
Correct The Problems.


No
No
The Complete Three-Ring Binder Including Deadline is Given to Report Dept. Manager or Internal Report Writer (If Project Manager Not Writing The Report) For Data Reduction And Generation Of Text.
Make Sure Documentation Of Problem(s) Will Be Noted By The Report Writer.
If Report Not Going Through Report Department, Update Report Department Manager On Report Status, i.e. Writer, Deadline.
Should A Partial Invoice Be Dispatched To The Client?
Yes
Prepare Partial Invoice.
Provide Invoice To Administrative Asst. Invoice No. Applied By Administrative Asst.
Have Partial Invoice Reviewed By Business Leader & Printed By Administrative Assistant.
Partial Invoice Sent To Client.
No
First Draft Of Report Given Back To Project Manager For Review (From Report Writer).
Schedule Time With An Independent Reviewer. Let Them Know When to Expect the Document And When It Needs To Be Sent To The Client.
Are There Any Problems or Inconsistancies Within The Report?
Yes
Document The Problems.
Is There Any Way To Fix The Problems (Calculation Error)?
Yes
Correct The Problems.
No
No
Project Manager Gives Report To Independent Reviewer.
Problems Corrected In The Document By The Report Writer.
Make Sure Documentation Of Problem(s) Will Be Noted By The Report Writer - Feedback.
Are There Any Problems or Inconsistancies Within The Report?
Yes
Document The Problems.
Is There Any Way To Fix The Problems (Calculation Error, etc.) ?
Yes
Correct The Problems.
No
No


Report Copied And Shipped To Client. (By Kinkos, Administrative Asst. Or Report Writer)
Make Sure -Documentation Of Problem(s) Will Be Noted By The Report Writer - Feedback.
Problems Corrected In the Document by the Report Writer.
If Report Not Going Through Report Department, Update Report Department Manager On Report Status.
Prepare Final Invoice Including Report.
Was A Partial Invoice Issued?
Yes
Has Partial Invoice Been Paid Yet?
No
Contact Client And Inquire As To The Status Of The Partial Invoice.
Yes
No
Provide Invoice To Administrative Asst. Invoice No. Applied By Administrative Asst.
Have Final Invoice Reviewed By Business Leader & Printed By Administrative Assistant.
Final Invoice Sent To Customer.
Inform Business Leader As To Project Status (Invoicing, Report).
File Job/Project Plan And Any Other Necessary Electronic Files In Electronic Project File On File Server.
Once The Final Invoice Is Paid, The Administrative Asst. Closes Project File.

PROJECT MANAGEMENT CHECKLIST

Client Name	Project Manager Handbook	**Site Name**	
Corporate Address		**Site Address**	
Contact Name Title		**Site Contact 1 Title**	
Phone No.		**Phone No.**	
FAX No.		**FAX No.**	
Est. Start Date		**Site Contact 2**	
Est. End Date		**Phone No.**	
		FAX No.	
Project Manager		**Test Leader**	
Phone No.:		**Phone No.:**	
FAX No.		**FAX No.**	
Salesman		**Past Project Numbers**	

PROJECT OBJECTIVES

PROJECT SPECIAL CONSIDERATIONS AND ITEMS

PRE-FIELD WORK - include date completed and initials of person(s) responsible

	X	Date	Init
Client P.O.			
Project Release			
Client Intro Call/Letter			
Contract Revwd.			
Client Insurance Cert.			
Site Visit			
Site Intro Call/Letter			
Safety Considerations			
Protocol Submitted			
Rental Packing List			
Equipment Packing List			
Lab/Glass Packing List			
Shipping-Van/MSDS			

	X	Date	Init
Schedule Finalized			
Crew Requirements			
Hotel Reservations			
Airline Reservations			
Rental Cars			
Advances			
Trailer Arrangements			
Trailer Insurance Cert.			
Int. Lab Notified			
Ext. Lab Notified-PO			
Traps/Tanks Ordered-PO			
Supplies Ordered-PO			
Project Plan			
Field Data Binder			

POST FIELD WORK - include date completed and initials of person(s) responsible

	X	Date	Init
Field Data Reviewed			
Data Binder Turned In			
Samples Submitted			
Analysis Completed			
Plant notified Trailer Pick-up			
Trailer Picked Up			

	X	Date	Init
Inv. Data Collected			
Expenses			
Invoice Completed			
Follow Up Call/Letter			

15 Day Inv. Rcvd. Call			
30 Day Inv. Problem Call			
Invoice Paid			

Draft Report Rev.			
Draft Report Out			

Final Report Rev.			
Final Report Out			
Close Out Checklist			

PURCHASING AND INVOICING

Company Name	Description	P.O. Amount	P.O. Number	Invoice No/Date	Invoice Amount	Paid

PROJECT LOG

PROJECT MANAGER'S LOG

Project Manager Log Procedures

A Project Manager's log is as important as a Test Leader's log and should be kept for all projects. It should follow a project from the beginning to the end and should be complete with both internal and external communications documented, encompassing both a phone log and a project log.

A possible form for use in creating a Project Manager's log is included at the end of this section. The phone log should include the following items:

- Date (left hand margin)
- Name of person spoken to, company name and approximate time
- Indication of who initiated the call: CT = call to, CF = call from
- Brief synopsis of conversation: specifically call out key items, answers to specific questions, field delays, postponement of test program, problems in field, missing equipment
- List of points to cover in conversation or list of questions to ask
- Notes regarding extras for invoicing (flag somehow i.e. stars or post-it notes)
- Notes regarding collection calls: note date and time whenever left message and with whom

Possible log abbreviations:

- LM = left message
- VM = voice mail
- / = partly completed
- √ = fully completed
- * = urgent, calling for immediate action
- () = see, refer to, usually to another date in the log
- (May 1) = carried forward (in this case to May 1)
- M = delegated to (in this case M stands for someone with that first initial)

TELEPHONE CONVERSATION LOG SHEET

NAME _____ DATE _____ ROUTING _____

COMPANY _____ TIME _____

TELEPHONE NO. _____

FAX NO. _____

CALL DIRECTION

☐ Incoming ☐ Returning

☐ Outgoing ☐ Returning

NOTES

Clean Air Engineering

INITIALS _____

PROJECT FILES - WHAT GOES WHERE

Project Files Procedure

General
The project file is the center of administration duties. Documentation is necessary in the project file, for this is the place every legal, interoffice and pricing document is kept. Every scrap of paper needs to be considered valuable. There are times when we must return to the project file for back up in changes of scope of testing, conversations with the client, or costs of charges made to clients when invoicing.

Description
A project file is a gray, 6-part folder, sectioned off. Each section contains specific information (see Format below) for that project. The Administrative Assistant files the appropriate documentation. The Project Manager provides much of this documentation to the Administrative Assistant.

Format
Section 1 - "CORRESPONDENCE"
Letters addressed to CAE from client, regulatory agency, or third party
Letters CAE is copied to
Letters to client, regulators, etc.

Section 2 - "INTEROFFICE CORRESPONDENCE"
Phone conversations
Copy of field notes
Any notes regarding project
Copy of job/project plan (sometimes filed after field work is complete)

Section 3 - "PROPOSAL"
Proposals and any revisions
Proposal pricing (often referred to as estimate)

Section 4 - "ADMINISTRATION"
Project release
Field time sheets
Client PO and/or contract and any revisions
Any vendor contract including rental contracts
Certificate of Insurance
Chains of Custody

Section 5 - "EXPENSES"
Incoming charges to the project including:
Expense reports
Air freight bills, Fed Ex.
Interdepartmental invoices
Laboratory services
Miscellaneous accounts payable bills
Rental contracts
Kinkos receipts from copying

Project Files Procedure (Continued)

Section 6 - "INVOICES"
Invoices with back up documentation
Credits (if any)
Copy of client payment (check)

note: not every item is in the list. Use common sense when filing, and this list may be updated when needed.

Creating a Project File
A project file is opened once the Administrative Assistant receives a project release form. It is the responsibility of the Sales Person to fill out this form and turn it into the accounting department located in the main office for assignment of a project number.

The accounting department assigns a number (consisting of the two digit department number, followed by a dash and then a four digit number, i.e., 68-6200) to the project release form which is then forwarded to the Administrative Assistant of the operating department.

After the project file is created, the Administrative Assistant obtains the original proposal from the proposal department. This document consists of all copies of the proposal including any addendums, costing sheets, RFQ (request for quote), and Sales Person's notes.

Ideally, at this stage of the process, we should have a signed purchase order from the customer. Project release forms are not assigned a project number until we have a purchase order number. The Sales Person is responsible for obtaining a purchase order and turning it over for filing into the project file. The purchase order needs to be filed into the "ADMINISTRATION" section of the project folder. Purchase orders are also necessary for invoicing because they contain vital customer information. Sometimes a contract is also generated with the purchase order. The contract and any negotiated conditions should be put in the "ADMINISTRATION" section.

Project File Maintenance
Completed forms, notes, and payables posted to projects are received on a continuous basis while the file is considered open. In this stage of project file maintenance, administrative personnel act as a liaison between technical, management, and accounting personnel, always keeping in mind that documentation is vital to the project file.

When testing personnel return to the office, they supply a variety of documentation forwarded to the project file. Some of the documentation received from testing personnel are:

Field Time Sheets
Air Bills
Chains of Custody
Test Leader's Field Notes
Expense Reports

Project Files Procedure (Continued)

When field time sheets are received the original copy is filed under "ADMINISTRATION" in the project file.

From time to time air bills are received for samples or equipment shipped to or from the project site. Copies are made of these for later reference against the actual accounts payable bill, and filed into the "EXPENSES" section of the project file. Another reason for keeping these copies is to check for proof of delivery when we think something may have been lost in shipment. The original air bills are given to the accounting department in the main office to attach to the accounts payable bill.

Also filed in the "EXPENSES" section of the project file are copies of *approved* expense reports. The definition of *approved* means that the report has been checked for accuracy and completeness and has been signed by the Project Manager.

Chains of custody received from the field are filed in "ADMINISTRATION." Field Notes are filed in "INTEROFFICE CORRESPONDENCE."

All Accounts Payable bills posted for a project are copied for the project file and filed in "EXPENSES" after approval by the Project Manager. These are also important when invoicing a customer on a per diem rate, or for charging extras on a project. Examples of accounts payable bills are: rented equipment, on site trailer rentals, Federal Express or other shipping bills, laboratory analysis, or any other items purchased to complete a project. Also included in the "EXPENSES" section are copies of the internal rental contract and the CAE Express order confirmation.

Correspondence and Interoffice-Correspondence
Any notes, phone conversations and correspondence either incoming or outgoing need to be in the project file. These too, are necessary pieces of documentation, a project file without them can mean the loss of money to CAE. Examples of such documents are letters addressed to CAE from the client, a regulatory agency or a third party, letters CAE is copied to and letters to regulators and the client. Interoffice correspondence can include phone conversations, a copy of the field notes and any other notes regarding the project.

Invoices
This is the section to file all invoices to clients and their related documentation. The blue copy of the invoice is filed here as well as detail sheets (an attachment documenting specific charges). Also included in this section are the back-up documentation and any notes you may have on the invoice amounts.

Client Payment
When a customer makes his payment to the CAE main office, the accounting department will forward a copy of the check. This copy is filed in the "INVOICES" section for easy referral to the invoice.

Project Files Procedure (Continued)

Closing a Project File

When all documentation is received and filed in the project file, and we have received payment on all invoices, then the file is considered closed. Closed files are filed in an accessible drawer other than the open files drawer. The Project Manager should go through the closed file and discard any duplicated items such as multiple copies of the same proposal. Sometimes closed files are referenced even beyond a year after testing. When a project file is approximately two years beyond closure, it is time to archive it.

JOB/PROJECT PLAN

PROJECT PLAN

Comp. Name	Project Manager Handbook	Site Name	
Corporate Address		Site Address	
Contact Name		Site Contact 1	
Phone No.		Phone No.	
FAX No.		FAX No.	
Est Start Date		Site Contact 2	
Est End Date		Phone No.	
		FAX No.	

PROJECT MANAGEMENT AND MANPOWER

CAE Project Manager		Field Test Leader	

Crew Members	

ACCOMMODATIONS

Hotel		Telephone	
Address		Confirmation No/ Rate	

DIRECTIONS TO HOTEL

TRANSPORTATION DETAILS

Rental Car Agency			
Telephone		Confirmation No/ Rate	

Airline		Flight No		Telephone			
Depart		Time		Arrive		Time	

DIRECTIONS TO SITE

PROJECT OBJECTIVES

AIR TESTING PROGRAM SUMMARY

Source Name (Permit I.D.)	Pollutants	Test Methods	No. Runs

WORK SCHEDULE

<<The first table is an embedded Excel spreadsheet (double click on it to get to it), the second is a normal Word table. A contents of Word table (the one from the Proposal) can be copied into the Excel spreadsheet if that suits your needs. Delete the table that you do not use and this message.>>

Day	Activity/ Parameter	Method	Test Location	No. Runs	Sample Time	Sample Volume

ANALYTICAL LABORATORY INFORMATION

Analysis	No. of Samples	No. of Blanks	Name/Address of Lab	P.O. Number	Date Expected

SAFETY CONCERNS

SPECIAL REQUIREMENTS

PROJECT SUMMARY

The project summary is a document created by the Project Manager. Important items to include are:

•Report due date, number of copies of report and whether or not a draft report is required

•CAE Project numbers of previous testing at the same plant

•day-by-day synopsis of testing; indicating any changes to report text and/or any problems encountered

•for all projects, include (time) table of testing to show what testing happened concurrently - especially, when schedules changed and no longer are correct, as stated, in the project plan

•units results should be reported in

•permit limits, if available or applicable

•table of analyses being performed; who is performing it and when results can be expected

•indicate that the report text has been written and that it can be found in the appropriate project file on the file server in a folder called pre-report. This pre-report can be deleted when the Report Writer is finished with the final report. Reports should not be kept on personal hard drives or drop folders at this point, they should be accessed through the file server.

FIELD DATA BINDERS

Field Data Binder Procedures (Continued)

3) Project Manager's Responsibility:
After the Test Leader has turned in the data to the Project Manager, the Project Manager will follow the procedure outlined below before turning the field data binder over to the Report Writer

- Make sure everything is there:
  - Orsat sheets
  - All field data sheets (FDS)
  - Parameter sheets (printouts)
  - Raw moisture data sheets
  - Nozzle calibration sheet
  - Chains of custody
  - Project log/notes
- Organize field data by method then location.
- Determine which meter boxes and probes were used during the entire test program.
- Determine whether or not post test critical orifice calibrations were performed on the meter boxes in the field. If so, be sure that the data has been entered into the spreadsheet and the final calibration data printed for submittal to the report department. If not, make sure the Test Leader or the Meter Calibration Technician is aware that the meter must be post tested.
- Compile calibration data for all meter boxes, probes, pitot tubes and thermocouples used for the test program.
- For RA testing make sure the start and stop times of all the runs are written somewhere visible. Make sure the Reference Method Sampling System and Facility CEM Description forms are completed. If not, be sure to ask the Test Leader to provide you with this.
- Check the computer disk for all the pertinent files, such as, the parameter sheets and all calibration and test run files.
- Make sure report text contains the following items correctly: cross-section with location name, north or up direction, gas flow into or out of page, dimensions, points per port, measurements of testing points and diameters upstream and downstream from nearest disturbance.
- Review report project overview and make any necessary corrections (styles are suggested in Technical Guidance Manual).
- Complete a project manager summary to include in the field data binder: Include the items listed on the project manager summary page which is between the project plan and the report text on the electronic file.
- Once all of the above have been completed then the information is ready to be turned over to the Report Writer.

Field Data Binder Organization (Continued)

RAW DATA (FIELD)

The raw data sheets created in the field should be included here. They should be organized in the following order in the field data binder ant the report:

- All Orsat sheets should be included first. These should be in order of the locations being tested (i.e. Unit 1,2,3)
- All field data sheets should be included next. These should be in order of the method (i.e. Method 4, 5, 23, 26, 29, BIF 0010, CARB 5). Note that these are in order of EPA Part 60 then any of the odd methods.
- The impinger weight sheet for the three runs it includes should be located directly after the third run's data sheet.
- If there is more than one unit or location that is being tested, organize the data by unit first, then by location, then by the above format.

CALIBRATION DATA

The calibration data sheets used in the field should be included here. They should be organized in the following order in the field data binder and the report:

- The nozzle calibration sheets
- The pitot calibration sheets
- By meter box number
    - The meter box full test calibration sheet
    - The meter box post test calibration sheet
    - The meter box critical orifice sheet
    - The meter box pyrometer calibration sheet
- The CAE RM CEM description sheet
- The CAE Client CEM description sheet
- The calibration gas certification sheets organized by method first then by gas value
- Any other miscellaneous calibration sheets including asset numbers (i.e. scale, lab equipment, etc.)

CAE CEM DATA

The printed hard copies of CAE's CEM data should be included here. It should be organized in the following order:

- Sheet showing start and stop times
- Calibration error
- Calibration 00
- Run 1
- Calibration 01

This order should continue through the end of the testing. Any additional calibrations should be inserted chronologically where it happened. When testing multiple units, the data should be organized as stated above and then by the unit tested.

Field Data Binder Organization (Continued)

CLIENT CEM DATA

The client's CEM data should follow the same organization as CAE's data. Calibrations and other information may not be applicable here.

CHAINS OF CUSTODY

The chains of custody created in the field should be included here. They should be organized around the lab to which they were sent. All CAE labs should be listed first and then followed alphabetically by outside labs.

OPERATING DATA

Any operating data generated in the field should be included here. It should be organized by the unit tested (i.e. Unit 1, Unit 2, etc.)

JOB LOG

Copies of the job log generated in the field should be placed here.

LAB DATA

Any lab data generated in the field should be placed here.

APPLICABLE CERTIFICATES

Any applicable certificates for a project should be placed here (i.e. VE certificates, 40 hr Haz waste certificates, respirator, etc.)

PROJECT SUMMARY

The Project Manager Summary should go here. This includes notes on when the lab analysis will be completed, what units the report should be in, rush reports, etc.

COMPUTER DISKS

The computer disks that were included with the project plan, with corrections, should be placed here. Any CEM data on disk should be included here as well as any other disks created in the field.

REPORT DATA REVIEW

Project Manager's Report Review Procedures (Continued)

Monitor Data Section - RA reports

•check for Cal Error printouts
•check that the monitor data run numbers and times match very closely with CAE run numbers and times
•if monitor data was entered by CAE in order to determine the average, then be sure to double check the data entry

4. After all of the above are reviewed, the body of the report is next.

•go page by page
•check the letter of transmittal for correct number of copies and correct contact name
•check title page (type of report, correct spelling, site location, date)
•check header on top of each page for correct spelling and client reference number
•check table of contents with rest of report for correct headings and page numbers

Project Overview

•check list of pollutants
•check names of coordinators (spelling)
•check all times and numbers on summary table with results tables
•check that comments for anything out of the ordinary are made

Results

•check all times and numbers on tables with parameter sheets and tables
•make sure summary tables include process conditions and rates when applicable.
•for RA reports check the averages and times in tables with the field data printout section
•check any calculations which appear on tables but not on the parameter sheet
•check for any pertinent footnotes; missing runs, etc.
•check consistency of significant figures

Description of Installation

•double check the schematic for correctness

Methodology

•check that methods for all pollutants are present
•check points, ports, minutes, etc. table against FDS for correctness
•double check site sampling schematics
•check procedure text against what was actually done (this may differ from the actual regulations)
•double check sampling train schematics
•check impinger contents in drawing and written text
•check CEM methods for the correct type of monitor
•check semivolatiles procedures for correct type of analysis (Triangle's Case Narrative explains procedures used)

Project Manager's Report Review Procedures (Continued)

5. Once you are satisfied that you have thoroughly reviewed the report, return it to the Report Writer for corrections. If the amount or nature of mistakes warrant, you should tell the Report Writer that you would like to see it again, along with pages of your corrections. When you are satisfied that everything has been corrected, the next step is to have an Independent Reviewer review the report before it is sent to the client.

DATA ENTRY IN THE FIELD

Data Entry in the Field Procedure

Small Project, i.e. 3 Runs Method 5

Data entry can be completed in office the day after testing.

Medium Project, i.e. 1 week of testing

Data entry not required in field, but can be done by Test Leader if time permits

Large Project, i.e. 2-3 weeks of testing

Data entry should be started in field. This depends on manpower and testing schedule. A large project should have a person billed solely for data entry purposes' otherwise, during delays or non-concurrent testing, data entry could be started.

Rush Project (Medium or Large)

The project needs to be planned and billed with a data entry field person. Modem data.

Project Manager's Responsibilities

Judging the size of the project and required turnaround time. Scheduling the project to sufficiently cover the data entry.

Supplying the most current standard spreadsheets for applicable methods on disk in the Field Data Binder for the Test Leader.

PROCESS DATA COLLECTION

Process Data Collection Guidelines

Purpose: It is the purpose of this document to outline the needs for process data. This document will guide when data should be collected, and when it must be collected. It will also guide in what kind of process data should be collected. This document is only a guideline since, like snowflakes and tiki-gods, no two are ever the same.

For compliance testing, the following process data **must** be collected.

- **Production Rate:** For a boiler, this would be load; for a printing press, it would be feed rate (pamphlets per hour, or gallons of ink per hour are common). Whatever the process is producing, or using up, or both.

- **Control Device Data:** Data must be collected showing which, if any, control devices were in operation. Pressure drops are common, as well as operating temperatures of baghouses, scrubbers and thermal oxidizers, and precipitator voltage.

In addition to these mandatory bits of data, it is always a good idea to collect any operating conditions that the plant may vary frequently. Examples of these could be:

- Excess O_2 for a boiler
- Location of coal source
- Type of ink in a printing press
- Fire control systems on or off in an experimental burn room

When the testing is not for compliance, this data is not needed, but it is best to have in the report. Even if this client does not think it is necessary, someone in the future may be using the report and wish to have it.

Sometimes the client can not give any process data to us due to proprietary reasons. In this case we must advise the client that the state agency will require it for compliance testing. If the testing is not for compliance, the client should be advised to collect the data, and keep it for his own use.

EXAMPLE INTRODUCTION LETTER AND PROJECT SUMMARY

date

contact name
company name
company street address
city, state zip

RE: Purchase Order Number *PO Number*

Dear Mr./Mrs. Contact Name:

Thank you for choosing CAE for your source testing needs at the *facility name* facility. CAE realizes that your business is important to us, and our aim is to provide you with the highest possible level of service and total customer satisfaction.

I will be responsible for the field management of this project. I will call you in the next few days in order to begin coordination of the project. If you should have any questions in the mean time, please feel free to call me at (XXX) 991-6200 ext. xxxx.

Once again, thank you for this opportunity to do business with *company name*. We look forward to doing this and future projects with you.

Sincerely,

CLEAN AIR ENGINEERING

Project Manager Name
Project Manager

note: include business card

Philip Morris, USA
CAE Project No: 7485
Project Manager's Summary
6/30/95

READ THIS FIRST!

On June 21 through 23, 1995, testing was performed at the Philip Morris, USA Stockton Street Plant in Richmond, Virginia. The objective of the project was to measure THC and methane at two conditions at four locations - showing removal efficiencies at the incinerator. Methane was measured using JUM 109As and Method 18. We will present both data.

Report Issuing Requirements
Draft
The draft must be issued by **July 14** and must be submitted as follows:

Mr. Lane Smith - one copy of draft
ERM, Inc.
Suite 300
812 Moorefield Park Drive
Richmond, VA 23236
(804) 330-8990

Mr. George Banks - two copies of draft
Philip Morris, USA
Gate S, Door 100
2000 Bells Rd.
Richmond, VA 23234
(804) 274-5258

Pete Kaufmann, Independent Reviewer should review the draft before its issuance if possible.

Five final three ring binder copies to:

Mr. Lane Smith
ERM, Inc.
Suite 300
812 Moorefield Park Drive
Richmond, VA 23236
(804) 330-8990

General Information
The **client purchase order number is B007876.**

Report Title: Report on Total Hydrocarbon and Methane Emissions at the Stockton Street Plant

The project overview will be similar to that in previous Philip Morris reports. Previous report: 6786. The pre-report has the correct description of installation, schematic and cross-sections of locations and location names to use in the report.

The work schedule did change from that shown in the project plan. Please see the handwritten table with the **new work schedule and methods in the front of the binder.**

SAFETY CONCERNS

Safety Concerns

The Project Manager must gather certain information that will help them to insure that the project can be completed safely and in accordance with the clients policies. This information will be used to determine if special safety hazards are a concern, how to control those hazards, additional equipment needs, additional manpower scheduling needs and additional cost.

The following is a list of questions the Project Manager might ask the client contact. Not all of the questions will be relevant to each project.

Hazard Recognition

1. Characterize the flue gas parameters.

- What is the chemical composition of the gas stream? Are there any toxic concentrations? (See NIOSH pocket guide to Chemical Hazards or call the Safety Department to determine permissible exposure limits)

- Is the gas stream temperature over 400°F? (Special testing and safety equipment might be necessary)

- Is there positive pressure? (Respiratory, eye and skin protection might be required. Also, gate valves or other equipment modifications might be necessary.)

2. Characterize the test locations.

- What is the means of access? (Elevator, stairs or ladder?)

- Is it close to any other hazards? (Wind direction could cause the crew to have to climb through or work in the plume of another stack. Also, accidental releases of toxic gases in nearby processes might be a concern.)

- Is there excessive heat? (If so, special considerations to combat heat stress must be taken. These could include additional personal, night work, or special equipment.)

- Will shelters be available for inclement weather conditions like extremely cold temperatures?

- Is the test location indoors where explosive or flammable atmospheres might exist?

- Will fall protection equipment be needed?

- Will ambient air monitors be necessary because of a potential high concentration of toxic gases?

- What is the means egress to the test locations?

- Is there a well ventilated lab area?

Safety Concerns (Continued)

Client's Policies

- Did we get a copy of the client's safety rules? If we did, put a copy in the job/project plan.
- Is there a plant safety orientation? If there is, it could effect scheduling and pricing.
- Is there a plant facial hair safety rule?
- Is there a rule that prohibits us from using our FM radios?

Avoid Delays

- Is there sufficient electrical current at each test location?
- Have the ports been opened and cleaned?

Emergency Response

- In case of an emergency, where do we go or who do we call?

The Project Managers Guide to the Projects File

Doc vs 1.0

Introduction

Welcome to the world of structured data. Welcome to a team of people who are ushering CAE into a world where information can be entered and recalled at a later date. A place where you can perform searches and sorts. Welcome to information Nirvana... (well maybe not Nirvana, but it's better than what we had before).

This guide will give you general direction for entering information regarding your projects. The information you enter will include:

- the site where testing is taking place
- methods being tested
- report information
- invoices sent
- payments received
- closing the project when all is complete

Proposal and client information will be entered when the project is initially entered. Information concerning scheduling will be maintained by your business leader or scheduling person. The creation of the initial records in described below.

How the Initial Records are Created

The projects file of the G.A.S. database contains records for every source project CAE is involved in. There are three types of project numbers that you will see in the database. They include:

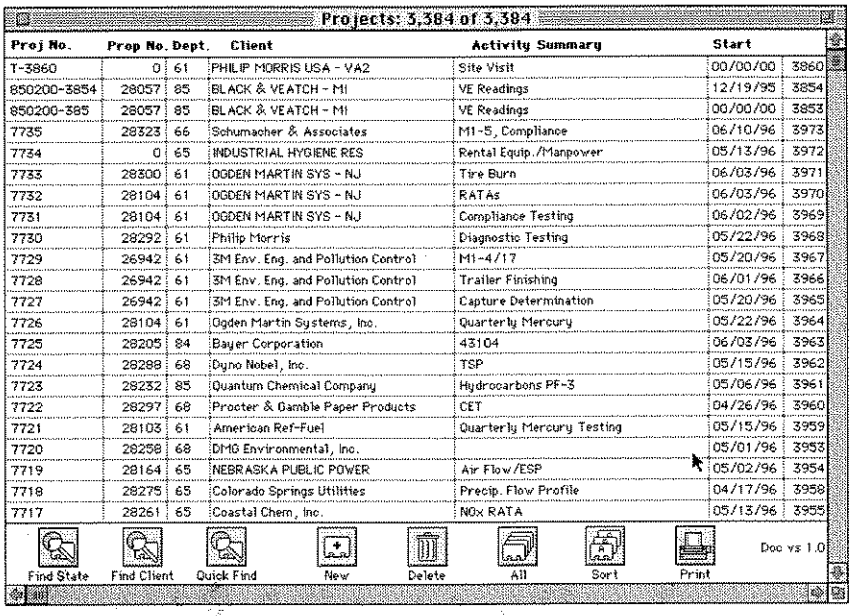
- *Traditional 4 digit numbers* - These normal source testing projects that have been issued a project release. When a project release is issued from accounting, it is routed to department 98 where it is entered into the database. This department is the only group with access for adding or deleting project records which use these job numbers. If you are working on a project that has not been added to the database, contact department 98.

- *Ten digit numbers* - These represent projects which are too small to be given a project number. These project records are entered by business leaders.

- *Temporary numbers* - These numbers are issued to proposed projects for the purpose of scheduling manpower. If the proposed project becomes a reality the schedule can be transferred to the new record that will be generated when the project release is issued.

Working with Projects (and Reports[1])

Here are step by step instructions for working with information in a project. To begin, logon to the G.A.S. database and press the projects button in the file palette. (For general instruction on logging on and navigating the G.A.S. database see the G.A.S. Guide.) You will see the following dialogue box showing the output layout:



Proj No.	Prop No.	Dept.	Client	Activity Summary	Start	
T-3860	0	61	PHILIP MORRIS USA - VA2	Site Visit	00/00/00	3860
850200-3854	28057	85	BLACK & VEATCH - MI	VE Readings	12/19/95	3854
850200-385	28057	85	BLACK & VEATCH - MI	VE Readings	00/00/00	3853
7735	28323	66	Schumacher & Associates	MI-5, Compliance	06/10/96	3973
7734	0	65	INDUSTRIAL HYGIENE RES	Rental Equip./Manpower	05/13/96	3972
7733	28300	61	OGDEN MARTIN SYS - NJ	Tire Burn	06/03/96	3971
7732	28104	61	OGDEN MARTIN SYS - NJ	RATAs	06/03/96	3970
7731	28104	61	OGDEN MARTIN SYS - NJ	Compliance Testing	06/02/96	3969
7730	28292	61	Philip Morris	Diagnostic Testing	05/22/96	3968
7729	26942	61	3M Env. Eng. and Pollution Control	MI-4/17	05/20/96	3967
7728	26942	61	3M Env. Eng. and Pollution Control	Trailer Finishing	06/01/96	3966
7727	26942	61	3M Env. Eng. and Pollution Control	Capture Determination	05/20/96	3965
7726	28104	61	Ogden Martin Systems, Inc.	Quarterly Mercury	05/22/96	3964
7725	28205	84	Bayer Corporation	43104	06/03/96	3963
7724	28288	68	Dyno Nobel, Inc.	TSP	05/15/96	3962
7723	28232	85	Quantum Chemical Company	Hydrocarbons PF-3	05/06/96	3961
7722	28297	68	Procter & Gamble Paper Products	CET	04/26/96	3960
7721	28103	61	American Ref-Fuel	Quarterly Mercury Testing	05/15/96	3959
7720	28258	68	DMG Environmental, Inc.		05/01/96	3953
7719	28164	65	NEBRASKA PUBLIC POWER	Air Flow/ESP	05/02/96	3954
7718	28275	65	Colorado Springs Utilities	Precip. Flow Profile	04/17/96	3958
7717	28261	65	Coastal Chem, Inc.	NOx RATA	05/13/96	3955

Figure 1

[1] Reports can only be entered through the projects file. This prevents a report from being written that does not have a corresponding project.

Find the Project you are working on and double click on it. The following dialogue box will appear:

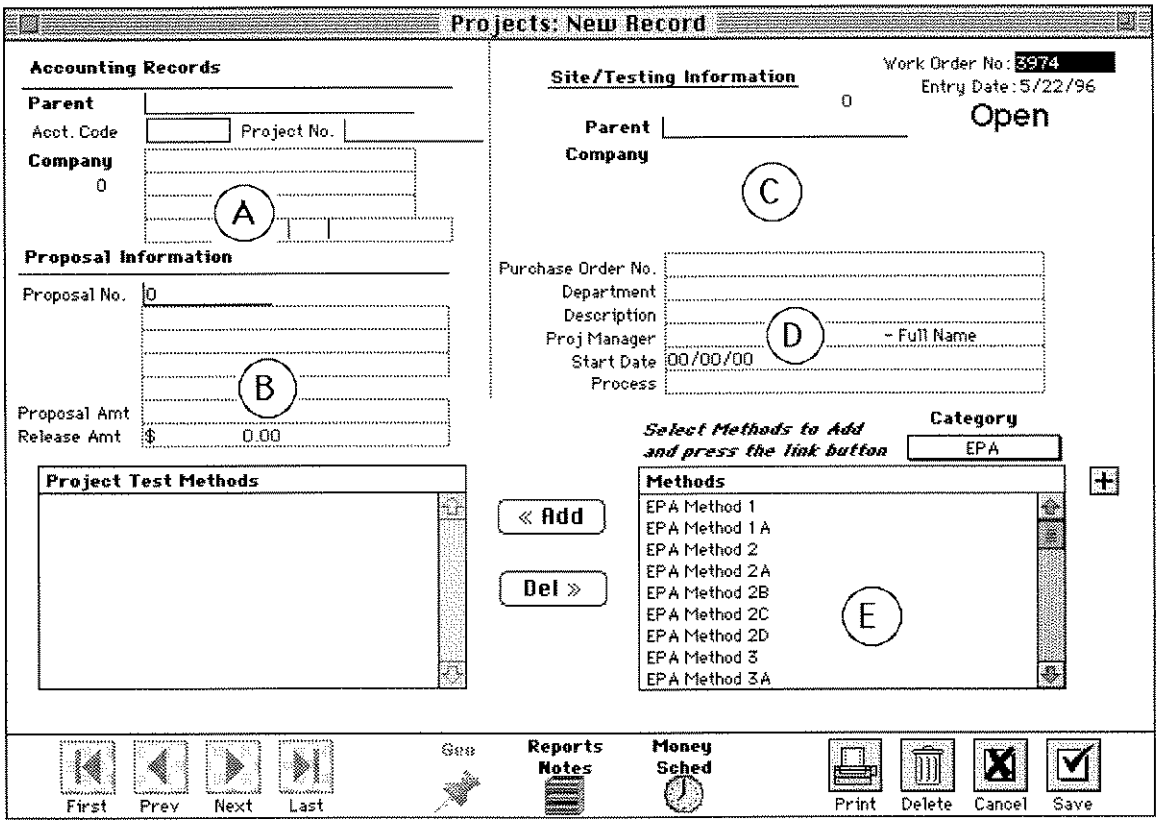


Figure 2

Each project record has three pages associated with it. They are represented by the buttons at the bottom of the page (see Figure 2) and include:

- General Information 

- Report Information 

- Money and Scheduling 

Each page will be explained in detail.

Gen

General Information

The first page you see contains general information about the project.

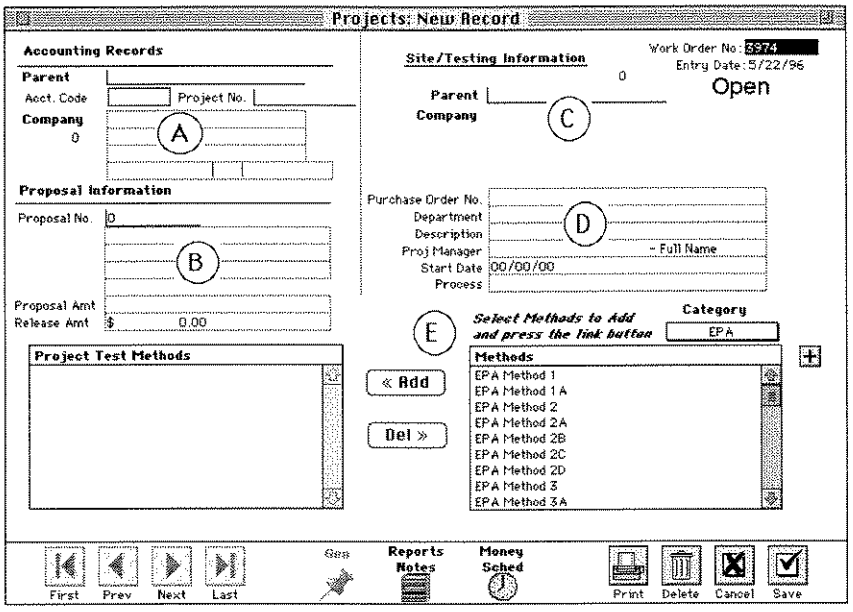


Figure 3

Part A & B General Client and Proposal Information

This information is entered when the record is created. Review it to make sure it is correct (the information is taken from the project release). These areas are locked and can only be corrected by the marketing department, who does the initial project entry. If you find an error contact that department (e.g. Donna Renner).

Part C - Site Information

Eventually this information will be taken from the project release, but currently that is not set up. When entering the site information, enter only the first few letter of the parent[2] company you are looking for. For example, OMS. The following dialog will appear:

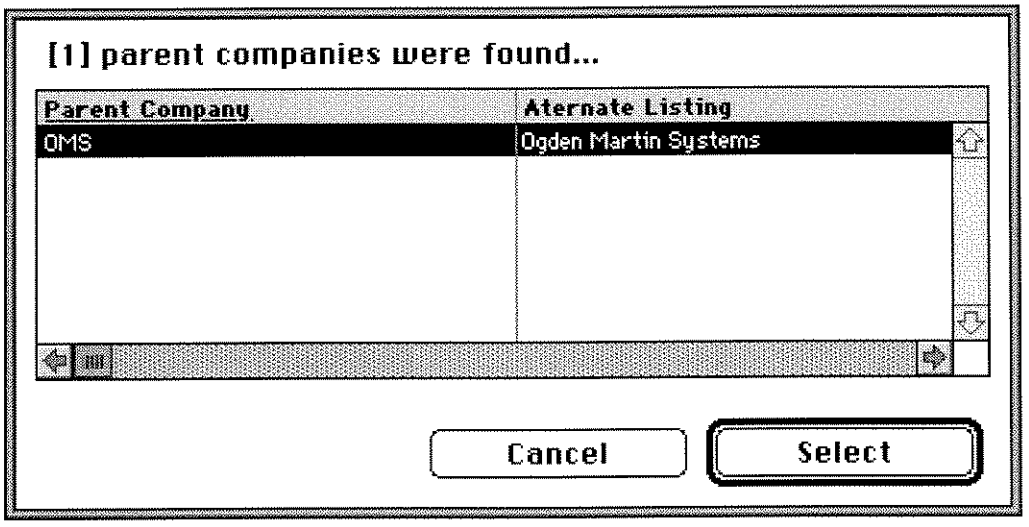


Figure 4

Because a company can be entered more than one way, a cross referencing system has been built into the system. Notice in Figure 4, and alternate listing is shown for the entry 'OMS.' When this happens, press cancel, and enter the first few letters of the alternate name. If type 'Ogd' you would see the following:

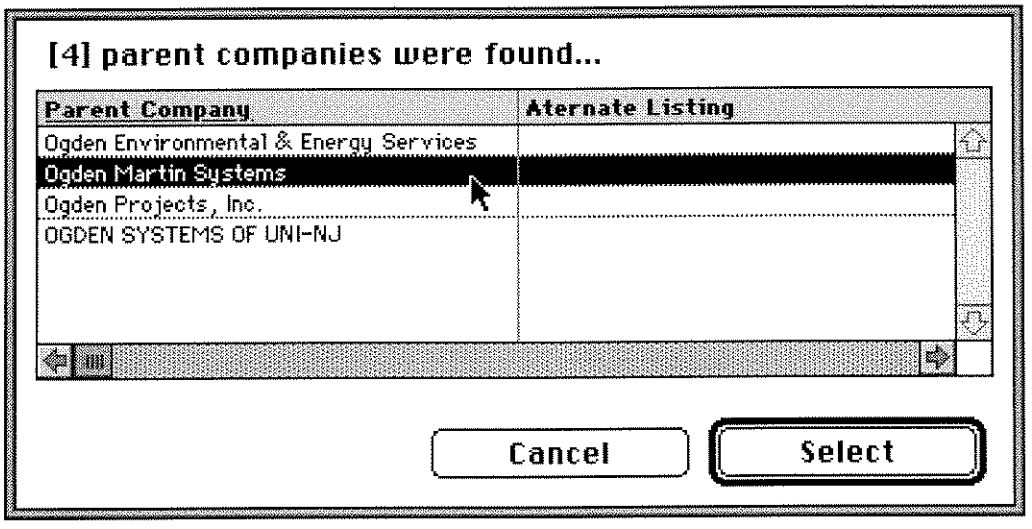


Figure 5

Click on the name that matches what you are looking for and press the select button.

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[2] See Appendix A for an full explanation of parents and children. Basically the parent is a single entry for each company name. The child is any number of sites associated with that company name. For example, Odgen Martin System is a parent, which has many test locations - children.

If no companies begin with the letters you entered, you will be asked if you wish to create a new record. If you are sure the company is not in the database, press the create button, and the following dialog will appear:

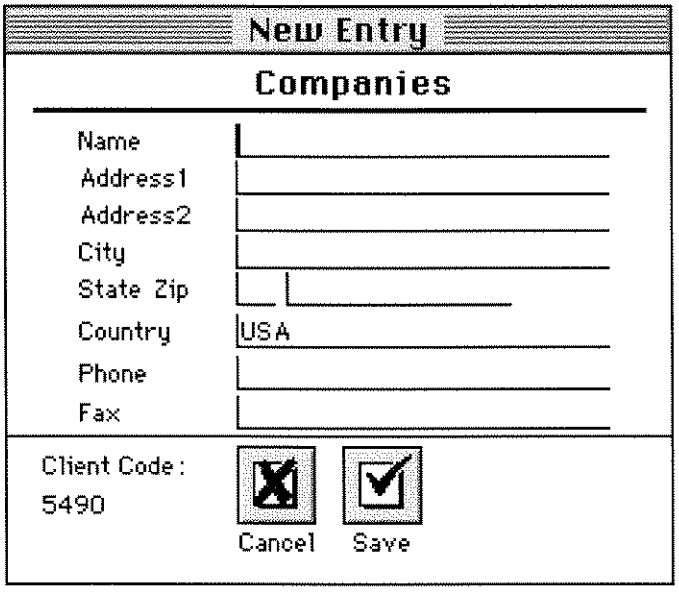

Figure 6

When you enter the information and press 'Save,' both a parent record (using the company name) and child record will be created.

If you do find the parent you are looking for and press the select button, you will be given a list of addresses associated with that parent. As shown below:

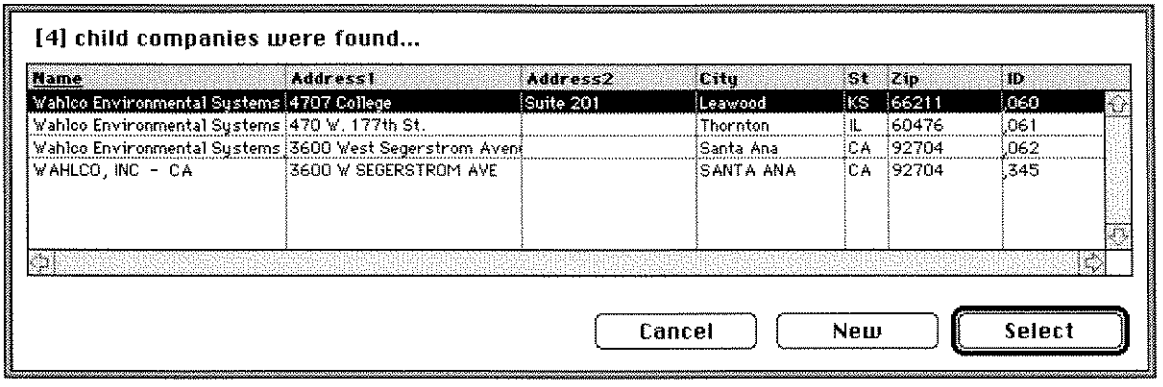

Figure 7

Click on the address you are looking for and press the select button, or press new to enter in a new address.

Part D - Other General Information

PO No. - Taken from project release.

Department - Taken from project release

Description - Taken from project release

Project Manager - The full name (user name/QuickMail name) of the project manager

Start date - Estimated start of the field work

Process - Enter the first few letters of the name of the process that is being tested. If the process can not be found, it must be first added to the process file. To enter a new process into the process file, press the process button on the file palette, and select the new record button. Eventually, you will be able to enter the processes directly from the project record.

If you find any errors, you should correct them.

Part E - Methods being tested

On the right side you have a list of all of the methods currently in the database. They have been divided into several categories which include :EPA, BIF, NIOSH, etc. Choose the category by clicking on the category popup menu and dragging down to your choice. If the method you wish to use is not shown, you may add it by clicking on the plus icon to the right of the methods list box.

On the left you have methods that are being used in your project. Once a method appears on the right side, you may add it to your project, by selecting the method on the right, and pressing the 'Add' button in the middle. To select multiple methods to add, hold down the shift key while clicking, then press the add button.

If you inadvertently add and incorrect method to your project, you may select the method on the right side and press the 'Del' button to remove it.

Report Information

If you click on the report information button on the bottom of the input layout you will be brought to the Report Information page which is shown below.

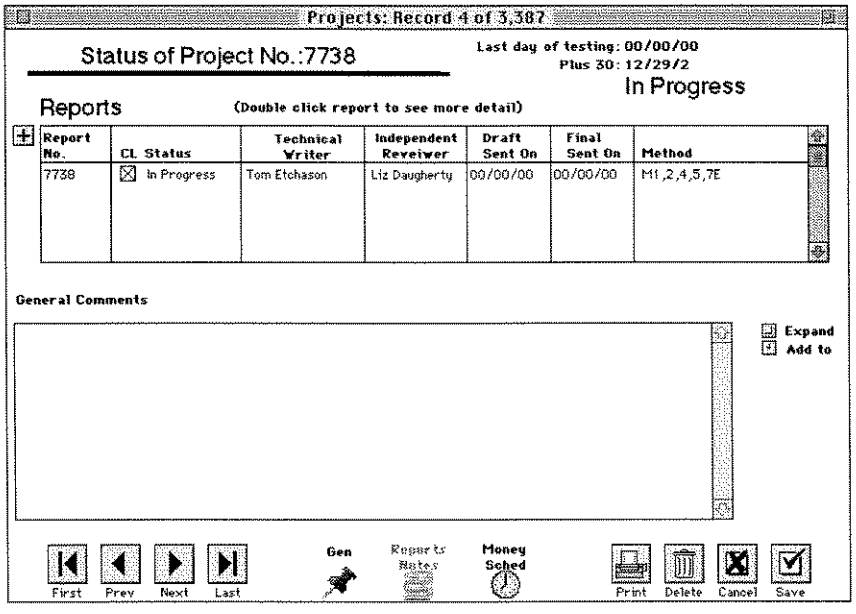

Figure 8

This is where the report information is stored and tracked. To add a report record to the database, press the plus icon on the upper left of the screen. You will be prompted with the following layout:

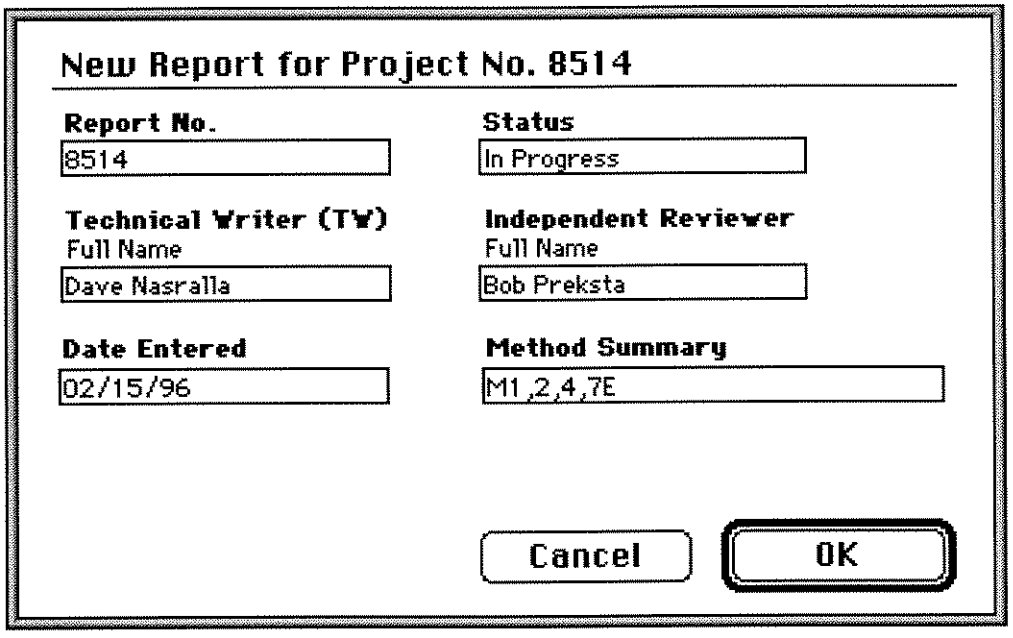

Figure 9

Enter the information shown. You can use the tab key to move to the next field, or shift-tab to back up. If you know in advance that there will be more than one report, number the first report with a '-1' at the end. If the report has been revised, then R1, R2, etc. should be added after the project number, e.g. 8514-R1. Example; for the third revision of the second report of project 9999, you would enter 9999-2R3.

Status should be selected from the options in a popup window that will appear when you tab to that field.

Technical Writer and Independent Reviewer should be full names. You can type the first few letters of a name and press tab. You will then be prompted with a choice of names. Always use full name for people.[3]

The method summary should be an 'M' followed by the method numbers, each separated by a comma (e.g. M1,2,3,4,5,7E)

The same should be done for any protocols issued for a project. The report number for any protocol is the project nimber followed by the letter "P." The nomenclature described above for multiple reports also applies to multiple protocols or revisions. Example; for the third revision of the only protocol for project 9999, you would enter 9999P-R3.

[3] When ever you are prompted to enter a full name, you can enter the first few letters and press the tab key. You will be prompted with all the names that match what you typed.

Once the report record is entered you can see detailed information on it by double clicking anywhere on the record. The detailed report layout looks like this:

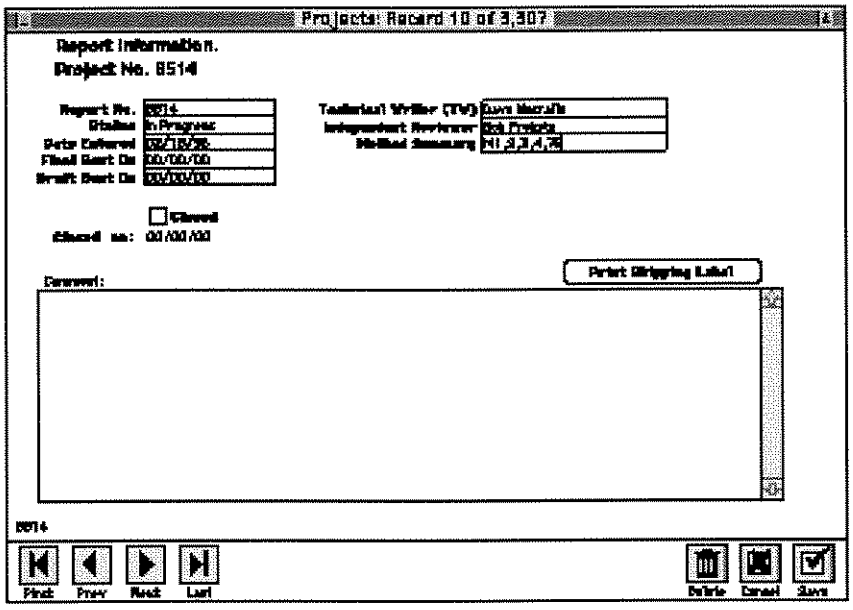

Figure 10

Comments should include location names, major problems with the report, reasons for major delays and other comments you think will offer valuable information about the report. When shipping the report, use the Print Shipping Label button. You will then be able to enter information on a shipping label as shown below:

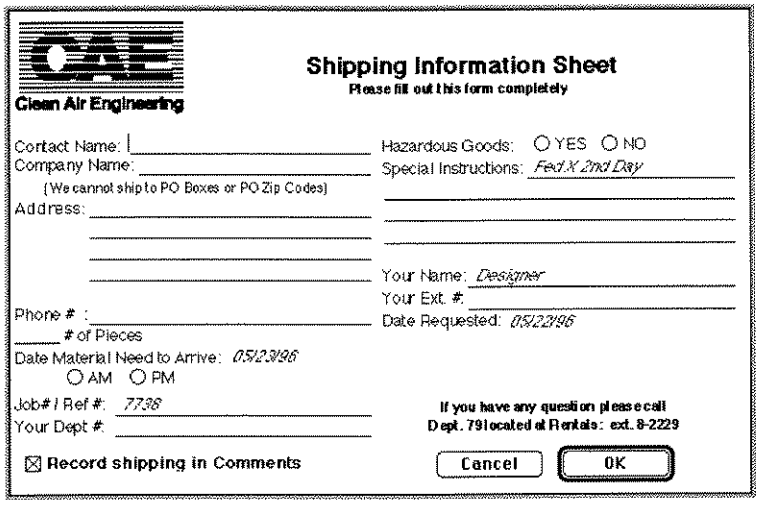

Figure 11

If the "Record shipping in comments" check box is marked, all of the shipping information will be stored in the comments field.

When the report is finished it should be closed by pressing the closed check box. When you close a report you will be reminded of what should be done before closing by this dialog box:

Figure 12

If everything has been done, check each of the boxes and press 'OK.'

Money and Scheduling

The last page contains financial and scheduling information. Press money and scheduling button go to the last page.

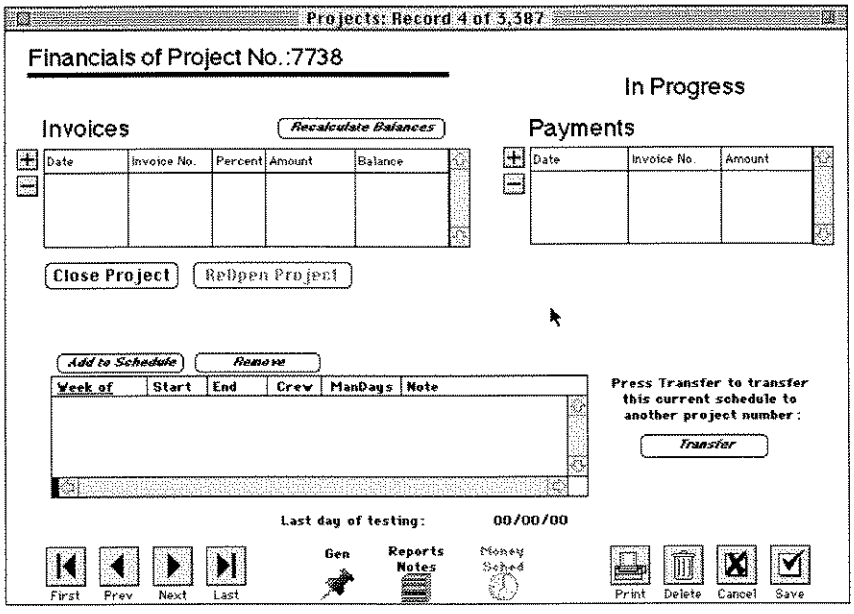

Figure 13

Enter and invoice by pressing the plus icon to the upper left of the invoices box. And enter the information below:

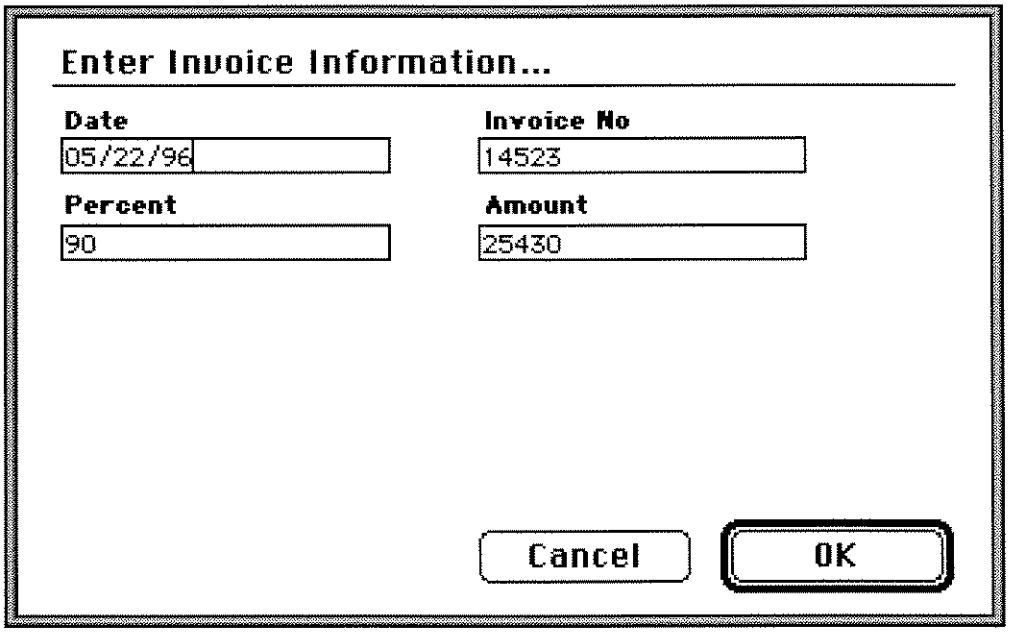

Figure 14

Press the plus button by the payments to enter any payments made.

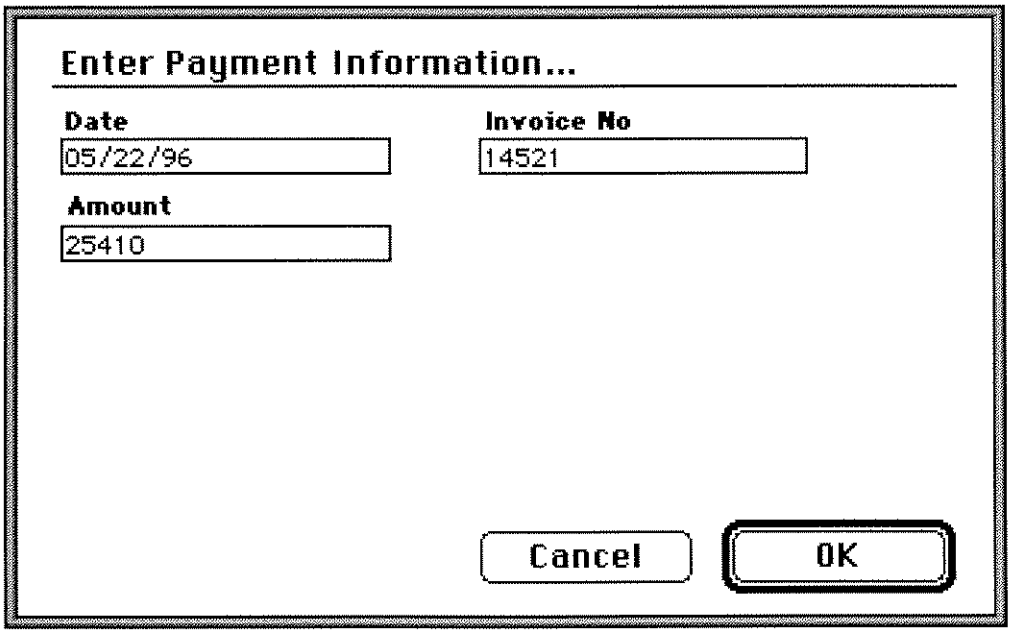

Figure 15

Lastly you will need to close the project when all is complete (i.e. reports are issued, and payments are receive). Closing the project locks all of the fields and prevents accidental deletion or modification. Press the close button and you will see:

Figure 16

If need be, the project can be reopened by Alison Millerick.

The scheduling portion of this page is of no immediate concern for Project Managers. Once a project has been added to the CAE schedule via the 9am planning meetings or through conversations with Craig Fox it will be added to the 4D schedule . So if you have gone through the proper channels to add a project to the schedule, you should check this area of the 4D project file to be sure it was scheduled correctly. At the end of the field portion of a project, project managers should always check this area to confirm that the schedule reflects the actual start and end dates. You should also verify that 4D has correctly calculated the last date of testing, shown directly beneath the schedule box.